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Cumulus Proceedings

ShangHai

Young Creators For Better City & Better Life 2010

Edited by
Yongqi LOU
Xiaocun ZHU

Cumulus 2010 Shanghai Conference

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LAY-OUT
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This proceedings collects the selected
papers of Cumulus 2010 Shanghai
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Innovation of Tongji University. All of the
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Federica Vacca   Paola Bertola

Fashion Artisan in Design Culture

An interpretative model

Abstract

Craft production is characterized by top manufacturing quality. However, there is no wide-spread perception of its value, therefore it is hard for this kind of production to enter the market. In this field, a design-oriented approach is essential. Design can establish a system of universally recognized values, and it can provide craftsmen with the tools to communicate the intrinsic quality of their work to the outside world. The relation between design and crafts becomes fruitful if consumers are able to understand and appreciate the excellence of a craft design production, by recognizing its uniqueness and added value.

The handicraft tradition, in all its forms, is therefore essentially a memory of customs and transmission of meanings. New languages must be found to confer a contemporary taste to manufactures, to avoid re-proposing passively the memory of shape and style, in order to preserve the identity as a positive heritage of the handicraft culture and to reconfigure planning and productive processes. Therefore, we cannot speak of a traditional production process of goods, but of a process that produces the value of goods themselves.

The focus of the paper is the study of knowledge, cultures, traditions and talent belonging to a place. The paper also aims to define the right conceptual and operational tools to increase the value of resources and to allow the reclamation of the proper factors for the identity of the local textile sector.

Keywords

Craft techniques, fashion and textile design, increase in value, implicit and explicit knowledge.

Slow & Fashion[1]

In all sectors of made in Italy, examples of designers-entrepreneurs are recurrent in the history of Italian businesses. This is a proof of the close connection existing between Italian culture and the Italian passion for the product. Although the

Milano Italy.market and production contingency is of course very different compared to the expansion period of made in Italy, "design companies" continue to be created today.

They are mostly very small enterprises, or actual micro-businesses. They are often classified as handicraft business, very distant from the arts&crafts model, and are much more common than what is usually thought. If, on one hand, they may be of little importance to those concerned with a strictly economic analysis, for those concerned with projects and innovation they are one of the most vital elements of our system.

Their survival is a key-factor in ensuring that our innovation potential is kept alive and strong. These businesses are characterized by a very distinctive level of design research and elaboration of new ideas; design is at the heart of the business and informs all processes. Their production is often very small-scale and is based on a sophisticated mix of advanced technologies and handicraft work.

Design is involved in all processes; it has a role in the process of connecting, and disconnecting, a given project with micro-production chains, selected according to creative, research and innovation objectives. Such network of "design-driven businesses" has direct and indirect relations with the rest of the productive system.

Although this network is seldom mentioned in the analyses and categories of the fashion system, it may well be one of its most strategic and distinctive elements.

Slow Design[2]

The big fashion brands of made in Italy coexist with a micro-business system that constantly regenerates itself, and can hardly be identified with existing, consolidated models. On one hand, it could be assimilated to the handicraft and artistic business system; on the other hand, this micro-business system is different to the handicraft and artistic business, especially in terms of its approach to the product. Its product is indeed the result of a very advanced research, also on the technical level, which can integrate handicrafts with items produced through highly advanced industrial techniques.

If, on one hand, this new kind of economy may seem of little importance if assessed according to traditional economic parameters, on the other hand it is highly relevant from the point of view of the economy of knowledge. Within this fluid environ-

ment of micro-businesses (which are sometimes one-man businesses), cutting-edge projects and innovation take shape. They are then promoted in new ways, through networking and informal channels, and may often become a resource for the creativity of important companies. Micro-businesses allow for a dynamic mode of research and a review of traditional languages, because they are free from the restrictions imposed by large-scale production, without necessarily being bound to the production of single pieces.

This experience is very similar to what happened in the agro-industrial sector during the last decade. Small or very small productions were revived and renewed by integrating new techniques and resources, so that a small number of businesses were able to reach global niches of market[3]. Slow culture, in its broad meaning, is the capacity of protecting and recovering local know-how through renewed production and promotion. This culture seems to be deeply-rooted in our country, not only in the agro-industrial field[4].

The value of tradition[5].

In the last few years there is a renewed interest in traditional techniques and productions, which return to the contemporary world with a new aspect and new functions. From the etymological point of view, the term tradition (from Latin traditiònem, from the verb tràdere: to transmit) means "the transmission of past generations' cultural heritage (i.e., laws, habits, memories, historical facts, etc.) by means of written documents or verbal communication[6] ".

This word is often used as a synonymous of custom. By custom, we mean the transmission throughout time, and within a given community, of the memory of events linked to the social or historical context, habits, rituals, myths, religious beliefs, customs, superstitions and legends. The cluster of traditions intended as material culture[7] (Miller, 1987) is identifiable with crafts production. This kind of production, therefore, becomes a founding element of the identity of a community.

In the recent past, due to its open rejection of standardization, crafts activities were viewed as hostile to modernity. Today, on the contrary, craftsmanship has become a model for post-industrial production, thanks to its unique character and personalized production that rejects today's "everything is the same" mentality. Crafts help defining the cultural identity of production through their ties to culture, memory and tradition, and by doing so they potentially become an element of innovation. Therefore, craftsmanship is "memory of habits" and "transmission of meanings". In order to preserve identity as a positive inheritance of crafts culture, it is necessary to re-structure design and productive processes.

New languages can thus be created, which can re-interpret crafts techniques with a contemporary taste, and avoid the passive reproduction of style and form. In other words, this process is no longer a traditional "production process" of goods, but it produces the value pertaining to the good itself. The value of the product is therefore less and less bound to its material qualities; rather, it relies on the symbolic, emotional or identity meaning that the consumer sees in it.

Design on the thread of tradition. An interpretative model[8] .

For manual arts in the textile sector, the relationship between tradition and modernity is crucial, in order for craft production to acquire a more modern and contemporary aspect. It is necessary to implement innovation processes aimed at the production of "new" goods, perceived as such by the market due to the way they look, their characteristics, performance or meaning (product innovation).

On the other hand, it is necessary to increase production activity by adding value to local specific identities, and to implement more sustainable processes that can be more flexible and fast in answering market needs (process innovation).

In terms of design, there are three possible interventions that can be performed:

_ adaptive actions refer to the adaptation of external know-how by transforming existing processes into different applications.

_ integrative actions refer to the integration of pre-existing know-how belonging to different production sectors.

_ generative actions tend to develop new know-how and competences.

Possible kinds of innovation connected to the material culture of craftsmanship can be obtained with a combination of these actions: (Re)projected tradition, (Re)interpreted tradition and (Re)innovated tradition.
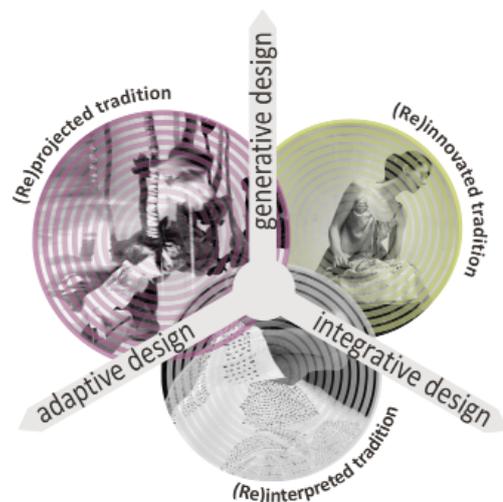
Fig. 1: Combination of interventions at process level, as interpreted by Federica Vacca, Politecnico di Milano, INDACO Department, Milano Italy.

(Re)projected tradition[9].

In (Re)projected tradition, production processes and textile techniques – from spinning to dyeing- are de-contextualized and transferred from the place of origin to new contexts with new codes. This is an adaptive/generative action because, on the one hand, existing crafts techniques are adapted to different needs, re-projected and removed from their original context; on the other hand, this transforming action can also generate new languages and new meanings according to market needs.

As a consequence of this action, the original identity of the process is inevitably lost. Indeed, the process is no longer per-

formed by expert craftsmen that inherited this know-how from past generation, but it is performed by new craftsmen/designers who learned these techniques and re-interpreted them by revisiting their concept and meaning. If techniques with specific identities are passively reproduced, the importance and meaning of craft tradition is at risk. In this context, the figure of the designer and the figure of the craftsman tend to coincide.

In a (Re)projected approach, the same individual, after having learned a certain know-how, is also able to re-elaborate, adapt and contextualize it according to a new mode of expression. The traditional craftsman, who produces objects to a purely practical purpose, is therefore replaced by the craftsman/artist. His or her work is informed by original creative models and styles, which give a new, personal meaning to the "culture of making", meant as a means of expression of one's own thought.

Valeria Bosco's Lasabui[10]

"My work is never-ending, and this is why it is so fascinating. I feel part of something that I can control, but which will never be entirely mine".

With Valeria Bosco, the art of textiles found new modes of expression, by combining elements of its own tradition with a mixture of different, remote languages. This is achieved through a balanced recovery and interpretation of the know-how typical of ancient cultures.

Bosco's design is based on the recovery of a skillful and mature handicraft tradition, in which signs of ancient cultures are rediscovered through materials. At the same time, her design is inspired by the artistic ability to discover her identity through expression, thus creating re-defined entities. Valeria Bosco has always put forward her personal research by re-interpreting ancient techniques with a contemporary taste. In doing so, she has often changed the nature of textiles, which were given new and different symbolic meanings in order to pursue textiles' expressive and emotional potential.

Lasabui is a craft workshop specialized in the decoration of fabrics with handmade techniques. They employ resist-dyeing techniques that come from ancient traditions in textiles: Shibori, Batik and Tie&Dye. Shibori is a Japanese method and is considered the most noble among resist-dyeing[11] techniques. In particular, Bosco re-interprets the Clamping Shibori technique and detaches it from its ancient tradition. First of all, fabrics are folded like in the Origami technique; then they are wrapped around geometric wooden blocks of different size. These are then pressed with grippers and soaked in dye, which penetrates the folded fabrics and creates geometric patterns with a sophisticated visual impact. The Tie&Dye technique is based on a similar concept. Reserves are obtained through bindings and knots. Color cannot fully penetrate these bindings, therefore creates a very refined irregular effect. In the better-known technique of Batik, reserves are obtained by applying melted wax on sections of the fabric, which are preserved from the dye and will undergo further decorations and dyeing.

"In the dyeing field, beaten tracks that achieved excellent results are hardly abandoned. But the real challenge is to find new decorations that are not directly linked to our culture. Through my work, these techniques are given different shape and languages; although they may be less recognizable, they are more contemporary".

Valeria Bosco worked with the most important fashion brands, including Prada, for the 2004 Spring/Summer collection and the 2004/2005 Fall/Winter collection. The 2004 Prada style, with its vintage taste, evokes the Fifties. The wide, full skirts, decorated with Mediterranean images and patterns, the ankle-length trousers and the delicate silk shirts characterize this exclusive, retro women collection. Fabrics were also treated with peculiar techniques. Each item was treated with Tie&Dye and Shibori techniques, which gave the collection its unusual, innovative character, absolutely creative and original. Through bindings, folds and a series of resist-dyeing processes, she created delicate and refined textures, based on color shades ranging from beige, to brown, to blue, red and green, in tune with the vintage and nostalgic ideal sought by Miuccia Prada. The result was extraordinary, a perfect contamination between two parallel worlds. On one hand, the display of ethnic and folkloristic techniques, with a traditional touch, conveyed know-how and a knowledge of fabrics and ancient dyeing techniques. On the other hand, the collection revealed the talent and creativity of design. The minimalistic and essential shapes, lines and fabrics are the characteristics of a kind of design that succeeded in perfectly combining these two, seemingly distant worlds.

Fig. 2: Lasabui by Valeria Bosco + Prada. SS collection 2004.
<http://www.style.com> [12/09]

(Re)interpreted tradition[12]

In (Re)interpreted tradition, manual traditions are recovered by partially removing them from their original context. While the productive know-how continues to have its roots in the local territory, the design process is done beforehand by an external figure that projects the local know-how towards new results and different markets.

This is an adaptive/integrative action because, on the one hand, it adapts handicraft productions to design strategies dif-

ferent from those that traditionally belonged to the territory, thus producing innovation. On the other hand, it also integrates the know-how connected to different design strategies. In this case, techniques do not lose their identity; rather, the final product is improved by the addition of new meaning belonging to new design contexts.

The role of the designer is to support the craftsman in the process of evolution of formal archetypes, by revisiting together the elements typical of manual techniques. The product resulting from this collaboration is closely linked to the traditions it identifies with. As it does not lose its characterizing values and identity, it becomes an innovative re-interpretation of the past driven by very contemporary criteria and objectives.

If not supported by strong planning strategies, these techniques and the cultural heritage they come from are at risk of becoming copies of themselves, and a passive reproduction of a now de-contextualized know-how.

Yooj by Jeong-Ah Yoo[13]

My world is a continuous contamination of different cultures and ancient knowledge".

This is how fashion designer Jeong-Ah Yoo, who was born in Korea but lives and works in Milan, describes her world – a contamination of elements from different cultures and ancient know-how, linked to memory and to the past. With the brand Yooj, Jeong-Ah Yoo's aim was to create a collection of precious items with a multicultural identity. Indeed, the textiles belonging to Yooj fashion collection and home collection were inspired by Korea, Italy, India and Bangladesh.

All the textiles were manufactured by groups of Indian and Bangladeshi craftswomen, who master spinning and embroidery techniques belonging to the tradition of these two countries. The items of clothing, on the other hand, are designed and manufactured by hand in Jeong-Ah Yoo's workshop in the center of Milan. Thanks to their simple lines, both the textiles and the final products are characterized by a neat and minimal style. At the same time, elaborated and graceful embroideries, displaying a perfect balance between fullness and void, embellish the collection and enhance each single item by making it unique and personal. The exquisite textiles of the winter collection range from silk to cotton, from cashmere to wool. Colors are mainly neutral from white, to cream, to black, in order to enhance Yooj's distinctive trait, namely decorations and embroideries.

"I have always loved embroidery. I came in contact with the beauty and value of the Indian and Bangladeshi craft production, this why I felt the need of beginning a 'pure' search to discover textiles that could somehow stimulate and inspire me. At first, I was not interested in clothes. This aspect became important later, when I realized that it could have been interesting to produce clothes together with these wonderful craftswomen."

Each group of craftswomen working with Yooj specializes in a fully original and unique technique, which gives the collection its exclusive touch. In India, embroidery is very similar than in the Far-East. As in Chinese or Korean embroideries, patterns are very elaborated, colorful and difficult to make. Jeong-Ah Jeong-

Ah Yoo's favorite kind of embroidery is Kantha[14]. Kantha is a fine, running stitch which, through stylized images of nature from the Indian heritage, conveys Yoo's meticulous search for fine, elegant and sophisticated textures. Chikankari, the so-called "shadow embroidery" (traditionally white thread on white fabrics), was used to create a refined, ton sur ton texture for silk shirts of the summer collection, and for belts, begs and other accessories of Yooj home collection. The use of Zari or Zardosi makes textiles even more sophisticated; clothes items or accessories can become even more elegant and refined thanks to the use of gold and silver threads, to which precious stones are sometimes applied.

Yooj collection is out of time; it only includes single pieces and concentrates on a particular kind of processing and experience. After having distanced herself from trends and the passing seasons of fashion, Jeong-Ah Yoo chose to focus on the quality of crafts, "which needs to be allowed all the time necessary for creation". This is how she created a unique and coherent collection with a very personal taste, destined to a market niche that can appreciate the timeless quality of her creations.

Fig. 3: Atelier Yooj by Jeong-Ah Yoo.
<http://www.yooj.com> [12/09]

(Re)innovated tradition[15].

In (Re)innovated tradition, traditional processes remain strongly tied to their original territory, therefore become an innovation tool for the local community.

This is an integrative/generative action because, on the one hand, there is an improvement of handicraft skills according to market trends; on the other hand, between different working areas there is an exchange of know-how, applications, codes and languages that leads to a renewal of local traditions, both in terms of project and in terms of product. It is crucial to define a specific strategy that can combine memory and local identity with innovation, according to new codes of expression. In turn, these new codes of expression can activate cultural changes that produce innovation and development, and which bear positive consequences for the local territory. Indeed, the greatest advantage of this action is precisely the involvement of local communities with shared identity, which actively contribute to cultural change.

This process is the starting point to obtain an innovative product, both in its material aspect, improved by a specific design, and in its immaterial aspect by adding new meaning and new progress perspectives. Moreover, the emotional dimension of tradition creates an evocative context within which the product

is also an expression of local history.

Antonio Marras[16]

"Tradition is not a model to be copied, but the support upon which ideas take shape. There is no modernity without tradition". This is Antonio Marras' philosophy, an artist/craftsman/fashion designer who pioneered the recovering of Sardinian handicrafts. Marras was born in Sardinia and there is where he decided to live and work, getting away from big fashion centers like Milan and Paris, where Marras presents his prêt-à-porter collection and Haute Couture collection for the Maison Kenzo. Marras style is very attractive and based on a distinctive creativity, connected to tradition but also linked to other cultures and epochs. Marras' style is dominated by manual skills and knowledge, and is characterized by layers of fabrics, embroideries and decorations. Therefore, his items of clothing are often unique as the creations of ancients dress-makers. In Marras' collections, details and decorations are so many that the poorest materials become rich through intersections, additions and overlaps. Free seams and tangled threads, inspired by Maria Lai's work[17], are some of the elements that define the essence of Marras' style: incompleteness, irregularity and hand-made quality. As a consequence, techniques becomes fundamental and ornament becomes the leitmotif of Marras' idea of clothes.

"Through ornaments, form 'becomes expressive' and conveys emotionally-involving messages, more than the mere structure could do" (Altea, 2003, pp. 48-50).

The Antonio Marras collection is produced by the textile manufacturer Gibò, from Florence. Among its clients, John Galliano e Viktor & Rolf. The Antonio Marras collection is accompanied by another collection called Laboratorio, half way between prêt-à-porter and haute couture, a limited series produced entirely in Sardinia and then distributed all over the world, with sales peaks in Japan.

Therefore, Marras needs the handicrafts skills he finds in the women-tailors from Ittiri, a small village near Alghero, heirs of the Sardinian art of embroidery. Thanks to their work, Marras re-discovered ancient techniques such as folding[18], and revived those kinds of ancient know-how threatened by mass production.

With his fashion shows, Marras tells us about a journey through time, and about an encounter of memories; he tells us insights from his own life and that of people around him, mixed with quotations from art and theatre. Together with Sardinian culture and the recovery of manual skills, these are the founding elements of Marras' unique creative language.

Marras is the narrator of his own land, of abandoned and unguarded traditions. His attitude towards the past is that of recovering forgotten elements and bringing authentic stories back to life, with strong roots in their place of origin (Mancinelli, 2006, p. 73).

Narration is a fundamental element in Marras' collections. Behind them there is always a narrative cue that inspires visual connections and original encounters. The narrative potential of clothes and ornaments is enhanced by the catwalk setting, a stage that introduces the public to an emotional narrative told with truly spectacular performances.

"When I prepare a collection, I always start from the desire of telling a story. I choose the fabrics I like and I gather ideas that are turned into what I would like to tell, as if they were a script" (Mancinelli, 2006, p. 73).

Sardinia, therefore, becomes Marras' source of inspiration and something to be expressed through his clothes. Above all, Sardinia becomes the basis of the fashion designer's project. The constant call to origins is no longer expressed by memories of an ancient culture narrated through visual and narrative images; rather, it becomes Marras' modus operandi.

Indeed, Marras' recent collections were inspired by more global places and figures; in the 2006 Spring/Summer Boots collection there is reference to the music of Chopin and Tchaikowsky, and to the atmosphere of the Bolshoi theatre. In the Fall/Winter 2008/2009 collection, and in the Spring/Summer 2009 collection, he took his inspiration from Chagall's paintings and from Parisian's sculptor Camille Cloudel.

In this different context, the art of Antonio Marras is no longer based on the permanent evocation of his homeland, but on the techniques that he applies to his creations: the refined decorations, the overlaps of textiles and the use of handicraft embroidery that is the characteristic of his design. Now, it is precisely his acknowledged style that evokes local identity and culture. Traditional know-how can tell new stories through its codes of expression-new tales associated with a fluid conception of the past and with the designer himself.

Fig. 4: Antonio Marras. FW Collection 2006/07. <http://www.style.it> [12/09]t

Analysis of the model[19].

The analysis of the model and of the best practices connected with "tradition" are aimed at understanding if design can effectively revive handicraft processes, and how can these actions influence local networks.

The first aspect is to be found in the (Re)projected approach, in which the designer tends to coincide with the figure of the craftsman/artist. Through his or her work, traditional techniques are re-interpreted and re-elaborated both in their form and in their concepts, thus detaching them from their original culture. In this context, it is more appropriate to talk about a re-definition of traditional processes, rather than about an enhancement of cultural contexts. The connection with territory is replaced by new modes of expression; traditional processes are renovated by the design attitude of the craftsman/artist. Instead, the production of goods is now inscribed in an artistic and creative perspective. It underlines "an ethnical aesthetics, or an aesthetical ethnicity, which usually

lacks any practical purpose and sometimes pretends to be aimed at the production of single pieces (…), while at the same it claims a direct connection with traditional techniques, materials and styles" (Angioni in Caoci, Lai, 2007, p. 11).

In the other two models, instead, design seeks to re-discover local contexts, and the cluster of material and immaterial values connected to them. This approach is more clearly oriented towards the recovery of techniques and experiences that come from an implicit know-how[20] (Polanyi, M., 1966) typical of a certain territory.

A shared knowledge (Nonaka I., Takeuchi H., 1997) relationship is possible when the dialogue between design and crafts is based on a true exchange, capable of creating a new kind of knowledge without undermining the nature of each of the parties involved. Such relationship combines the explicit planning nature of design with the manual skills and implicit knowledge of the craftsman; designer and craftsman would therefore work in constant collaboration in the product creation and development.

In (Re)interpreted tradition, renovation actions are explicit, because they create a net of relations between different approaches and know-how (artisans and designers). On the other hand, in (Re)innovated tradition they are implicit, as they try to interpret local identity and to involve the local community in this process.

In both cases, the figure of the designer and the figure of the craftsman are separated. Each in his or her own way, they work together towards the production of a final product that encompasses not only the designer's planning attitude, but also the manual skills and personality of the craftsman. The product obtained, therefore, "belongs" to its territory as it embodies all the symbolic, evocative and emotional values of local culture.

In these two approaches, the implicit know-how of the craftsman is not undermined by the explicit knowledge of the designer. On the contrary, there is an exchange of skills and attitudes between these two figures, in order to create a new kind of common knowledge for a common experience that could be repeated in time.

In conclusion[21] .

The choice of analyzing handicrafts in the light of a discipline like design, had its roots in the need of contributing to the project culture, to its promotion and fruition.

The insights outlined in this article are to be viewed as a preliminary, theoretical analysis of the necessity of reviving traditional techniques. Indeed, they could be a powerfully distinctive element in the object society, a source of new and original modes of interaction between the two disciplines of design and handicrafts. Through this process, the codes and languages typical of traditional techniques and culture are re-structured. The project and productive processes of goods are renovated, while the skills and techniques associated with local material culture are given new value.

Such renovated production processes can potentially be repeated in time, provided that the positive interaction between design and handicraft is explicitly codified, and that new, non-

univocal models capable of initiating this kind of processes are proposed.

The core idea of this article, and its most significant contribution, is the proposal of "operative models" and the analysis of their potential, positive consequences on the system of relations between design and handicrafts.

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Notations

1 By Paola Bertola, Politecnico di Milano, INDACO Department,

2 By Paola Bertola, Politecnico di Milano, INDACO Department, Milano Italy.

3 Italy witnessed the birth of movements such as Slow Food. Slow Food is now well-known internationally as the movement that placed at the centre of food production and consumption the defense of territorial diversity, specific identity and typical products.

4 An interesting debate is currently taking place among multidisciplinary communities on the concept of "Slow" as a project, rather than simply as a movement connected to food. See papers presented at the seminar "Slow+Design, Slow approach to distributed economy and sustainable sensoriality", International seminar held in Milan, 6th October 2006, organised by Università di Scienze Gastronomiche Pollenzo, Slow Food, Politecnico di Milano, Istituto Europeo di Design, Domus Academy, Milan, 2006

5 By Federica Vacca, Politecnico di Milano, INDACO Department, Milano Italy.

6 Translation of the definition of tradition from "Il Grande Dizionario Garzanti di Italiano", updated edition, 2007.

7 To the Marxist notion of consumption and mass production, according to which people are alienated from the objects they produce, it is possible to oppose Daniel Miller's view. In his book "Material Culture and mass Consumption", Miller develops the concept of "material culture", intended as a process of creative consumption that can establish a tie between people and objects of consumption. According to Miller, authentic goods can be obtained not only through direct production processes, but also through a process of personalization of consumption. If goods are identified as one's own goods, they turn into "unique objects"; their value originates from the personal relation established with an individual who, through the object, identifies himself with a process of "material" signification.

8 By Federica Vacca, Politecnico di Milano, INDACO Department, Milano Italy.

9 By Federica Vacca, Politecnico di Milano, INDACO Department, Milano Italy.

10 This paragraph is based on the interview made by Federica Vacca (Politecnico di Milano, INDACO Department, Milano Italy) to Valeria Bosco, designer of Laboratorio Lasabui, and on several press release texts made available by the designer herself. Whenever a specific footnote does not indicate otherwise, any quotation in this paragraph is based on Bosco's words during the above-mentioned interview by the author.

11 Resist-dyeing is a dyeing technique for fabrics and yarn, which consists in rendering part of the cloth surface dyeing-proof, so that the dye cannot penetrate. Thanks to this technique, the patterns and textures obtained are always different, because the preserved (or reserved) part maintains its original color, while the exposed parts absorb the dye. It is also possible to perform further dyeing of different colors, thereby creating very complex and refined patterns. Dyeing-proofing is obtained with different methods and materials, mainly of three kinds: tying the fabric on itself, or on various supports such as wooden blocks (Shibori or Clamping Shibori), tying the fabrics with strings, ropes or other materials (Tie&Dye); finally, applying wax or other kind of natural paste on the fabric, to prevent the dye from reaching all the cloth (Batik).

12 By Federica Vacca, Politecnico di Milano, INDACO Department, Milano Italy.

13 This paragraph is based on the interview made by Federica Vacca (Politecnico di Milano, INDACO Department, Milano Italy) to Jeong-Ah Yoo, designer of Yooj, and on several press release texts made available by the designer herself. Whenever a specific footnote does not indicate otherwise, any quotation in this paragraph is based on Jeong-Ah Yoo's words during the above-mentioned interview by the author.

14 Kantha is a kind of embroidery made of small stitches that look the same both on the front and on the back of a cloth. It is used to stitch together two cloths, or as a decorative motif. In the Indian tradition, this technique was invented to stitch together textile leftovers, which would have otherwise been useless. Afterwards, the skills and creativity of Indian women turned it into a refined embroidery that illustrates short stories.

15 By Federica Vacca, Politecnico di Milano, INDACO Department, Milano Italy.

16 This paragraph is based on the interview made by Federica Vacca (Politecnico di Milano, INDACO Department, Milano Italy) to the head of Antonio Marras' press office, and on several press release texts and other documents from the Circolo Marras private archive, in the Antonio Marras Showroom, Milan.

  Maria Lai. Sardinian artist who studied sculpture with Arturo Martini. In the core period of her career in Ro

17 Maria Lai. Sardinian artist who studied sculpture with Arturo Martini. In the core period of her career in Rome, she pursued a very personal search for community ethics and the myth of narrative. Her interest towards feminine manual skills and towards popular culture inspired some of her fascinating works such as Geographies, maps embroidered on fabrics and velvet, and Sewn Books: at first undecipherable writings, they then become fairy-tales told through sequences of images and patchwork.

18 Folding is a textile technique that consists in the creation of small, identical folds. Folding was handmade by applying horizontal basting with strong cotton thread at 2 cm distance. The basted skirt (infilada) was then soaked in warm water so that the fabric could slightly felt and the folds could settle in. The basting was only removed, and the skirt finally worn, after several years. When folds would naturally wear out (s'iscorriolaìada), or after any washing or dyeing with darker colors, a new basting had to be made.

19 By Federica Vacca, Politecnico di Milano, INDACO Department, Milano Italy.

20 A crafted object is the outcome of a implicit knowledge (Polanyi, M., 1966), internalized by the craftsman, whose skills cannot be easily conveyed through verbal communication. The technical aspect of such implicit knowledge consists in the know-how needed to master a specific technique, as well as the processes that are the expression of a way of working and "making" objects linked to specific local territories and historical traditions.

21 By Federica Vacca, Politecnico di Milano, INDACO Department, Milano Italy.

Jacqueline Otten   Michael Krohn

Regional Knowledge and Global Design

The Better You Look, the More you see…

Abstract

Despite the fact that modern design seems global, the structures of the design process reflect a differentiation of cultures. Starting in the second decade of the new millennium, a re-orientation of aesthetics results with new boundaries is being drawn. For design, this signifies a revival of traditional forms and materials, and at the same time though, it strengthens the integration of popular culture in order to react to the Modern Age.

If this sets the "mass production" of unique pieces in motion, "New Regionalism" is the counter-movement to mass customizing and marketing - and thus undermines the philosophy of brand identities. It brings "true creativity" into the product culture. It is a given fact that in this paradigm shift the role of the designer will undergo great change. This paper attempts to resolve design development into a number of perspectives that involve the rediscovery of crafts and an exchange among different cultures of knowledge.

KeyWords

Regional Knowledge…

Toward the end of last century, Bret Easton Ellis wrote an anti-novel novel, Glamorama, which expresses his cultural pessimism: With the rise of the masses there are no longer protagonists; there are only chorus. What Ellis meant with this, is a loss of innovative potential and a loss of the personal handwriting. Why this?

With the entrance of the industrial revolution, the speed of change could be realized as a principle of design. It is the speed in our society that results in a double matrix of desire and obsession, and even when a design line is almost timeless, it boasts with the paradox of speed. Viktor Horsting from the Dutch fashion design duo Viktor & Rolf comments on this in a newspaper: "it is a doubling, we want to participate, but at the same time escape." [1]

In this last decade designers do attempt to escape from that what they had provoked for themselves: actuality, seriality, consuming. Design succeeded to establish a venue for "deceleration" and viability – and I would like to look into the future to see if this development perhaps results in a new serial design, which, nevertheless, is subject to the dictates of the market. It is about the antagonism when wishing to create and needing to produce, as Francois Baudot found out [2]. He describes this phenomenon as the two antagonistic poles of our (design) culture. Despite the fact that modern design seems global, the structures of the design process reflect a differentiation of cultures, the fact that we live in an age of globalization makes us obviously more aware that a true use of local identities can give us strength.

When local and regional identities dissolve, we like to grasp the essence of herited roots, for example traditional skills. A good example is Yamane Hidehiko, a professional dressmaker that uses traditional textile techniques in his label "Evisu". Jeans are being produced on old looms, in traditional colour techniques. Each piece is unique, a contradiction as precisely jeans wear is a garment that is highly recognized as mass production and uniform perse.

With this change of perspective, the interest in the materials and in the process itself, but also the "creating of meaning", has increased. The 21st century has developed a philosophical age with completely new approaches and qualities in design. From this, a re-orientation of aesthetics results with new boundaries can be drawn and in this, we truly can learn from Asian designers. Their products signify a revival of traditional forms and materials, and at the same time though, it strengthens the integration of popular culture.

Culture is defined as being not in a static state, but rather as a process of expropriation and appropriation. From the perspective of globalization people no longer live in separate cultures but they live culturally, and several terrains are interacting simultaneously and with one another (music, sports, but most of all the media), they form parallel trends. This culture reflects the aspect of the production of meaning, endowment of life, and identity construction. And it abolishes the separation of the design- and production processes. Starting with perceptions, products are transformed or modified. "Aesthetic experience" could be the new design term. The structure is extremely individual, rejecting mainstream cultures, difficult to objectify, and appears to be in contradiction to our world of mass production, where globalisation is converted into an every-day aesthetic.

Our history or herited roots - and how that history is understood – are of important influence in contemporary design

and international relations. To examine history and its interpretation works as a navigator for making sense of contemporary society. I would like to resolve this development into a number of perspectives that involve scientific and economical aspects. In the association of craft with life style the question arises whether the consumer appears to be the creator, and how the designer defines culture. It is a given fact that role of the designer and the designs themselves will undergo great change. It frees the way back from the series to the single piece. If this sets the "mass production" of unique pieces in motion, then the counter-movement to mass customizing and marketing - and thus the undermining of brand identities starts. It brings "true creativity" into the product culture.

In design education we draw 3 territories that are important because they add and drive forward this change, as they are the platforms where we globally can find together and bring in our local perspectives:

1. The Slow Design Movement
2. Design Thinking Complexity
3. Bricolage

1. The Slow Design Movement: Handwork

In a society that is rich in terms of money and poor in regard to time, it seems a contradiction to invest lots of time on hand work, especially when it is possible to buy those goods in a proper quality to a descent price. But a re-orientation on craft skills and regional aesthetics seems to be needed in a world of complex design systems and subjective consumers' needs.

The rediscovered art of handcraft is celebrated in for example stitches and fabric of quilts. Slow design is a reaction against modern ways of living and consumer patterns. It focuses on low-tech procedures and craft production methods, espouses environmental concerns and counters today's throw-away culture with a make-do-and-mend mentality. The handcraft itself, like stitching, can be an activity of calmness and meditation, and this experience is new to a generation grown up in fast-lane life styles.

„The repetitive co-ordination of eye and hand aid contemplation, as does the investment of time" says Sue Prichard, curator of the V&A show on British Quilts, in an interview with the Financial Times [3].

Stitching and knitting suddenly become more visible, more inclusive and performative; it is not a hidden activity in the home anymore but enters professional ateliers. It also implicates social activities that were presumed lost as a result of both industrialization and modernism. The movement needs to be seen in the context of an increasingly global and impersonal economic world, in which the individual feels disenfranchised.

It is the internet that reveals the global enthusiasm for e.g. quilts, bringing together quilt festivals in Tokyo and Houston. This Universal design is safe and simple and tells us that though we are all different, it needs things that can be used by everybody. This trend is only seemingly rejecting technologies; glocal knowledge can be exchanged in worldwide subcultures because of technology.

2. Design Thinking: Brain work

Paradoxically, because of digital media, the slow design movement can be combined with the rapid design interventions as they were developed in „design thinking". This methodology addresses social problems, not as the Bauhaus movement understood, but as for example the company IDEO is looking at wider social issues. Design thinking takes an interdisciplinary approach to achieve its aims within a limited timeframe and with simple regional resources. It enables site-specific research to be done more quickly and in more depth, by demonstrating key changes to users who experience them rather then simply discuss them.

Here the design process shows a concatenation of problem specifications, planning phases, and design results with functional simulation, synthesis, and final realization. As in the design process the "why" and "how" are clarified in solution-seeking processes, the "what" represents the innovation factor and can turn back to traditional crafts.

Surely it is of danger, when handcraft stands for a self-referential system, relates only to itself and does not answer the question concerning the "what" as innovation. But when the initial object "what" is analysed in the context of its use and/or usefulness, the material as well as the form and the perception can profit from the results of the analysis. It is not to trivialise complex situations, it is about separating complex questions to give useful answers.

„Local craft techniques can help because they are multi-layered, complex signifiers of personal and collective narratives and experiences", it says on the Japan Society website [4]. The author Rose George, together with Gunnar Baldwin, water efficiency specialist, explores high tech and eco innovation in the Japanese bathroom, and the prospects for their wide adoption in new designs.

Design thinking as a new strategy can formulated as limited planning, adaptiveness, with an emphasis on "do it yourself" which asks for small teams with multiple skill sets. Added to this is a small budget and the release of the project in due time, which means as soon as possible.

It is the opposite of the large scale and top down-organized projects that need Gantt charts and too many stakeholders, projects that often lead to escalating requirements and complex dependencies High risk, big teams and almost scary budgets are the opposite of design thinking.

3. Bricolage: Personal intuition

Panagiotis Louridas stated that in design as bricolage "anthropology meets design thinking "; it is an identity formation [5]. Both traditional and contemporary designs are forms of bricolage. The re-evaluation of traditional techniques and skills can create products that have a universal appeal. In "the culture of knitting" Joanne Turney describes bricolage as: "reference from a variety of existing visual sources, collecting and collating them to create a "new" visual whole, which remains open to interpreta

culture "reference from a variety of existing visual sources, collecting and collating them to create a "new" visual whole, which remains open to interpretation" [6, p.77].

Machines produce products cheaply and quickly. But machines cannot copy the human hand work, the production is evenly. "In our days, the bricoleur is still the one who works with his hands, using indirect means compared to those of the craftsman… It is important that the incidental, in the guise of the use of indirect means, is the notion that has been retained: the bricoleur makes do with what's there, with what he encounters. In that, he differs from the engineer", Louridas states. Bricolage can be seen as a subversive act, a socio-political commentary through creativism and Do it Yourself culture. It has something to do with being part of a guild system on one hand, but largely independent workers on the other. Workers that are occupied in their own homes or studios, dominated by seasonal rhythms and needs instead than by the market.

As part of the symposium "Technology & Tradition in Contemporary Japanese Architecture"on February 2004, craftsmanship & the use of old & new materials was discussed with panellists Kengo Kuma, and architect, and Terunobu Fujimori, Professor at the Institute of Industrial Science, University of Tokyo. Question: "Both of you make unexpected use of materials. Is there anything you'd like to try that you haven't tried yet?"

Mr. Kuma: "a plastic curtain. The shredded kind used in the factory or warehouse that is soft, like the skin on the body."

And Prof. Fujimori gave the, for me, most far going and border crossing idea: Fire. "In Japan when there is a fire, it will be big, because wood is used in houses. But after a fire, we can see a new building. I do not know how it can be used, but I would like to try."

A Design University is not only interested in results, we explore how design methodologies influence the culture of goods, crafts and industry. Having all previous stated observations and developments in mind the question occurred, how in design education the different attempts of creative processes affect the regional or global design culture. In a long-term collaboration (5 years) with Design Universities in China we observed and compared regional cultures, wisdom and the globalization effect on design thinking, the use of media and the creativity of students. How is craftsmanship connected to the design process? Which use of materials? Is there a significant difference in use in the eastern and western culture?

To find answers to these questions, video observation and interviews with students continuously accompanied the creative work phase. The observation revealed significant differences in negotiating ideas when generating design concepts: both Chinese and Swiss students use objects, sketches and gestures to communicate ideas, but instead of verbal argumentation, Chinese design students sought proof in visualizing and adding alternative propositions.

Conclusion:

Designing is a transformation process that deals with the physical presence of an object: the new approach on crafts, over-

looked until now, has the power to bring us to a stop, to make us focus and be more aware of what is surrounding us. Its obvious existence in our everyday life has the ability to transform us.

The questions of bricolage, slow design, and design thinking – even irony and kitsch, open new perspectives on the crafts movement as a modern tool, then it seems that future oriented solutions demand simplicity, integration in every day life and some kind of personalization, which makes designers eager to adopt traditional techniques as well as the latest production methods.

Design nowadays means teamwork, and if these teams are internationally configured, it can make design more successful. The inspiration from the other cultures results in unique shapes, new functions and contexts, patterns or meanings.

This knowledge gives us one more way to look at things and it symbolizes the beginning of a new design era. "The better you look, the more you see": The essence of New Regionalism in Industrial Design in Asia and Europe is that innovative design results from the connections between societies, globally and across cultures. And the tension between global and local is about people, not merely about craft techniques.

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Otto von Busch (PhD)
Neighbourhoodies
Courageous Community Colours, Blazing Bling, and Defiant Delight

Abstract

In today's "flat" and globalized world there is a simultaneous stretch of two opposite tendencies, closely interlinked. One is a flattening global movement seemingly eliminating cultural differences, the other puts emphasis on the urban localities, cultural identities and spatial haecceities, occasions of particular thisness. In a time of liquid consumerism (Bauman) the habitus (Bourdieu) seems to frame a problematic identity Umwelt (von Uexküll).

As we see a global culture appear across the planet identity politics simultaneously gravitate towards issues of the local. In society's top strata people strive to live in posh areas with the right postal code. Subversive counterculture activists try to keep their own multi-ethnic spaces free from yuppies who in turn try to gentrify the same areas into authentic bohemian-chic quarters. In the urban fringes gangs protect their territory and even tattoo their hood names as a sign of authentic pride. Caught in the line of fire of identity politics is the hoodie, an average street-style garment, the canvas on which social conflicts and criminal stigmata are drawn, but also where local pride and reconciliation can be brought about, inspired by its connection to the resonance of musical milieus.

The text expands on a practice-based research project where students from London College of Fashion reflected on their glocal London identities through the design of a special hoodie - a Neighbourhoodie.

Your habitus is your habitat, your neighbourhood. It reflects who you are, what you do, how you live your life. Your neighbourhood has an impact on your stride, your gestures, your actions - the tacit signals of your body techniques. Like the tones of music, it resonates with the surrounding, capturing the suggestive qualities of the neighbourhood. How do you dress for your hood and how does it dress you?

The Neighbourhoodies is a project at the intersection of fashion design and cultural studies that attempts to visualize belonging and questions of habitus in contemporary street-wear cultures, emanating from the today highly contested hoodie garment. As part of the project, participants are invited to reflect their neighbourhood through an image that is printed digitally onto fabric and made into a special hoodie - a neighbourhoodie.

Introduction - "We are the hood, we are the hoodies"

In today's "flat" and globalized world there is a simultaneous stretch of two opposite tendencies, closely interlinked. One is a flattening trans-urban movement seemingly eliminating differences into a smooth and global "westernized" culture, the other puts emphasis on the urban localities, special spatial haecceities, occasions of particular unicity or of thisness. Both tendencies proliferate in the global media's streamlining of minds, while on the other hand propagating unique "core values" for local event cities.

As we see global "mainstream" culture appear across the planet we can also trace identity politics gravitate towards issues of the local as something which seems authentic. In the top strata of society people strive to live in the right area and get the right postal code, sometimes popularized in media like the phenomenal 90's series 90210 Beverly Hills. The subversive counterculture fighters try to keep their own working class and "marginalized" spaces free from yuppies who in turn try to gentrify these areas into authentic "bohemian chic" quarters where "bobos", the bohemian bourgeoisie, rules supreme. Out in the urban fringe gangs protect their territories and even tattoo the hood names as a sign of authentic pride, something that can be lost if one becomes successful and surrenders to the city centre mainstream.

In the middle of this conflict we will find the hoodie, an average street style garment. Once a casual an anonymous sports garment, it has become the canvas on which the borderlines of semantic struggle in society are drawn. Gone are days when it was the plain advertiser for the local sports team or even of subcultural pride. Over the last years the hoodie have instead come to embody the stigmatized and criminal mind, or what British Deputy Prime Minister John Prescott called an "intimidating" uniform, when he supports the bans of hoodies in some British

shopping malls. (BBC 2005) Let's trace a journey to find some mechanisms behind this scapegoating of an everyday garment, and perhaps some ideas on how to use such garment for more positive affects.

According to renowned sociologist Zygmunt Bauman the industrial modernism, which stressed the values of solid production, has transformed into a consumerism-based "liquid" modernity with "instant living" (Bauman 2000), where individuals have become both consumers and commodities themselves (Bauman 2007). Citizens are, "simultaneously, promoters of commodities and the commodities they promote." (Bauman 2007: 6)

The test [consumers] need to pass in order to be admit

ted to the social prizes they covet demands them to re-cast themselves as commodities: that is, as products capable of catching the attention and attracting demand

and customers." (Bauman 2007: 6)

In this liquid modernity, globalisation becomes an

individualising force, triggering waves of privatization of what were previously concerns of democratic politics. The collectivist imperatives of solidarity around which the welfare states were formed are on wide retreat. The flattening of the world in terms of globalization, of transnational circulation of culture and migration, but primarily trade and direct foreign investments, also means a stratification of capital where uncertainty becomes the one with the everyday. Global companies and cultures avoid commitment and local roots to move swiftly across the planet in search for new market shares (Bauman 1998). Consumers need to "stay ahead" in the market (Bauman 2007: 82ff) and accept an increasingly insecure world of ubiquitous and multi-facetted "liquid fear" in the politics, workplace, social communities and family life (Bauman 2006).

This liquid fear is a public anxiety resonating and amplified between individuals, and promoted through media, which also seems to affect the politics of dress in shopping malls, like banning a garment for its connections to stigmatized criminal elements. Paradoxically, the same contested garments are often sold in the same malls, as hooded garments have been popular for decades. The question of the hood obscuring surveillance might be a "functionalist" argument raised by the authorities, but the politicians go for the more fearful "intimidating" argument.

This globalized world, which could popularly be called "Hot, Flat and Crowded" (Friedman 2008), has also triggered diverse responses, from social movements and activism against gentrification (Klein 2001), to ecologically and community motivated localization initiatives like the recent "transition movement" (Hopkins 2008). In the face of globalization, new emphasis is put on local identities and the resistance to acculturation where majority culture is imposed on minorities. Rather, the opposition to globalized consumer culture by autonomous political movements as well as culturally marginalized groups becomes a hot-house for the growth of local pride. Yet, as another paradox, this autonomous culture also sports its own globalized style, in which the black hoodie is a must-have.

These are also the settings of today's globalized fashion world with a constant growing number of almost cloned fashion weeks, as it seems no city with creative dignity can miss out on

having its own duplicated style ritual. The planet now hosts well over a hundred fashion weeks, all fighting for a place in the light and the glossy magazines. In a similar vein as the roaming style journalists, consumers are encouraged to take on international pilgrimages to flagship stores on top addresses in the fashion capitals. Those who cannot afford such pleasures are to sneak out scavenging to hidden outlets on the countryside.

Nevertheless, as an enigma to these smoothing global tendencies, fashion is also a very local experience. Fashion happens not only at the sanctified rituals of the catwalk, but also on the sidewalk, the workplace, the dressed-up party or the backyard beach cruising. Perhaps most prominently fashion affects us at the shopping mall, where we impersonate the contemporary flaneur to see and shop for pleasure, as we consume to "stay ahead". And of course we want no "intimidating" uniforms around our highly deserved leisure time in ambient easy listening muzak.

Fashion is also a phenomenon affecting the very local aspects of social life. Global trends meet local expressions and cultural appropriations and often music scenes become the resonating bodies of identity. Local gangs or subcultures become a source of identity and in rap culture the neighbourhood is the source of authenticity. This can take the form of song lyrics, but also manifest in prints or even tattoos, often featuring postal codes or telephone prefixes.

Music has been a practice for reclaiming pride and summon responsive energy among displaced communities – to evoke memories from rural or ethnic background, or to experiment with new cultural identities, in resonance or in distortion with the social environment. It has been the folk music of ethnic communities in diaspora, but is also a highly contemporary phenomenon. Famous examples can be the Hip Hop scene of Bronx, Los Angeles' Gansta Rap, East London's Grime or the Dub Step of South London. Ironically the music scenes also become the commodities of the area, readily at hand to differentiate the area as a genuine hood in the globally "creative" economy.

One can argue that certain environmental qualities in some neighbourhoods perform the settings for the evolution of especially vital identities. Some places seem to generate the frictions and vibrations which makes the music scene resonate with the specific frequencies which aggregate into a lively subculture, almost like a living system in itself. Such melodic landscapes come to define the neighbourhood and its inhabitants as a social habitat. To experiment further with these ideas we can make a heretic reading of the concepts of Habitus and Umwelt in biology to see where it can bring us.

Habitus, Umwelt and living systems

From a perspective of sociology the social environment, with its physical arrangements and connected bodily skills, tastes, beliefs and dispositions, is often called habitus, a term popularized in the works of Pierre Bourdieu (cf Bourdieu 1977). Bourdieu defined habitus as "systems of durable, transposable dispositions" (Bourdieu 1977: 72). It is a "durably installed generative principle of regulated improvisations" which produces the

practices of everyday life (78). Habitus is in constant interconnection with the environment, placing the individual in relations to other individuals, social groups and cultures, and in close relation to the material surroundings, as a structure of the mind, a "matrix of perceptions, appreciations, and actions" (83).

With its use in biology, habitus connotes the similarity in external form or the characteristic mode of growth of an organism. It is not a form in isolation, but similar to the habitus in sociology, the organism is a morphologic assemblage that exists as a relation between the organism and its surrounding environment and ecological niche. Here, a niche is more concerned with how an animal lives rather than where it lives. It is what Richard Dawkins might call the organism's "extended phenotype" (Dawkins 1982). Yet, in difference from the sociological perspective, habitus is here based on materialist or realist terms, rather than as a consequence of human and social construction. The biological habitus is grounded "deeper" into our being than social conventions. This affects the whole sensorial spectrum or sensescapes of cognitive life, and is coupled with the "sense of place".

To use a term by Baltic German biologist Jakob Johann von Uexküll, the habitus of biology can be regarded as an Umwelt, the physical while subjective spatio-temporal world which guides our evolution and defines the organism's life on all levels (cf von Uexküll 1921, 1973). Uexküll was disagreeing with the Darwinian mechanistic doctrine of evolution where every organism existed as mere machines, or "Cartesian puppets", in fierce competition. His Umwelt theory instead tried to capture "the seemingly tailor-made fit or solidarity between the organism's body and its environment" through the organism's "subjective nature" (Sharkey & Ziemke 2000). Every Umwelt is specific for each creature and Uexküll describes vividly how organisms such as ticks, jellyfish and amoebae live and navigate within their Umwelts with senses tuned to their specific ecological niche in a manner of feedback and iteration cycles (a theory composed before the dawn of modern cybernetics). The Uexküllian organism is a "subject that, through functional embedding, forms a 'systematic whole' with its Umwelt" (Sharkey & Zeimke 2000).

According to Biosemiotics, the tradition following Uexküll, which is the "science of signs in living systems" (Kull 1999: 386), the Umwelt is our semiosphere, the ecological niche of our life, a life which itself is a sign-driven process. Biosemiotics sees the properties of life itself being a semiotic process where signs and meanings replicate in close interconnection to cells, which forms the foundations of organic life. Semiotics is here not so much a decoding task to reach deeper meaning in an anthropocentric manner, but the act of communicative interactions, which in turn affect living conditions. "Signs live, exactly as life signs." (Kull 1998) As biosemiotics researches the biological origins of semiotic phenomena it is also an attempt to "pave a way of conjoining humanities with natural sciences" (Kull 1999: 386) with the ambitious aim "that the traditional paradigm of biology be substituted by a semiotic paradigm the core of which is that biological form is understood primarily as sign" (Hoffmeyer & Emmeche 1991: 138, quoted in Kull 1999: 386).

For Thomas Seboek, a key theorist among biosemioticians, "the study of the twin processes of communication and signification can be regarded as ultimately a branch of the life science, or as belonging in large part to nature, in some part to culture, which is, of course, also a part of nature." (Sebeok 1991: 22) Biologist Alexei Sharov defines the same interconnectedness between sign processes and life: "Sign processes penetrate the entire body of an organism. [...] Signification is the fundamental property of living systems that can be taken as a definition of life. Hence, biosemiotics can be viewed as a root of both biology and semiotics rather than a branch of semiotics." (Sharov 1998: 404-405)

Biologists Humberto Maturana and Francisco Varela see all living systems as cognitive systems, and living as a process is a process of cognition (Maturana & Varela 1980). To understand living systems, we need to recognize how they are organized in interaction with their surrounding. For Maturana and Varela, living beings differ structurally, but are alike in organization, in their ontogenic development, that is, their organizational unity. It is not the physical nature of the components that determine life, but their dynamic organization into autopoietic, or self-(re) producing systems.

Like Uexküll, Maturana and Varela see this is a matter of biological phenomenology. Our cognition "brings forth" our Umwelt. But the senses which brings fourth the world does not do so by communicating an abstract "meaning", there is no 'transmitted information' in communication. Communication takes place each time there is behavioural coordination in a realm of structural coupling. (Maturana & Varela 1987: 196)

From this perspective, there is no "something" which is communicated, as the communication itself is an integral part of the act of cognition and living in itself. Here, Maturana and Varela compares the social mechanisms of structural coupling with the communication between ants, organisms which are tightly connected into a bigger unity, the ant colony. Ants use chemical coupling between individual members of the colony by a continuous interchange of stomach contents, each time they meet. The colony communicates through a "communal stomach" with which each ant is connected. This continuous chemical flow is called trophallaxis. The autopoietic system of each ant is bound together into a "co-ontogentic structural drift" (Maturana & Varela 1987: 186)

So not only do organisms depend of their environments, finding a niche or models of mutualism or symbiosis. They also couple structurally through their Umwelt to form a higher order of organization, into something like a social organism, by acts of shared cognition. When examining the linguistic realm, Maturana and Varela means that human societies are built similarly to anthills. If insects communicate with trophallaxis, humans coordinate social unity through "linguallaxis" (linguistic trophallaxis) for ontogenic coordination of actions (Maturana & Varela 1987: 211f).

We can compare such linguallaxis to how sociologist Gabriel Tarde saw culture and behaviours spread in viral ways between individuals. To Tarde, culture exists between individuals and members of a society or community, because it is constantly repeated, like an echo of sound waves, rather than being imposed from above or stemming from an inner essence of "man".

Objects and artefacts are only dead representations of the imitated ideas which form a society. Culture resonates between humans simply because the social aspects of human life are about imitation and repetition;

> Without fashion and custom, social quantities would not exist, there would be no values, no money, and, consequently, no science of wealth or finance. (Tarde 1903: 16)

A cultural phenomenon of mimicry and rebellion, such as fashion, is similar to the trophallaxis synchronizing the behaviour in the anthill. What is called "synchronous isopraxis", like the contagious yawns, is something we share with other animals. It is a basic biosemiotic behaviour among humans. In the words of network theorist Conrad Becker, synchronous isopraxis are the "human tendencies to imitate clothing styles and to pick up the nonverbal mannerisms of others" and is something "rooted in paleocircuits of the reptilian brain." (Becker 2002: 120). We like to be "copying, emulating, or aping a behaviour, gesture or accessories including impulsive tendencies", often through highly ritualized behaviours which "makes it easier to be accepted, looking alike suggests same views and feels safe." (Becker 2002: 120). Fashionable isopraxis can easily be paralleled to the culturally enhanced "affects" of Baruch Spinoza, or the ritualized "mimetic desire" of Rene Girard.

It is just like the phenomenon of tropism, an organism's turning movement in response to changing stimuli (a plant facing the sun); we also turn along with the light of fashion, as it is an energy and powerful stimuli guiding behaviour in our Umwelt.

We live in our neighbourhoods, and our neighbourhoods live in us, on co-existence with the fears, values and fashions shared among inhabitants is our Umwelt. By careful reverse engineering and acupunctural design interventions, we might be able to make our Umwelt resonate with other affects than those of the "liquid fear". To reclaim the hoodie we could learn from the realm of sonic vibrations.

Rhymes and the Hood

As mentioned before, Uexküll saw the Umwelt as an ecological environment of interactions. A local ecology is like an orchestra, with a specific organized composition, with accords of music and arrangement where each species or organism play a distinct tone or note. An Umwelt, an ecological niche, is also a music niche - defined by the specific resonance qualities of the hood. Uexküll, even though not anti-evolutionary, opposed Darwin's theory of evolution which he saw as too "vertical" and chaotic. Uexküll instead proposed a an evolutionary understanding where he interpreted organisms "as 'tones' that resonate and harmonize with other things, both living and nonliving." (Buchanan 2008: 8) Every individual has an "I-tone" (Ich-Tone), which plays in accord with the Umwelt. This meant a much more "horizontal" and relational model of evolution than Darwin's, emphasising the musical choreography of evolution rather than accidental and cruel mechanisms of the vertically drawn natural selection of the fittest. Uexküll saw relations whereby "organic and inorganic thing cohere together in great compositional harmony" (Buchanan 2008: 8). It is the relational aspects of resonance

between Umwelt and organism which creates the resonances guiding the morphology of a species by which could called "vital materialism". Thure von Uexküll, also engaged in biosemiotics, captures it like this;

> Nature may be compared to a composer who listens to his own works played on an instrument of his own creation. This results in a strangely reciprocal relationship between nature, which has created man, and man, who not only in his art and science, but also in his experiential universe, has created nature. (von Uexküll, T 1992: 281)

French philosophers Gilles Deleuze and Felix Guattari quote the work of von Uexküll at several occasions in their influential book A Thousand Plateaus (2004). They see the refrain, ritournell, as a reoccurring song, framing a territory, ordering it; "The song is like a sketch of a calming and stabilizing, calm and stable, center in the heart of chaos."(343) The song organizes and draws a circle around an uncertain and fragile centre. The bird song is a perfect example; it is a refrain that is a territorial assemblage between bird and environment where every milieu is vibratory, as it is a refrain actually guiding the life cycle and reproduction of the bird, and resonating between its DNA code and the surrounding coded milieu or Umwelt. "Every milieu is coded, a code being defined by periodic repetition; but each code is in a perpetual state of transcoding or transduction." (345) The rhythm is the transcoded passage of communication or coordination between milieus, but it should not be mistaken for the meter or cadence of marches, but it is the rhythm or patterns of code, or DNA, or Umwelt. Here, nature is indeed music, rhythms played throughout the organic and inorganic environment.

The rhythm defines a territory through the emergence of matters of expression which becomes a territorializing mark, a signature, like the role urine and excrement play in marking. (347) The rhythmic markers assemble to produce territorial counterpoints, which in turn shape melodic landscapes. But the refrain has a territorial and bordering ability; "rhythm is located between two milieus, or between two intermilieus, on the fence, between night and day, at dusk, twilight or Zwielicht." (346)

The borders or fronts of neighbourhoods also take cultural and traditional expressions along which the ritournell can be experienced. A Jewish enclave may be enclosed with an Eruv, framing the borders with a highly mounted textile thread, and thus extending the home during Sabbath, and so the social fabric weaves the "nest". An ethnic group might use communal cooking along the street as a refrain recreating home by means of culinary expressions, the gustatory senses of specific spices and olfactory markings. Muslim communities have loudspeakers on minarets to announce the calls to prayer, thus framing the neighbourhood sonically, not too different from the refrain of birds.

It is along the borders we hear the rhythms clearly, as they meet, merge and transcode, often along contested lines or resonating bodies. The same patterns we can see along the borders of our Neightbourhoods where, just like among birds, contests of refrains are held. Whereas in nature "if the robber sings better than the true proprietor, the proprietor yields his place" (349), similar "slams" or "battles" are held between neighbourhoods to-

day. Local pride is expressed in the works of poets, street musicians, dancers and DJs, where skills in spoken word, turntablism, breaking or voguing are the "robber songs".

As discussed in the beginning, many cities and districts have had a special "sound" to their music, a signature refrain which resonate and is amplified throughout their Umwelt. To many, such refrains might seem hostile, uncertain, create dissonances or produce feelings of "liquid fear". But just like the music scenes of some neighbourhoods could use the tensions and frictions of social life to bring about new rhymes with resonated in their Umwelt, and further in the world, so could we use the hoodies. The dub step and grime mixed the beats resonating in their environment and put the street tongue on that canvas, so can the affects of neighbourhoods be painted on hoodies. Just like mentioned by Deleuze, we should not give in to sad affects;

Sadness, sad affects, are all those which reduce our power to act. The established powers need our sadness to make us slaves. The tyrant, the priest, the captors of our souls need to pursuade us that life is hard and a burden. The powers that be need to repress us no less than to make us anxious (Deleuze 2006: 46)

So let us respond to the liquid fear of hoodies by creating new hoodies which resonate with the passionate affects of our Neighbourhoods instead of public fears. Let us reveal and expose the reverberating qualities of our communities, take pride in the local expressions of our hoods. The Neighbourhoodies is such an attempt, reinterpreting our local Umwelt into a second skin, a digitally printed image, which in turn is recreated into a hoodie. A garment of community camouflage, of blazing "bling", of supportive self-esteem and defiant delight.

We wear our hoodies and play our beats to let it echo between the hoods, that we are indeed the world, we are the Umwelt.

Or in the words of good ol' MJ; "We are the hoods, we are the hoodies"

Additional information about the project, as well as exhibition catalogue and patterns can be found at the author's research website - www.selfpassage.org

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Stephen J Clune

Inverting the Solution into the Problem: Design, Practice theory and Behavioural Change for Sustainability

Local wisdom & globalization

Abstract

This paper presents how the study of developing societies, in combination with practice theory and behavioural change strategies, may assist designers to sustain, grow and export traditional practices that are in danger of being replaced by more material intense ones.

To begin with, the argument is presented on how the study of developing societies is an untapped resource for creative solutions for low material intense ways of being. It illustrates how society met its needs without electricity and air-conditioners, prepared food without fridges, or coordinated social events without mobile phones. The process is encouraging as young designers are forced to acknowledge alternative low material intense practices (solutions) that have been in place.

Secondly, it is not the lack of available solutions preventing a substantial reduction in greenhouse gases, but the lack of adoption of the available practices (solutions). Most 'sustainable' solutions are often so elementary that in the first instance there appears to be a limited connection to design. Solutions such as walking, riding, sharing, air-drying clothes or altering your choice of clothing as opposed to turning on an air conditioner are outcomes that are most desirable. Yet the connection to such behaviours and designs input seems abstract to the designer. A successful approach used to overcome this problem has been to invert the somewhat simple 'sustainable' solutions into the design problem. Walking is no longer the solution, but a design problem.

The third section presents how practice theory and behavioural change strategies may be used by designers to resolve the above identified design problem. How to prompt people so that their default action (walking) is the most sustainable is a design challenge, requiring an understanding of both practice theory and behavioural change strategies. The design of artefacts has a role to play in facilitating the adoption of the above positive practices.

Embedding this new process of design thinking and behavioural change into the academic framework of design education is of importance, as it assists young designers to conceptualise and design for sustainability – which is required if we are to enhance the conference theme of 'Young Creators for Better City and Better Life.

Key Words

Introduction

This paper presents how the study of developing societies, in combination with practice theory and behavioural change strategies may assist designers to sustain, grow and export traditional practices that are endangered to replace more material intense ones. In doing so the paper attempts to address the gap between the scale of unsustainability described in the literature, and the initiatives employed by designers and the general public to reduce their ecological impact.

The possibility of irreversible change to our planet through the use of resources in a manner that is ecologically damaging and unsustainable has been the topic of many publications from the early 1960s onward (for example, Carson, 1962; Meadows, 1972; World Commission on Environment and Development, 1987). According to a growing body of literature we are living beyond the ecological limits of our planet, with a suggested reduction in resource use by up to 95% for western countries in order to avert irreparable damage (Vergragt, 2004). It is also argued that there is a causal relationship between increased resource consumption and increased CO2e production (Lenzen, 1998),

At present the central strategy used by designers is still focused on making our existing products less bad. A recent assessment of the Australian Design Awards (Clune & Ramirez, 2010) identified that environmental strategies maintained a focus on recycling, improved efficiency and adherence to environmental standards, this enables a marginal improvement in environmental performance. Yet if you measure these individual actions against the significant change required for sustainability they are totally inadequate. For example, the Wuppertal Institutes proposed a Factor of 10 reduction (Schmidt-Bleek, 1999) and the Netherlands Government Factor of 20 (Vergragt, 2004) reduction (a 90-05% reduction) or the, the Garnault report Factor 5 reduction in Carbon (Garnaut, 2008). A key argument of this paper is the need to engage designers in a scale of thinking capable of bringing adequate change.

The dominant paradigm for sustainability is still largely influenced by the 'Sustainable Development' definition from the Brundtland report Our Common Future in 'development that meets the needs of today without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987, p.87). The definition is the most cited in international discourse on sustainability, and it is from this recognised definition that separate schools of thought about sustainability begin to emerge. The debate centres on the term 'sustainable development', being an oxymoron to many environmentalists and academics (Fry, 1994) as development linked to further economic growth, implies an expansion in resource use.

The fact that development is inherently antagonistic to sustainability and the 'limits to growth' argument effectively disappears as a concern in the Brundtland definition, which has gone on to inform the declared environmental and sustainability activities of government and industry. 'Sustainable development' promotes business as usual growth linked to the escalating throughput of goods, (albeit with cleaner, more efficient forms of production). As Wolfgang Sachs (cited in Sessions, 1995, p.434). expands:

Even bearing in mind a very loose definition of development, the anthropocentric bias of the statement springs to mind; it is not the preservation of nature's dignity which is on the international agenda, but to extend human-centred utilitarianism to posterity.

The definition has only facilitated the exponential internal consumption at the core of unsustainability. Fry (1994) proposed a rephrasing of Ecological Sustainable Development (ESD) into Developing Ecological Sustainments (DES). DES clearly articulates that it is sustainability that needs to be developed, not development that needs to be sustained. It is critical to understand the massive distinction between being 'less bad' and 'sustainable' - acknowledging that our current practices for the most part are unsustainable. The metrics of CO2e and resource reduction advocated within the literature (i.e. Factor 10) may provide a simple measure by which we can screen solutions for their sustaining potential.

For designers the most elementary sustainable design philosophy is to find solutions with a significantly reduced environmental impact that are capable of working, and encourage their adoption. This approach is similar to what Fry terms 'Design Led Redirective Practice' (2009). This leads to the first section of the paper which suggests two approaches for identifying sustainable practices to be developed.

Learning from our Past and the Study of Developing Nations

The two creative approaches for identifying the sustainable practices that may be developed are the 'think back' and 'ethnographic studies'. The 'think back' method, asks students to think back to a time in history prior to the problem being a problem – this approach acknowledges the temporal nature of the problems we are facing in that they are relatively short in evolutionary terms. Secondly, the study of developing countries enables one to identify working examples of alternative practices with a high sustaining potential.

The 'think back' exercise developed by Lopes, Clune, & Andrews (2007), is a variation of the 'what if' question often used in brainstorming. The 'what if' scenario asks questions such as, 'what if we had no electricity?' and 'what if we had no water?' etc. The question assists students to identify radical solutions through functional innovation by severely limiting the palette of resources they have to design with. For example, how could one clean without water? This forces participants to search for alternatives (e.g. high air pressure, antibacterial wipes, and smell-neutralising powder).

The 'think back' exercise differs as it involves asking students to think back to a time in history when the current problem they are working with was not an issue of unsustainability as it is currently defined. For example, participants will be asked to 'think back' to a time in history when society addressed its needs without electricity, air-conditioners; prepared food without fridges or coordinated social events without mobile phones. The process is encouraging as you are forced to acknowledge alternative practices (solutions) that have been in place and at particular point in time were a normal part of everyday life. The above exercise is closely linked to the concept of rematerialization (Fry, 2009), which advocates the substitution of past low material intense practices for the high material intense contemporary ones. I.e. the scythe replaces the whipper snipper, air drying is a substitute for the dryer, walking and cycling a substitute for the car, sweeping substitutes for vacuuming, and the push lawnmower substitutes the internal combustion one. By acknowledging existing practices, students identify that alternative practices have been in place in the past, and that there is a great opportunity to draw on and re-invent such practices in the present.

The approach is positive in that solutions identified can be practiced because they have been used in the past. This differs to radical technological innovation where the technical solution may still be some distance away, and the adoption of that technology is largely unknown. Thinking historically also acknowledges that many of our unsustainable practices are relatively short. For instance, electricity has been around on average for 100 years.

The second variation of the creativity tool is the ethnographic study of developing countries - to seek out sustaining practices that are susceptible to disappearing, and reorientate (redesign) such practices. The developing nations in many instances provide the only working model available of societies that are at present living within their ecological footprint .

A brief overview of two case studies in woven bamboo and nappies are used to illustrate the concept. 'Thinking back' to how traditional buildings have been built identifies woven bamboo – which has evolved as a building material within India across hundreds of years. The properties of woven bamboo allows the walls of a house to expand in the wet season to block out cold breezes and contracts in the summer to let a cool breeze through the house. The solution would be classified as a smart fabric in modern cultures. By contemporary design standards 'smart windows' are entering the market to passively cool houses – by

electronically monitoring temperature variations to open and close windows via electric motors (which appear cumbersome in comparison to the woven bamboo).

While woven bamboo is one potential passive building solution, many other climatically appropriate architectural solutions can be studied historically in various civilisations. However, proliferation of air conditioners threatens traditional passive construction techniques. To draw the process to an educational context, architectural students may be asked to identify like climates around the world with similar latitudes. The students are then asked to identify traditional construction and design techniques for passive heating and cooling, to render sustainable solutions attractive in a contemporary setting.

The second case study relates to nappies and the process of toilet training babies (an example of an ethnographic study). At present the majority of children in the world are raised without nappies (a trend that is decreasing). There has been recent interest on the process of Elimination Communication (EC) which draws on traditional techniques from east Africa and India to toilet train children without nappies (Rugolotto, Sun, Boucke, Calò, & Tatò, 2008). EC is by far the lowest material intense solution that meets the Factor 10 resource reduction required. It also suggests that babies may be out of nappies sooner (15 months as opposed to 25 months) using EC than the dominant method of toilet training with nappies. There is growing presence of EC advocates within Australia and the United States of America. Design can engage with new applications of traditional practices.

Inverting the solution into the problem

The previous section highlights that designers have a plethora of sustainable solutions available to draw on from historical practices and the developing world. It is not for the lack of available solutions preventing a substantial reduction in greenhouse gases, but the lack of adoption of the available practices (solutions). What is troubling for design is that the most 'sustainable' solutions are often so elementary/fundamental that in the first instance there appears to be a limited connection to design. Solutions such as walking, riding, sharing, air-drying clothes, raising children with no diapers or altering your choice of clothing as opposed to turning on an air conditioner are outcomes that are most desirable; yet the connection to such behaviours and designs input seems abstract on the part of the designer. To counter this dilemma the question is often asked of design students to identify one practice that they complete, which in some way is not dependent on a designed object. This question highlights the pervasiveness of design in everyday environments and activities. The impact that design has on everyday life is enormous; look around the room you are sitting in, surrounded by objects that have at some stage been designed and produced, most likely with the assistance of an Industrial Designer. This leads to the premise that there will always be design in some capacity, existence without designed objects is unimaginable. There is no option for a world without design. When advocating the elimination of undesirable practices, the process still needs to be designed.

The challenge for 'Design for Sustainability' (DfS) is in re-inventing and remaking these past sustaining practices to make them viable, competitive and attractive in the context of the unsustainable everyday. This approach challenges the traditional sustainable development strategy which imposes western solutions on traditional cultures. The approach outlined attempts to learn from the sustainable elements of traditional cultures, which, like Jégou, Manzini et al.'s Sustainable Everyday Project' (2008), identifying innovation for designers to engage with.

One approach used successfully within design education to overcome this problem has been to invert the somewhat simple 'sustainable' solutions into the design problem (Clune, 2009). Walking is no longer the solution, but a design problem. To assist in framing the design problem, the emerging field of 'practice theory' offers potential to understand the environment where the practices we are looking to redirect by design take place in a holistic manner. It encourages engagement in the relational complexity of why everyday practices are completed. The hypothesis is that more refined problem definitions lead to more refined design solutions for sustainability or 'how you define is how you design' (Clune, 2008).

Practice Theory and Problem Defining

Practice theory has been proposed as a relevant lens to explore consumption, as it alters the focus away from the product (Julier, 2007; E Shove, Watson, Hand, & Ingram, 2007). Attempting to understand practices provides a sound understanding of the problem that you are attempting to shift. Warde argues 'consumption occurs within and for the sake of practices. Items consumed are put to use in the course of engaging in particular practices' (2005, p.145). A focus on understanding everyday practices may therefore provide insight into consumption. Elizabeth Shove is a leading figure providing insight into consumption through everyday practices; her (2003) work is used to present a rationale for our unsustainability by asserting that the great majority of our resources are consumed in maintaining standards of comfort, cleanliness and convenience in our everyday life (2003, p. 395). Our sense of normality is defined by this consumption and sustained by our everyday habits and routines and by the vast array of goods and consumables that service them. Shove's work is used to frame a sound definition of unsustainability as over-consumption that is largely unnoticed in our everyday habitual activities. Fry articulates designs contribution to the unsustainable everyday as 'Designers design in a designed world, which arrives by design, that designs their actions and objects, or more simply we design our world while our world designs us'.

The practice orientated approach is useful as it encourages designers to look 'more broadly, beyond individual products and users, to the integrated routines, materials, bodies, meanings, functions, and abilities that make up everyday practices' (Scott, Quist, & Bakker, 2009, p.3) – material skills and images. Through acknowledging, critiquing and reflecting on this understanding, designers may intervene to counter consumption. To bring the previous example to light, practice theory focuses on the 'practice' of toilet training as opposed to the product (i.e. the nappy). Shifting the starting point enables the diverse range of solutions

to be explored (like those proposed in the previous section). The product focused approach may have lead to diapers made from recycled or biodegradable material – where the practices approach designs away the product. The shift of focus from products to users to practices places design in a new space, where interventions are sought that 'enable the evolution of sustainable patterns of consumption through innovations in practice' (Scott, et al., 2009, p.4). To achieve innovations in practice, designers may be required to apply their skills within non traditional methods such as Co-design and Participatory Action Research like practices. Clune's model of Design and Behavioural Change (2010) provides a process on how designers can apply the learnings from the previous sections to encourage such 'innovations in practice'.

Designing for Change – Innovations in Practice

This final section of the paper provides a process to build upon the first two learnings, that of identifying potential low material intense solutions that could be developed for sustainability; framing those solutions as a design problem through the use of practice theory. This section attempts to provide a process for designers from the first two sections so that the positive actions identified through 'thinking back' or 'ethnographic studies' may be mobilised. Designing for change requires a clear mandate from the project leader (designer) for what behaviours and practices need change. The author suggests that the process of clearly defining the problem of unsustainability (Clune, 2009, pp. 147-149), would be a good starting point from which such a mandate could emerge. The more specific the targeted practice and localised context, the easier it is to tailor an intervention. The process draws on an appropriated version of McKenzie-Mohr and Smith's CBSM process (1999). The appropriated process involves four stages: (1)Understanding practices (skills, meanings and artefacts) and associated barriers and benefits; (2) designing effective strategies; (3) piloting; and (4) evaluating. The four stages present strong similarities to the Action Research process that Swann has previously likened to the design process (2002).

Stage One: Understanding practices (skills, meanings and artefacts) and barriers and benefits

The first stage identifies why the present unsustainable practice takes place, what constitutes the practice, how it came to be and what are the competing practices. This is in order to understand why the more desirable sustainable practice may not be adopted, or is at present in danger of becoming extinct. Practices can be understood by the study of the skills, images and artefacts that are associated with a practice. Alternatively, the identification of the barriers and benefits to the desired behaviour or practice can be achieved via a variety of methods (see McKenzie-Mohr, 2000 or Clune 2010). To assist in the first phase, design methods such as those proposed by IDEO (2002) method cards may be appropriate and familiar to designers to further strengthen this phase. IDEO's design methods such as a 'day in the life' and 'empathy tools' place the designer in the participants' 'shoes', to identify first hand the limitations that they

may encounter completing the desired practice.

Stage Two: Designing Effective Strategies Based on Effective Tools

For Industrial Design the most logical and traditional place of intervention has been to focus on the artefacts, while Visual Communication has a role in communicating new images. Stage two uses effective physiological strategies to facilitate behavioural changes by accentuating the benefits of positive behaviours and eliminating the barriers identified in stage one. The strategies are commitments, prompts, norms, incentives and the removal of barriers (McKenzie-Mohr, 2000). Of the psychological strategies, three are easily appropriated by Industrial Design. These are prompts, norms and the removal of external barriers to recruit new practitioners.

'Prompts' follow the principle that we need to be reminded at the most opportune time how to act. Prompts should be noticeable, self explanatory and near the point of action to encourage the desired behaviour. Prompts provide a most promising strategy for design activity. In his book Psychology of Everyday Things (1990), Donald Norman discusses the importance of prompt-like tools in the user interface of products, called affordances, that 'provide strong clues to the operations of things... plates are for pushing, knobs are for turning, slots are for inserting things into'.

Affordances may direct the user toward the correct use of a product. For sustainability, designers may attempt to ensure that the desired behaviour is the most likely default action because affordances have helped to direct the action in the right way. The prompts could be visual or verbal reminders designed into the product. The semantic principles outlined by Norman (1990) provide an opportunity for design to practically prompt the appropriate default behaviour.

The second strategy that clearly links to the practical creativity of industrial designers is that of the 'norm'. A norm is a visual display of 'normal' behaviour, for example if you approach a house and see shoes outside the door it is indicative of a 'norm' and prompts you to take your shoes off. Elizabeth Shove identifies the role of design in changing social norms around the three Cs (comfort, cleanliness and convenience) that contribute to our increased embodied and inconspicuous consumption. As our standard of living constantly improves over time, what is deemed normal has changed, e.g. increased showering as standards of cleanliness in personal hygiene were raised and facilitated by continuous access to hot water, or the increase in air-conditioned environments which are embedded in aspects of our everyday life. To enable norms for behavioural change, McKenzie-Mohr suggests that we need to make new sorts of norms visible; the hidden, positive actions for sustainability need to be made visible and desirable as a social norm that can be followed and possessed.

Creating norms through visualising possible futures is a strategy that has a history of use in Industrial Design (Andrews, 2007; Fry, 1999). The visions presented by early industrial designers of possible futures conditioned our normality and paved the way for the visions to become material reality. The hybrid model of scenario planning developed by Lopes, Clune and An-

drews has been applied to the teaching of sustainable design, utilising Design Orientated Scenarios (Manzini & Jègou, 2000) to present possible futures as hypotheses for discussion. Fry (2009, p. 75) suggests communication can be critical in exposing practices as a fabricated want.

The final strategy is the identification and removal of 'external barriers'. External barriers are constraints that make the logistics of completing a practice difficult. This could be for any number of reasons such as safety, distance, social image, cost or Shove's three C's (2003). The removal of external barriers is seen to be where the most significant design contribution may be made, as design has the capacity to effect change on the physical environment, removing by design the external barriers. The appendix provides two examples of student designing where barriers in 'the logistics of sharing' (Appendix 1 community garden) and a 'lack of knowledge' and 'inconvenience' in cooking from fresh ingredients (appendix 2 programmable stove) were addressed through design interventions. This activity connects with Manzini's criterion of 'use what exists' (Manzini, 2002, p. 9) as there is a need for a strong contextual focus to identify what needs to be created, or modified. None of these strategies can be undertaken if design is seen in isolation.

The Paris Vélib free bike share program provides a well resolved example of removing external barriers to riding. Barriers such as convenience, theft, maintenance and parking, have largely been overcome by design. It is easier, cheaper, and more convenient to make a sustainable choice to ride for short-distance travel. Doing so makes the default actions more sustainable.

The strategy of identifying barriers to the adoption of desired behaviours (and the adoption of their promising concepts) has been used in design studio workshops as a concept generational tool. This led to the generation of concepts such as the programmable stove (Appendix I), that attempted to overcome the barriers to a lack of knowledge in preparing meals from fresh ingredients by utilising an assistive display, as well as removing the barrier of inconvenience by making the cooking instruction programmable like the microwave. Many of the student solutions engaged in the barriers to sharing, and came up with novel solutions. For instance, the finger-scanner solution to overcome the identified barrier of security for the Community Gardens, assists in making the garden equitable, as work completed and produce taken is recorded (Appendix II). As the examples illustrate, the removal of external barriers by design is a viable tool to assist in concept generation for DfS.

Stage Three: Piloting the Strategy

The third stage involves piloting the design solution on a small scale until the desired results are achieved in preparation of the launch of a design. The cost of quick and dirty prototyping (IDEO 2002) may be small in comparison to releasing products or services that are ineffective. This stage, McKenzie-Mohr suggests, is often overlooked yet has the potential to increase the adoption of sustainable behaviours.

The relevance to pure Industrial Design is not as distant as it once was considered. Kyffin (2007, pp. 43-71) discusses Phillips' case study of the 'experience assessment' trialling new 'life-

style designs' products within the home for an extensive period of time at great expense to refine the design prior to production. In relation to the Paris Vélib of the previous section, the scale on which the system was able to be rolled out was due largely to the sound planning and smaller trials in the Lyon Vélo'V prior to full-scale installation, which they increased at a rate of 500 bikes per week.

The pilot stage is important for DfS; even if unsuccessful, the phase offers a learning opportunity for sustainability in an important social context. There are synergies between the reflective processes of action research which highlight that any change proposal needs to be managed and reflected upon: this becomes critical in the community consult vocation model introduced later in this paper.

Stage Four: Evaluating

Stage Four, evaluating the strategy once it has been implemented, is a stage that McKenzie-Mohr (2000) highlights as being poorly completed. This concern is paramount within the field of DfS, as it is how the design plays out in action that is most critical. As Lerner suggested, 'it is important to make it happen now, and then we take the time to improve' (Lerner, 2005, p. 47). The Sustainable Everyday Project has gone some way in attempting to critically evaluate the success of the implemented projects (Jégou, et al., 2008). The dissemination and evaluation of sustainable case studies is critical if we are to enable healthy reflection on current DfS strategies. The lack of critical reflection in Industrial Design literature leads to a state whereby it is difficult to learn from others' mistakes, and restricts the intellectual growth of the discipline (Swann, 2002). Monitoring and reflecting strategies across time may be facilitated by design's new requirement to manage the product over the lifecycle.

For Industrial Design Education for Sustainability the last phase, evaluation, is critical. Sustainable design cannot be embodied in a one-off solution, it has to succeed and adapt over time with continual reflection in what Manzini describes as 'social learning process' (Manzini, 2003a, p.1). Sharing the reflections on sustainable design (both successes and failures) is required to build knowledge. It is possible to 'become more sustainable but [we] can never become fully sustainable' (Fry, 1999, p.289). Embedding reflective practice within academic institutions is challenging.

Reflections on the Vocational Applications of process presented in the paper

Design informed by the change tactics outlined above is proposed as a way of enhancing Industrial Design students' ability to DfS. The employment in practice by Industrial Design practitioners is foreseen in several ways and will be presented as three possible vocational variations for Industrial Design students. These are: first, designers applying creativity skills to generate DfS product concepts (closest solution to traditional Industrial Design practice) for enabling change; second, designers extending their skill set to manage entrepreneurial ventures for sustainability; and third, designers operate as specialised DfS consultants. The variations of vocation are not entirely new, they

are based on existing vocations that Industrial Design pedagogy may benefit from embracing, and making explicit.

Conclusion

The scale of change required to move towards a sustainable society is overwhelming. To engage in such change the 'think back' and ethnographic exercises can work as a creativity tool to assist in identifying potential sustainable solutions. These sustainable solutions can then be developed and have a capacity to work (as they have done in the past and present). However, the paper suggests that solutions on their own are easily identifiable - the challenge is to encourage the adoption of such solutions. Practice theory has been presented to assist in understanding the broader problem framework that designers must operate, while 'designing for change' presents a process that may be followed, to create interventions that attempt to enable designers to engage in the scale of change required for a more sustainable society.

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Pamela Visconti

Chromosustainability.

Colour as an opportunity to define a new design and consumption model.

Abstract

A need for change and for a different approach to consumption is increasingly perceived in the fashion field. Such change should involve productive processes at a structural level, but above all, it should lead to a new definition of the value-dimension associated to the product.

As one of the fundamental elements in clothes, colour can but be part of this re-configuration process. Colour is at the heart of alternative routes to the conventional processes performed in the industrial field. Indeed, there is an increasing interest towards natural dyeing, viewed not only as an ecological process, but also as an opportunity to outline new design variables.

In this light, this paper aims at proposing scenarios in which colour can stimulate new identities and new project strategies, in which the nature/product relation would not only respond to technical and environmental needs, but it would also be the key to creating new product concepts. This can be done through the re-definition of the idea behind seasonal change, through the spread of a new aesthetics and through an increased level of perceived well-being.

In addition, the re-discovery of traditional natural dyeing processes through the fieldwork in a small Cambodian village bears an interesting and strategic impact in the re-definition of social roles. Indeed, such processes would require new, specialized figures and would create new opportunities for a better exploitation of the natural and human resources of the territory.

Keywords

Ethical fashion, Product identity, Valorization of local cultures, Fair Design, Natural dyeing.

1. Chromosustainability.
Colour between territory and sustainability

Today's world is fluid (Bauman, 2002; Manzini, 2004) and dynamic, as time and distances are dramatically reduced in terms of access to information, quality of interpersonal relationships and product distribution, in what is now well-known as globalization. By contrast, contemporary society looks with increasing interest at local experiences, as they can provide inputs and answers to a life style and consumption model perceived as being no longer satisfying.

In particular, the design world has recently started a process aimed at developing handicraft know-how and traditions (which, until not long ago, were viewed as being hostile to progress) to stimulate innovation. In turn, innovation wants to provide an answer to the revived rejection of standardization, by offering personalized and unique products.

The value of the product obtained depends less on its material quality than on the symbolic, emotional and identification meaning that consumers see in it.

The preservation of identity as a positive inheritance means transforming planning and productive processes. While doing so, it is important to avoid the passive reproduction of style and form in order to actually create new languages that can re-interpret and update the product aesthetics, structure and application.

Moreover, the development of local resources and know-how (genius loci), can often be viewed as part of the wider research field of sustainable design. Its aim is to identify alternative production systems to the conventional ones (challenged by today's environmental crisis), to place renewed value on the moral and economical value of human resources, and to exploit renewable resources with lower environmental impact.

In the fashion field, a 'green' approach was initially limited to the creation of products imitating the aesthetics of nature, which were not actually sustainable. Today, by contrast, such approach is intended as involving respect for the environment and for local human resources. It thus requires the re-structuring of the entire production chain, leading to products that both look new and have a new ecological imprinting (Manzini & Vezzoli, 2007).

Such approach has recently led to a significant increase in the demand for biologically-certified products , viewed not only as products[1] with low environmental impact, but also as products that respect our body once they are turned into clothes.

As one of the fundamental elements in clothes, colour can but be part of this re-configuration process. Colour is at the heart of alternative routes to the conventional processes performed in the industrial field. Indeed, low-polluting dyes[2] have recently been introduced, and there is an increasing interest towards nat-

ural dyeing, viewed as a valuable alternative not only in terms of primary material (renewable and ecological)[3] , but also as a traditional practice linked to local identity (both as resource and know-how).

We believe that in the fashion field, sustainable design can be pursued through a re-configuration of production processes and their technologies, but also, and more importantly, through a cultural re-definition of the product[4] . In other words, products must move beyond seasonal production and constant renewal, by looking at the value and identity of each individual product as elements embodying an evolving history, which nonetheless does not break with the past.

2.Between synthetic and natural

While open to new possibilities, today's consumption model is still based on mass consumption and consumerism. Therefore, the characteristics of synthetic dyeing are viewed as indispensable. This is why natural dyeing must comply to such dogmas, if it wants to play more than a marginal role in the textile market.

This is the direction research is moving to the development of production processes able to guarantee results comparable to those of synthetic dyes, both in terms of costs and in terms of performance on final products.

This paper will try to argue that an alternative route is possible, one that moves beyond conventional processes and starts from different assumptions to achieve different objectives.

We believe that the first step towards this aim is to identify what are the characteristics peculiar to synthetic and natural dyeing respectively, and what are their differences and common traits. The aim of this comparison is to understand if, and to what extent, the characteristics of natural dyeing, usually seen as limitations, can instead be viewed as strong points. It is precisely in these limitations (or qualities), that design must find the terms for a new approach and a different product concept.

From a productive point of view, synthetic dyeing offers all the characteristics typical of industrial products, namely potentially endless reproduction with the guarantee of foreseeable and reproducible results. Surfaces look even (unless uneven effects are deliberately sought), smooth and bright, and their colour-range is virtually unlimited. Its industrial processing and its easy-to-find primary materials guarantee low costs and reduced production time. On the other hand, the chemicals in the dyes are harmful, both for the environment during the manufacturing processes and for consumers, as synthetic dyes are aggressive and can lead to serious health conditions.

Dyes derived from natural elements, specifically plants, present very different behaviors. The characteristic perceived by the industrial world as being their greatest objective limitation is their sensitivity to light and time. In other words, fabrics dyed with natural processes tend to lose in colour intensity if exposed to sun rays for a given amount of time. This, in turn, means that clothes age more quickly, provided that there is an agreed parameter for the concept of 'ageing'.

Almost without exception, the time frame of today's fash-

ion industry is dictated by a logic of seasonal change. According to this logic, some items, the so-called trend items, age due to their stylistic/narrative content before they can actually age due to wear and deterioration of materials. If on the same chart we drew the curve of the life-cycle of material products and the curve of their perceived value, we would see that the decline of the perceived value anticipates that of the actual deterioration of the product. Items, therefore, end up being considered old and out of fashion much before they actually become old in terms of their material quality. In the case of natural dyes, instead, the curve representing the life-cycle of material products is shorter, more or less so depending on the properties of the plant used for dyeing.

A second weakness of natural dyeing is that it makes it more difficult to obtain even, smooth surfaces without imperfections. This is also due to the fact that dyeing processes are often hand-made; and even if such processes are transformed into industrial dyeing processes, they do not guarantee a perfect result because they have different needs and require different treatments. As dyeing materials come from plants, they, too, are subject to the variables of natural cycles. Weather conditions do not guarantee the same product quality every year; not all geographic areas are suitable for growing specific plants; not all colour shades one can think of can actually be obtained, but it is necessary to chose within the colour-range provided by the plants available. Moreover, production must follow the times dictated by nature, as each plant has its specific harvest time and specific treatment required to guarantee a certain result. All these variables make it necessary for design to take into account the unforeseeable nature of the result. Even with reproducible processes, results can be, and very often are partially unexpected, thus introducing in the design process an element of mistake which, by its own nature, is unforeseeable, random and unique.

In addition, higher costs are inevitable, because primary materials are more difficult to find and dyeing equipment needs greater storing space. Also contributing to higher costs is the hand-made quality of the dyeing process. It requires longer working times and, more importantly, specific and in-depth knowledge of all aspects of the production chain, from the growing of plants, harvest, drying, colour extraction, dyeing processes and the most appropriate procedures to best preserve the product.

If, on one hand, all the aspects taken into consideration above appear as limitations, on the other hand natural dyeing has a predisposition towards sustainable productive processes, and can provide an healthy relation with the body once naturally-dyed clothes are worn.

According to the LCD-Life Cycle Design (Keoleian & Menerey, 1993; Manzini & Vezzoli, 1998) discipline and, more generally, according to environmentally-minded design, the qualities of natural dyeing do not apply only to the finished product, but they more or less directly influence the different stages of a product life-cycle. LCD considers products in relation to the flux of materials, energy and activities that characterize the entire product life-cycle (Manzini & Vezzoli, 1998). According to the LCD idea, design would be involved in all product stages: preproduction, production, distribution, consumption, disposal.

This idea of design requires a much wider vision, as well as methodologies based on different assumptions and tools. As far as natural dyeing is concerned, it means to take into account all the qualities considered so far, and to understand in what ways they may influence the entire cycle while finding the specific tools and objectives that can improve their importance.
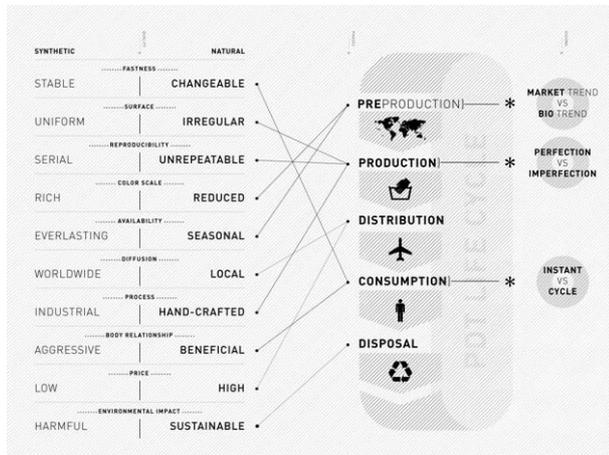
Fig. 1: Influence of natural dyeing on the product life-cycle.

3.Preproduction: Markettrend vs Biotrend.

The organization of today's fashion industry is entirely based on a schedule imposed by the market. Colour follows seasonal trends which are often dominated by commercial needs, and which are only marginally the outcome of a critical interpretation of social and cultural contexts. The role of the trend (o colour) forecaster (Diane & Cassidy, 2005) is that of evoking, with chromatic palettes, the shapes and colours that will appeal to consumers in the near future. Seasonal trends are an advantage for the fashion industry, as the fast ageing process of the value of products means a greater impulse towards sales. This is also why consumers are driven to a constant desire of renewing their wardrobe, in the effort of updating their look and keeping up with the latest trends. Trends are, therefore, the engine of today's market; but while they provide a reason for its dynamism, their consequences are not coherent with the aim of sustainability.

In contrast to these dynamics, deeply rooted in the production and consumption models typical of the fashion product, natural dyeing offers a different approach.

(Bio)colour diversity: a design based on natural dyes cannot start from a chromatic point of reference, with the aim of reproducing it and imitating its shade, intensity and brightness. This is something typical of synthetic dyeing -a different world. In natural dyeing, rules are made by nature, and it is according to nature that designers need to work. As with every system, the first rule is to know the rules of the game; in this case, it is necessary to know the behavior and qualities of the plants we work with. Dealing with plants means to deal with their ripening and harvest time, with drying processes and colour-extraction processes. The first variable designers have to face is biodiversity and the qualities of specific plants. In this light, it is particularly interesting to look at the experience of Ildico Dornbach[5], a professional who has worked in the field of natural dyeing

for more than twenty-five years, pursuing her ongoing quest for new sources of colour, new colour shades and processes. Ildico Dornbach explains that each colour has a history behind it. It's the history of the land it comes from, of the events that prompted the encounter of that colour with the dyer, of the magic moment in which it passed its characteristics on to the fabric and, with them, its entire history. Dornbach has a direct relationship with nature, as it spontaneously offers her the sources of its colours. Therefore, colours are always new because they come from different harvest years, from irregular terrains with different degree of sun exposure and irrigation. And this is where the charme of Dornbach's work lies: however well-known and formalized dyeing processes may be, there is always an element of surprise influencing the final outcome, caused precisely by the endless number of variables encountered during the dyeing process. Such variables cannot, and, in a way, must not be controlled and standardized by human intervention.

Based on these assumptions, it would be possible to recognize new qualities in colour biodiversity: colours would not simply be colours, but they would be colours with a history, a life experience, and with characteristics that make it unique. Accordingly, for instance we can think of dyes as vintage dyes- a concept much closer to the wine world, and to the principles of the Slow Food movement, than to the world of fashion.

If colour is given new meanings that lead to new synergetic perceptions, the need arises for new systems of classification and communication (geographic and botanic origin, year, harvest season, transformation processes). In the design stage, new preconditions for the chromatic selections are also needed. Thus, dyeing substances are at the same time the result and the guarantee of biodiversity, as well as the vehicle of territorial characteristics. This model can only make sense if interpreted within the wider and more radical transition of today's society towards a sustainable lifestyle. As Manzini (2007) hopes for, this transition requires a social process of learning through which, step by step and after trials and mistakes, members of society will learn how to live better while consuming less and re-generating the quality of their habitat.

Seasons: the topic of seasons is to be seen is close relation with the issues discussed above. It goes without saying that plants are not available all year round. As we have already mentioned, each kind has its own period of top chromatic ripening. Such limitation can be avoided by drying the dyeing elements. However, the tie with plants' ripening periods can be viewed as a limitation but also as an opportunity to re-define seasonal change. Fashion colour is replaced by season colour, in which the nuances are not decided beforehand according to a top-down logic, but are derived from the opportunities provided by plant growing. This does not mean to undermine creativity; indeed, nature provides ingredients that need to be elaborated, mixed, interpreted according to the designer's taste and experience. With natural dyes, the aspiration is to create an idea, a concept, an evocation rather than a chromatic code.

The designer works as a bricoleur (Lévi-Strauss, 1964; Floch, 1997), o better as a cuisinier, by matching «stable, given signs with an autonomous and creative new assembling, [and] by

establishing a speaking subject which is other than the original project» (Floch, 1997).

4.Production: Perfection vs Imperfection.

The close relationship between raw material and territory involves the important issue of traditional know-how, which in turn is at the heart of processes and techniques. This issue pushes production systems to exploit the territorial identity of raw material.

Concerning natural dyeing, the territorial aspect is important for two related reasons. The territory generates and characterizes the raw material, which inevitably influences the final product.

Only a design that takes into account this relation and this history can build tools and methods that do not merely evoke a practice anchored in the past, but operate with and through it to build new objects. These objects would be different from traditional objects, but also different from those generated by contemporary supply chains. It is necessary to reset the production processes and review the planning goals, with due consideration for the emotional value of the object.

Uniqueness and unpredictability: The crafted nature of the dyeing process leads to potential errors, which are unpredictable and random.

In the history of industrial culture, machines were built not only to speed up the manufacturing process, but also to reduce unpredictability and achieve a standardized, reliable system. Machines represented the negation of error, perfection in a system where everything was planned. But in a landscape of perfection and determination, the only poetic aspect derives from unexpected error. Therefore, it was precisely from those machines that aspire to perfection, that a new aesthetic could develop, where "the system bug" creates random images, products and situations (Scott, Gilmore & Murphy, 2009).

The breaking of rules or, as Munari (1971) put it, the use of what is prohibited will lead to surprising results. Through the use of machinery designed and programmed to produce an original an unlimited number of identical copies (photocopy machines), Munari was able to obtain copies and not originals (his "original Xerographs," oxymoron par excellence). He therefore obtained unique products from a machine, showing that disregarding rules can be a healthy way to overcome the obvious.

Regarding the natural dyeing process, the argument is reversed: unpredictable results are not caused by machines, or at least not only by machines. It is the essence of the matter that produced unpredictable results. This involves not only an adaptation of design tools, but also a redefinition of the parameters of product quality.

The designer has to allow room for the matter to be creative and then tweak the outcome, by enhancing it or hiding it as needed. One has to see added value in imperfection, both in the design phase and in terms of the finished product.

If in a traditional model, the designer operated upstream in the process, planning all the stages and having absolute control of the result: in this new model, a non linear planning (frag-

mented and synergetic) is needed. A planning that acts on the product in the final phase with embroidery techniques, printing, finishing – traced in local tradition – that strategically enhance or eliminate the error. The process should be flexible and adjust to fix different elements of unpredictability in order to achieve a new aesthetic and emotional model.

5.Consumption: Instant vs Cycle.

During the "consumption phase" time has to be taken into account. Unlike the synthetic product, where the retention time of the original color is perceived as a quality, or even as a necessity, the natural dyeing process introduces the concept of cyclic life of color, which leads to the sedimentation of traces of time, light, water and experience. On the one hand, is a frozen kind of time, always identical to the point of undermining the perceived quality of the product; on the other hand is the vitality of color, a color with a past (recognized by traceability), a present that does not give up empathy, and above all a future in which the product is bound to change, following a parable quite different from the synthetic product.

Traceability: In the case of the natural dyeing process, traceability should be intended not only as the different stages the product went through to reach its final look. One has also to consider the events and the instances that generated the pigment: those elements mentioned above including climate, territory, plant, growing time, processes, which inevitably influence the final product and make it unique.

Empathy: It represents the present, the time of the purchase, the moment when the product casts its history on the consumer, prompting him or her to identify with it. It is the irrational, compulsive moment that makes the subject and the object fall in love. The natural product therefore should not, and cannot, give up the aesthetic dimension that, albeit with its own vocabulary and syntax, is the instrument for establishing a shared experience. While acknowledging that the narrative sphere of these products plays a dominant role in the relationship with the consumer, a product should not be pure narrative.

Evolution: Once the subject and the object relate to each other, a shared story unfolds. A story in which they both invest their life experience. But unlike with conventionally synthetic products, in this case, the product continues to transform, bearing the traces of this shared experience.

This vocation of natural color implies a redefinition of the value chain[5] (Porter, 1985) which recognizes a fundamental role to the intangible aspect of production: the cultural value that consumers attribute to products.

6. Neang design[7] : enhancement of Cambodian textile and dyeing tradition.

The approach that we have been discussed so far is based on the re-discovery and enhancement of local cultures aimed at re-structuring the fashion field. A new model of consumption is needed, based on a new concept of well-being. Well-being would not, therefore, lie in quantity or in the vulnerable subject-

object relationship, but in the construction of strong product identities able to convey positive narratives, and in an intimate, durable relationship. The life curve of a product, therefore, would be much wider than that of traditional products[8].

It also introduces the variable of unpredictability as the focal point of the design process: this involves a reorganization of the whole production and design time.

It is hoped in fact a non linear planning that integrates all phases of the process but intervenes at different times, responding promptly to partially unpredictable results.

The analysis also leads to question the logic of seasonal renewal imposed by the current configuration of the market, introducing biodiversity and seasonality as new criteria for choosing colours.

Fashion colour is replaced by season colour, in which the nuances are not decided beforehand according to a top-down logic, but are derived from the opportunities provided by plant growing,

This brings us to devise new metrics for quality of colour itself, introducing concepts like smell of colour or vintage colour. The cycle of nature replaces the figure of the guru with varying levels of sensitivity stands in creative fashion colour.

It is therefore possible to envision an ever-changing product, with a past, a present and a future during which it will develop aesthetic characteristics of its own. If, until now, clothes were asked to play the role of Dorian Gray's mirror, that is, of something that perpetuates intangible perfection through time, natural products find their value precisely in the passing of time, through their continuous transformation and sedimentation of experiences and visible traces.

Implementing the strategies discussed above is the aim of Neang Design, a research project involving the Politecnico of Milano, in partnership with different institutes and organizations (Il Nodo – Cooperazione Internazionale Onlus[9] ; Associazione Tintura Naturale Maria Elda Salice[10] ; Khmer Silk Village[11] ; Royal University of Fine Arts – Phnom Penh[12]). The project lies on the strongly-held belief that the strategies outlined above could be an interesting answer to the needs of a market like Cambodia's, which has great development potential but is currently crippled by a difficult and destructive past, from a social and political point of view.

Cambodia is potentially rich in resources, due both to favorable weather conditions and to an excellent crafts tradition ranging across different sectors. Its potential, however, was heavily undermined by the devastating Khmer Rouge dictatorship, between 1975 and 1978, a violent and authoritarian regime whose deep wounds are still felt by the population. Famine, killings and forced labor led to the death of more than two million people and erased the entire public administration and the entrepreneurial and cultural leadership, thus creating a hiatus with the knowledge developed across the centuries.   The Khmer Silk Village research center works in the textile sector, with the aim of supporting those areas of the country where the strong tradition of silk work has been kept alive. Cambodian silk manufacturing is internationally renowned, but it needs to be developed, improved and made more competitive. Its traditional know-how seems to

be too aloof from the needs of the market, particularly the international market, in terms of both production and aesthetics.

The Neang Design project views the specificity of the Cambodian tradition as a good opportunity to design products with a high narrative content, but also as a stimulus for innovation through the re-discovery of local crafts techniques in the textile field and in the natural dyeing field. Natural dyeing processes find their roots in a very ancient tradition but today, as discussed above, they are the object of renewed interest. In addition, the growing of dyeing plants protects and fosters biodiversity (by creating awareness of crops other than rice, which currently dominates local agriculture due to its sustainment value). It also has a strategic impact on the definition of new social roles, as it requires new, specialized professionals and creates new opportunities for a better exploitation of the natural and human resources of the territory. On the other hand, the search for local dyeing plants, with distinctive and unique aesthetic qualities, is fundamental to the creation of products with a highly narrative content.

Therefore, the synergy between Cambodian tradition (with individuals as the keepers of memory) and design becomes a stimulating challenge aimed at product innovation, and, ultimately, at the creation of positive conditions to guarantee a better future to young locals.

Through field research and the following phases of analysis, design and training, the project relies on a continuous exchange between Cambodian and Italian culture, and works on a groundbreaking design and production process based on the strategies outlined in the previous paragraphs.

Specifically, the objectives of the research activities are:
– [PRE-PRODUCTION] through research and innovation, to build a chromatic alphabet of the Cambodian territory, by testing the dyeing potential of spontaneous vegetation, by introducing the growing of the most promising plants, and by verifying the time and qualities of the chromatic outcomes;
– [PRODUCTION] to map the crafts techniques belonging to local tradition, in order to build a glitch-solving matrix, to be used in production stages after dyeing, so to highlight or hide the mistakes. In the production stage, the return to natural dyeing also means to protect workers' well-being, who currently work unprotected at close contact with toxic dyes;
– [DISTRIBUTION] to identify the most suitable way to educate local, but above all international consumers to this new generation of products. Their appeal should lie not only in their rhetorical value, but also in the recognition of their added value, more seductive and correct compared to that of (apparently) similar synthetic products. It is crucial, therefore, that products with added value are produced for a public that is ready to recognize their quality. A strong communication plan is therefore needed, in order to convey the values at the heart of this category of products and to transmit a renewed idea of well-being;
– [CONSUMPTION] to define the properties of dyeing plants, selected according to their benefic interaction with the human body, by verifying the physiological reaction after the clothes-skin contact[13] , and through this, to build a privileged and positive object-subject relationship;
– [DISPOSAL] to evaluate the environmental impact during the

disposal stage, by verifying if there are potential differences between synthetically-dyed products and naturally-dyed products.

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Notation

1 According to ICEA (Istituto per la Certificazione Etica e Ambientale), in the last two years the demand for biological fibers has increased by 60%. Such trend is confirmed by the Organic Cotton Farm and Fiber Report 2008, which reports that in 2008|2009 the production of organic cotton was of 145,865 tons- 26 times more that in 1997|1998.

2 For example, azo free dyes are increasingly used. These are synthetic dyes which do not release aromatic amines, which are toxic substances, often connected to cancer risk, generally released during synthetic dyeing processes.

3 It is important to underline that natural dyeing is not necessarily a sustainable process. Indeed, when fabrics are prepared for dyeing, chemicals are often used to obtain a greater adherence of color to fabrics. In addition, in order to obtain a wider range of colors from the same pigment, heavy metals are often used. This paper will only take into consideration processes that avoid such procedures and any other polluting procedure.

4 Ezio Manzini envisions «a social learning process [thanks to which it may be possible to share] new ideas on well-being, [by questioning] the cultural frame within which well-being expectations are shaped». Cfr. E. Manzini, Idee di benessere (e idee sul benessere).

5 All the information on Ildico Dornbach's activity come from an interview by the author.

6 Michael Eugene Porter identified the value chain of a company with the series of processes internal to the company itself which, when put together and supported by technological activities, can generate product value. This lies in the price consumers are prepared to spend to own the product.

7 The term Neang, which in Khmer language indicates the "breeding of silk worms" and at the same time means "woman", evokes the role that silk work has always had in Cambodian society. Neang design means to investigate the reservoir of crafts know-how that has always qualified and characterized Cambodian silk, by consciously acting on the entire process (structure, roles, interpretation of techniques and languages, final outcomes), and by innovating and creating products capable of renewing local and international interest.

8 In addition, such relationship would show a greater awareness of physiological, as well as environmental qualities.

9 Il Nodo Onlus is a charity working in the cooperation and development field in Cambodia. The aim is to promote and support training projects that target young people from disadvantaged areas. The idea is not to provide short-term assistance, but to create opportunities and tools for cultural exchange, solidarity and mutual knowledge between the East and the West.

10 The association was founded in Milan in 1986, with the aim of continuing the search and work of dyeing master Maria Elda Salice (1931-1985); it is committed to research, experimentation and promotion of techniques involving the use of natural dyes.

11 The purpose of Khmer Silk Village, a research institute working in Cambodia, is to support local farmers who hold the know-how necessary to silk production, to provide them with techniques useful to develop this traditional know-how, and to identify new market segments for their products.

12 The Fine Arts faculty of the Royal University in Phnom Penh, founded in 1918 with Goerge Groslier as the director.

13 Cfr. Harald Böhmer, Koekboya. Natural Dyes and textiles. A Colour Journey from Turkey to India and Beyond (Ganderkesee: Weppert Schweinfurt, 2002); S. Dhingra, «Textiles with a healing touch,» in Fashion and well-being? – 11th Annual Conference for the International Fuondation of Fashion Technology Institutes (IFFTI) (London, 2009); Richard Gerber, Vibrational medicine for the 21st century. (London: Piatkus Publishers Ltd, 2000); Pamela Visconti, Orientarsi nel colore. Per una dialettica cromatica degli oggetti, Tesi di Dottorato, Politecnico di Milano, Dottorato in Disegno Industriale e Comunicazione Multimediale, XXII ciclo, Milano 2010.

Stuart Walker

Design, Aesthetics and Spiritual Values

exploring technology and meaning through propositional objects

Abstract

This practice-based research explores a design approach that is consistent with sustainability and understandings of inner meaning. This requires that all aspects of an object are in accord with notions of the common good, social responsibility, and environmental care. A theoretical framework is developed, supported by precedents, that seeks aesthetic harmony between the natural and the technological, the cultural and the utilitarian. A series of propositional objects indicate a direction for design that is consistent not only with sustainability but also more profound notions of meaning. These objects extend the author's previous design explorations in design for sustainability to more specifically address understandings of meaning and spiritual values (Walker, 2006).

Keywords

Aesthetics, sustainability, spiritual values, technological products, design-centred research.

Introduction

Through our design decisions our philosophy of economics and ethics and our spiritual values find expression in the aesthetics of the mundane. Such decisions reveal our attitudes to the environment, each other and ourselves. When the norms of design are linked to environmental damage, social exploitation and spiritual aridity it is time to reconsider our conventions. To do this, we can adjust our decisions incrementally in response to those things we perceive to be amiss or we can develop a fundamentally different path, but this latter course requires us to recognise the systemic inadequacies of our current approaches. Production of greenhouse gases and unmanageable e-waste is the inevitable consequences of a larger story, one that has be-

come normalised and virtually unassailable. This is the story of progress and growth as a basis for human realisation (Korten, 1999, 67; Taylor, 2007, 716). We attempt to invoke change while maintaining this overarching narrative, which rests on technological advance and consumerism and is at odds with finite environmental capacity, social equity, and deeper understandings of human fulfilment.

This study begins with a discussion of the role of practice-based inquiry in developing a more benign and more meaningful material culture. This leads into a consideration of aesthetics and functionality, and their relationship to environment, ethics and spiritual values. Selected precedents reveal critical aspects of these interrelationships and demonstrate how depth of meaning can affect the creation of the tangible. These precedents contrast markedly with today's mass-produced, electronics-based products, which are remarkably short-lived and associated with severe human and environmental costs (Schluep et al, 2009, 6, 41).

This provides a basis for developing new priorities that broaden our understanding of products beyond instrumental factors. Such priorities have to be realised via new forms of expression that convey new sensibilities. Therefore, this inquiry includes a series of propositional objects which:
• were informed by tacit understandings and aesthetic contemplation,
• integrate the creative process in the progression of ideas,
• are a means of synthesising the findings,
• acknowledge that, with microchip-based products, the bond between function and form can be loosened, opening a space to address aspects ill-represented within virtual environments.
From this it becomes clear that the aesthetic expression of an object can be linked to broad environmental and ethical concerns as well as to substantive notions of meaning. These connections are becoming increasingly important today, when the production of technological devices is evidently unsustainable and their use is in danger of eroding our spiritual selves (Lanier, 2010, 20-22).

Beyond Words

Wittgenstein once asserted that there are propositions in ethics, aesthetics and metaphysics that lie beyond the realm of the sayable (Biletzki and Matar, 2009). Many traditions, including Buddhism (Juniper, 2003, ix) and Sufism (Williams, 2006, 8) also recognise that some aspects of knowing lie beyond words. Such tacit understandings can be perceived internally but cannot necessarily be adequately expressed through words (Polanyi, 1966, 4). This insight is important for practice-based creative disciplines. It is especially important here because this discus-

sion centres on propositional design that explores the nature and aesthetics of functional objects in relation to social and environmental considerations and substantive notions of meaning. Recognising that some understandings lie beyond words is important when developing discipline-appropriate research to address contemporary concerns.

Creative activities demand deep immersion in process - what Borgman calls 'focal practice' (2003, 22) and Csikszentmihalyi refers to as 'flow' (1990, 55-56). Such modes are akin to spiritual teachings that speak of humility, (Okakura, 1989[1906], 98; Matthew 18:4), single-pointed attention (Nhat Hanh, 1995, 10-11) and 'at-one-ment' (Shibayama, 1970, 28). Accomplishment rests on practice, perhaps over many years, the outcomes of which will be works that offer some kind of aesthetic expression. Decisions and actions are often made intuitively, via a discriminating judgements based on contemplation of the emerging aesthetic. The aesthetic experience of the developing work will be a product of the sensory experience of its intrinsic properties combined with contemplation of it as a thing of significance and value; that is, as a thing considered worthy of attention within a particular culture (Muelder Eaton, 2001, 10). Such aesthetic judgements are made with reference to an overall, but not necessarily entirely explicit, intention and grounded in a broader contextual understanding. This may result in a work that, in terms of its aesthetic qualities, fulfils the intentions of the practitioner, even if he or she is unable to explain why, because, as noted, certain aspects of our understandings lie beyond words.

Functional Objects, Aesthetics and Spiritual Wellbeing

When a functional object is judged to have aesthetic merit, this ascribes to it some degree of intrinsic value, irrespective of its utility. A functional object also has value because of the practical benefit it offers. Both contribute to one's judgement of the object. There are other factors that are not so readily apparent, such as the environmental and social impacts of its production, use and disposal, which can also inform our judgement of it.

Furthermore, ethical understandings not only pertain to societal and communal wellbeing but also to our individual sense of spiritual wellbeing, which is associated with the affirmation of life in relationship to self, community and environment, as well as with one's sense of the transcendent (Arnold et al, 2007). Consequently, our knowledge of the effects of an object's production, use and disposal on the environment, on others, and on ourselves will influence how we "see" it. In turn, this will inform our ethical judgement of it, which relates to our sense of spiritual wellbeing. And while there may be no logically necessary connection between spirituality and ethics, or between spirituality and conceptions of what constitutes a worthwhile, meaningful and good life, it is the case that spiritual traditions have, for centuries, served as productive paths for addressing questions of human happiness and virtue (Cottingham, 2005, 140). As is discussed below, certain traditions draw strong connections between outer actions, aesthetics, ethics and spiritual wellbeing.

Hence, aesthetic qualities of objects can be linked to so-

cial, ethical and environmental factors and with spiritual wellbeing. This is a critically important association because it connects the nature of our material culture – appearance, materials, essential character – with an individual's core sense of meaning and inner harmony.

In terms of our currently dominant approaches, the economic and production requirements of any manufacturing system demand certain kinds of design decisions which, in turn, affect the nature of the objects produced. Unavoidably, the product's design is governed by the larger system of which the design process is a part. If that system is harmful, this will be inculcated into the nature of the product and reflected in its aesthetic qualities.

To change the course of our production systems, to overcome their severely damaging effects, the issues must resonate at an individual level and not be seen simply as a broader societal problem. In this, it is important to recognise the connection between the consequences of our current forms of material culture and our own personal sense of meaning. As has been demonstrated here, this connection is made manifest through the aesthetic experience of the object.

Clearly then, to develop new forms of goods that represent new sensibilities we have to depart from current norms, and here it is useful to look at precedents from other cultures.

Design is usually framed in terms of problems and solutions but today these 'solutions', in the form of mass-produced products, are associated with serious harm and unfulfilling routes to happiness (Schor, 2006, 178, 187-8). If we believe we are developing 'solutions' to predefined 'problems' then the aim will be to design fully resolved outcomes - but such notions are untenable; advances in technology quickly render such products obsolete. This prevalent terminology of 'problems' and 'solutions' locks design in an outmoded ontological frame.

If instead we understand design as a continual process then we can view discrete outcomes are not 'solutions' but temporary manifestations offering fleeting benefit. By thinking of design outcomes in such terms, we place them within a larger frame of reference – one in which passing benefit is seen against longer term environmental degradation and social deprivation, as well as personal notions of meaning. In such a context, we can begin to conceive of functional objects not simply as utilitarian 'solutions' appended with the fragile attractiveness of newness, but as more holistic expressions of human meaning in an evolving field of understanding.

Design Precedents

Despite manufacturing advances, today's microchip-based goods are produced according to a rationale that remains anchored in the industrial practices of the 20th century. The obdurate conventions of these, now globalised, approaches prioritise short-term quantitative growth over longer term, sustainable strategies. The fundamental deficiencies of this rationale are proving especially harmful because the rate of technological development has served to reduce the useful life of goods to

just a few years (Schluep et al, 2009). To pursue more conscionable directions, it is useful to look at precedents. The author has explored alternative design approaches in his own design-centred research (Walker, 2006), a innovative directions have been advanced by the Droog designers (Ramakers, 2004), and by Cuban designer Ernesto Oroza (de Bozzi and Oroza, 2002). While many examples could be cited, four have been selected here that embody aspects of the human condition generally ill-represented in contemporary technological objects.

A Zuni carving and the Wabi Sabi aesthetic exemplify approaches rooted in spiritual sensibilities and relationships with the natural world. An Industrial Revolution water dam is an example of technology and engineering that finds harmony with nature in situ. Lastly, objects from Andrea Branzi's collection Grandi Legni exemplify a contemporary approach that transcends conventional boundaries. Consideration of these, and the ideas they embrace, provide a starting point from which to explore more judicious directions for the design of technology-based goods.

Zuni Fetish Carving

Figure 1: Zuni bear fetish carving "Seasons" by Bernard Liawakete,
USA with permission of Cherry Hill, www.horsekeeping.com.

The bear fetish carving entitled "Seasons" by Bernard Liawakete of the Zuni tribe in the American Southwest (Figure 1) is a modern example of an ancient object type that expresses values and ideas far removed from today's utilitarian, electronic devices. For certain indigenous peoples of North America, these kinds of objects symbolise mysteries observable in nature. The can represent animal or other spirits and are used to invoke the wisdom or protection of those spirits and to affect the course of events (Whittle, 2006, 6).

In modern, economically developed cultures such beliefs are often dismissed as superstition. However, they represent long standing ideas within complex traditions aimed at keeping a balanced outlook and harmony among the different facets of nature. To do this, the society's stories and laws emphasised cooperation, moral behaviour, and respect for ancestors. Key elements of this worldview were the interrelatedness of all things (Ibid, 13).

Zuni fetish carvings represent an outward acknowledgement and expression of these ideas. Arrowheads, stones and shells make up the medicine bundles, secured to the carvings with sinew. These refer to different aspects of life such as hunting, sickness, or the harvest, and belief in the power of a fetish to affect events gives it meaning. However, traditionally, a critical aspect of their 'use' was that the object itself was not held responsible if a desired outcome was not forthcoming. Instead, fault was attributed to the behaviour of the owner. In this way, the fetish served as a tangible reminder of appropriate behaviour and moral values. Hence, the onus was placed on the bearer – the object itself did not directly or 'magically' perform (Whittle, 2006, 15). Other traditional cultures ascribe similar meanings to objects (Bahti, 1999, 19, Papanek, 1996, 52, 234).

Wabi Sabi

The Japanese aesthetic philosophy of wabi sabi represents an attempt within the tradition of Zen Buddhism to express a love of life alongside an acknowledgement of its fragility and transience. It is founded on principles of humility, restraint, naturalness, and the inevitability of impermanence. It draws on perception rather than rationalistic understandings and recognises that all things are in flux. Wabi sabi expresses the ephemeral, melancholy beauty of existence – that brief period which occurs between the birth and the passing of a thing (Juniper, 2003, ix, 1; Koren, 1994, 15, 18).

Figure 2: Wabi sabi aesthetic, sake cup by Tomio Morimoto,
Tanba Hyogo, Japan

Koren suggests that the characteristics of wabi sabi are virtually the polar opposites of those of post-war modernism. The latter, distinguished by its minimalist perfection, still dominates much of the landscape of consumer goods and contemporary architecture. It is an aesthetic that expresses the cool, precise rationalism of technological progress through pure geometric forms and synthetic materials - an aesthetic of clarity, reductionism and control. In contrast, objects that embody the wabi sabi aesthetic tend to be characterised by a lack of artifice, rough textures, a faded, imperfect elegance and asymmetry but, unlike Zuni fetish carvings, they have no symbolic connotations. Rather than being homogenous and mass-produced, such objects are earthy, variegated and individual - as shown in the ceramic cup from Tanba Hyogo, Japan (Figure 2). Wabi sabi implies an intuitive sensibility that is firmly located in the present and, in stark contrast to today's widely-accepted supposition, it assumes there is no such thing as progress. The use of natural materials and organic shapes allows decay and corrosion to be absorbed without detracting from the overall aesthetic; indeed, deterioration tends

to add to the object's expression. This aesthetic also suggests a broadening of sensory appreciation rather than a reduction, as it comfortably accommodates ambiguity and impermanence. However, unlike most contemporary approaches, function and utility are not of primary importance (Koren, 1994, 25-29).

These aesthetic characteristics are not merely a preferred style – one fashion among many - but are the outward expression of a comprehensive approach that includes metaphysical understandings, spirituality, wellbeing and ethical behaviour. Wabi sabi is rooted in observations of nature, and the idea that all things are transient (Ibid, 41, 46). It emphasises an intuitive, direct communion with the nature of things as they are at this moment and attests to the import of the fleeting, ever-changing present. Appreciating the nature of ordinary, mundane things in this way does not mesh with a system of efficiency, measurement and targets. At such moments of absorption there is a sense of transcendence that lies beyond words in which the mundane and the spiritual are of equal importance – no distinction is made (Okakura, 1989 [1906], 70,101). Therefore, while wabi sabi is not necessarily concerned with explicitly spiritual objects, as was the case with the Zuni fetishes, this aesthetic philosophy recognises the importance of spiritual values in the creation and nature of material things. It draws strong connections between outer, concrete actions, aesthetic expression, ethics and inner meaning.

In developing less damaging approaches to contemporary product design and production, the implications of wabi sabi are significant. Accepting the constantly changing nature of existence, both of living things and human-made artefacts, highlights the importance of process over product. Acknowledging that artefacts are, and can be designed to be, in a state of continual flux reveals the limiting nature of terms such as 'definition', 'completion', and 'solution'; terms that represent a cessation of change (Okakura, 50-61). Furthermore, stressing process over product implies a certain humility. It suggests that a definitive, lasting solution is not actually attainable. Instead, human-made artefacts are considered to be in a continual state of becoming – with elements corroding, being damaged or outmoded, and being replaced, renewed or in some other way altered.

Abbeystead Dam

In contrast to the previous examples, Abbeystead dam is a technological artefact built on strict engineering principles. Despite its utilitarian foundations, however, its use of materials, type of construction, and scale, as well as the sensitivity given to its siting, all go to show that even large, highly pragmatic projects can be executed in ways that are sympathetic to and respectful of nature.

Abbeystead dam (Figures 3, 4, 5) is located on the River Wyre in an area known as the Forest of Bowland in the heart of rural Lancashire. It was constructed in 1855, at the height of the Industrial Revolution, and later enlarged to supply water to factories further down the river (Farrer, W. and Brownbill, J. (eds), 1914).

Figure 3: Shaded vale under Abbeystead Dam, Forest of Bowland, Lancashire.

Figure 4: Upper overflow - Abbeystead Dam

Figure 5: Lower overflow with overhanging leaves - Abbeystead Dam

It is an example of a human-made artefact that has been inserted into the natural environment – it is bonded to it and dependent upon it. It can be appreciated not merely for its practical purpose but also for its accumulating, ever-changing existence as a thing. It is being continually scoured by flowing water, ice and the elements. Its surfaces alter – discolouring, eroding, accruing woodland detritus and budding growths in the interstices, becoming encrusted with evaporites and lichens and cushioned with mosses. Its enduring form has enabled it to absorb these accretions of time and acquire the patina of age, yielding an artefact both functional and beautiful.

Hence the Abbeystead dam is an example of an artefact that is unified with locale. In the fullness of its present utility and aesthetic, it creates a particular character of place that is re-

plete with evocations, ideas, history and culture. It is a place where the unavoidable, pragmatic needs of our physical humanity – expressed through creative endeavour in the form of a rationalised, technological construction – find harmony with the natural environment. While there is necessarily a change in that environment, we cannot avoid the fact that human needs inevitably demand intrusion into and alteration of nature. Here, however, it is done with empathy for place and in a way that, in many respects, enhances the natural environment - creating new kinds of habitats, in the form of a lake and wetlands, for fish, waterfowl and plant life. The Abbeystead reservoir might not be a spiritual place in the way we normally think about spirituality and its associations with religious meanings. However, as in wabi sabi, the mundane and the spiritual exist together through a harmonious integration of utility, beauty and empathy with nature.

Architect Christopher Day suggests that four levels of place are essential to the creation of a harmonious 'built' environment. These comprise physical substance, time continuum or flow, mood, and essence or inspiration. Day argues that these levels recognise that our world is more than simply material; it is also living, being populated by sentient animals, and by human beings who can be inspired and stimulated by ideals (2002, 29). All these elements are manifest in Abbeystead dam.

Grandi Legni

Italian designer Andrea Branzi's collection Grandi Legni comprises a series of large, enigmatic objects that are not easily classified – two examples are shown in Figures 6 & 7. Occupying a place that lies somewhere between architecture and furniture, they are constructed from old timber beams, larch wood cabinets, metal brackets and even a bird cage.

Figure 6: Grandi Legni GL 01 by Andrea Branzi. Old beams, wrought iron, larchwood cabinets. L300 x W18 x H205. Reproduced with permission; photo by Rui Teixeira, 2010

Figure 7: Grandi Legni GL 02 by Andrea Branzi. Old beams with larchwood cabinets. L320 x W28 x H270. Reproduced with permission; photo by Rui Teixeira, 2010

They have an archaic, mythological character and are evocative of ancient, forgotten truths that lie beyond the veil of memory and recorded history. Essentially, and surprising as it may seem, these pieces are a response to the capabilities offered by micro-chip technologies. However, Branzi is not seeking reconciliation between the virtual and the material, but rather a somewhat distanced complementarity. In a time when digital utility has rendered material functionality largely impotent and its design theories irrelevant, Branzi sees the conventions of design as being outmoded and design practice as endlessly repeating variations on a theme – regurgitating forms that fail to respond to the seismic changes brought about by the new technologies (2009). These virtual environments and digitized functionalities have liberated physical objects from the constraints of utility, enabling them to address more substantive matters. Physical design becomes a mediation between the mundane and the meaningful – a conduit for retrievals and expressions of histories, myths and human spirituality. Freed from prosaic function, design can address those very things that virtualisation lacks – the real and the tangible, scale and weight, the textured and tactile, the patinas of age, weathering and corrosion, connection to earth, and the indefinable bond between the ever-decaying corporeal and the spiritual. Through these unique, unrepeatable qualities of concrete materiality, Branzi attempts to draw connections between the physical world and deeper, sacred aspects of our humanity.

A Basis for New Design Directions

The Zuni fetish of the American Southwest, the Wabi Sabi aesthetic of Japan, Abbeystead dam of Industrial Revolution England, and Andrea Branzi's 'Grandi Legni' all stem from different cultures and time periods. While each emphasises particular aspects of material culture, collectively they suggest a strong direction for design that is intimately related to contemporary concerns – particularly the environmental,

social and ethical issues associated with sustainability, as well as substantive matters of human meaning, including spiritual understandings and values.

Insights and reflections drawn from these kinds of examples can inform and help steer product design in new, more positive directions – directions that attempt to find greater accord between our utilitarian needs and those things that are so poorly attended to in our current production systems. Clearly, these considerations must become intrinsic systemic elements rather than optional add-ons that are too readily and too frequently avoided. Even more importantly, but intimately linked to environmental and ethical considerations, we must find ways of imbuing design with substantive notions of meaning.

It is also important to recognise that in practice-based disciplines such as design, the creative process itself must be integral to the development of new directions. Converting the above ideas into defined axioms, objectives or criteria becomes less important than absorbing the tenor and spirit of the ideas and allowing them to inform the design development.

Propositional Objects

Design explorations were conducted concurrently with the theoretical ideas and the investigation of precedents, Figure 8. The resulting objects are only tangentially associated with specific points and conclusions from the preceding examples but intimately associated with and, it is hoped, reflective of, their overall nature and disposition. The approach is, therefore, one of synthesis rather than analysis - entirely appropriate for a design-centred inquiry and consistent with the wabi sabi philosophy (Richie, 2007, 33).
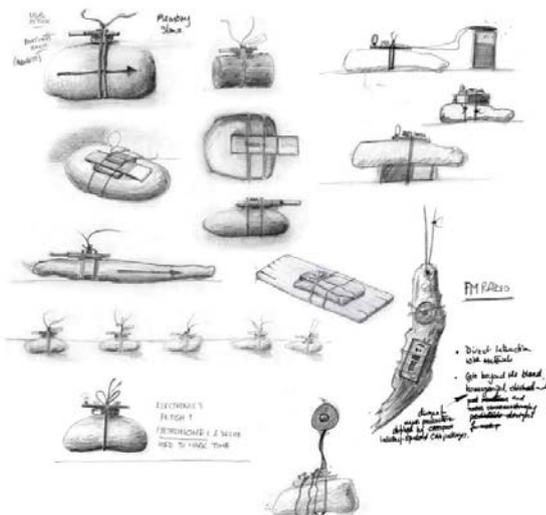
Figure 8: Propositional designs – development sketches

These propositional objects address issues of sustainability and meaning related to electronic products; unlike the Grandi Legni pieces of Branzi, they incorporate these technologies. Through creative practice, the aim was to find locally achievable, harmonious aesthetic relationships between mass-produced electronics and minimally-processed or entirely natural

elements - not by seeking an integration but through a loosely attached juxtaposition. This results in an aesthetic synthesis characterised by a visual separation between the local and the mass-produced, the natural and the artificial; a separation that acknowledges the divisions that exist between these very different types of components, including those of production scales, process and impact. It also allows for their physical separation after use - for benign return of the natural elements to the local environment and for re-use or re-processing of the mass-produced elements.

This addresses two critical aspects in the development of a meaningful material culture, which imply both incremental improvement and radical change:

1.It acknowledges the necessity, transience and impact of mass-produced components in delivering functionality, while recognising that their useful life of these components can be prolonged through design for disassembly and reuse, and impacts can be reduced through incremental improvement in manufacturing practices.

2.It recognises the potential benefits of localisation in sourcing elements and in adaptation, repair, and upgrading. This points to an entirely different system for the creation of our material culture and a new vernacular that combine mass-produced and locally sourced elements. Such objects would become meaningful in ways that surpass mere functionality, important as that may be. They represent employment, local materials and skills, and become indicative of a culture's creativity and values. Hence, the material culture becomes an embedded, meaningful element of the culture as a whole.

These propositional objects are not presented as alternative design 'solutions' to contemporary mass-produced products. Culturally meaningful objects cannot be mass- produced. Instead they suggest a potential direction, one that must emerge and evolve locally. The particular function of these objects is of only secondary importance. The main concern is aesthetic synthesis and, consistent with the previous examples, a broadening of both sensory appreciation and object meaning:

• 'Tempo I' (Figure 9), an electronic metronome combines electronics with local Sunderland Point stone and an organic hemp binding.

• "Tempo II' (Figure 10), circuitry, battery and hanging cord are attached to forest floor wood from the Trough of Bowland.

• 'Lagan Bell' (Figure 11) a wireless reception bell - circuitry mounted on Cumbria driftwood and the bell-push bound to a Bowland river stone with hemp cord. Shot silk attests to the once prominent local silk industry.

• 'Wireless' (Figure 12) combines electronics with Cumbria coast pebbles and shot silk.

These objects are concrete visualisations of the ideas discussed earlier but offer layers of expression that go beyond verbal description.
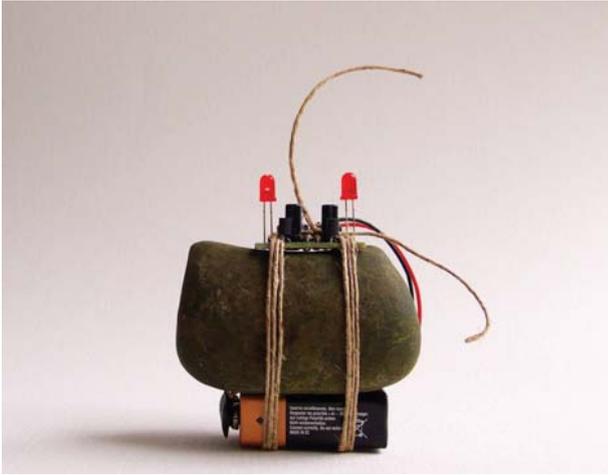
Figure 9: Tempo I: metronome with adjustable speed LEDs. Electronics; Sunderland Point stone; hemp cord
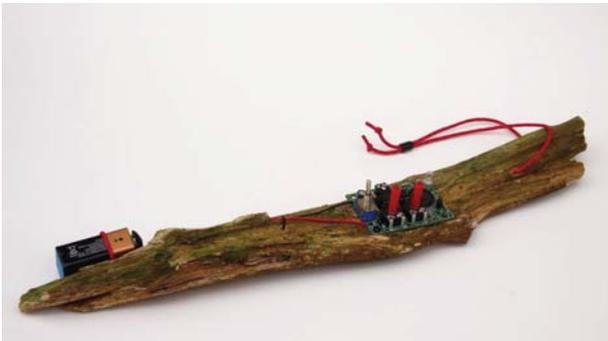
Figure 10: Tempo II: metronome with adjustable sound and LEDs.
Electronics; climbing cord; forest
floor wood from the Trough of Bowland, Lancs.

Figure 11: Lagan Bell: wireless reception bell. Electronics; Cumbria coast driftwood; Bowland river stone; hemp cord; shot silk
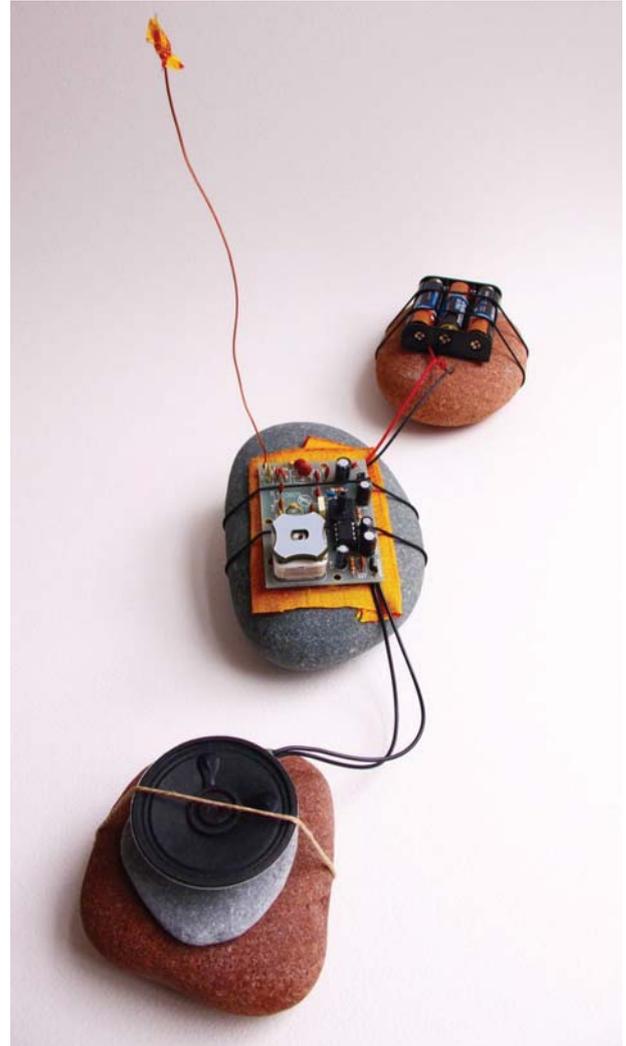
Figure 12: Wireless: AM/FM Radio. Electronics; Cumbria coast pebbles;
shot silk; cords (various)

Conclusions

Within conventional, mass-produced notions of 'product', sustainability can be addressed through incremental changes in materials, processes, packaging and so on. However, as presently conceived, large production systems for global markets are incapable of incorporating local contributions, materials and preferences to any significant degree. While contemporary electronic goods may be adapted to individual needs in terms of their software and applications, the essential manufacturing construct remains firmly in an industrial age that is proving extremely destructive. As is clearly evident from the aesthetics of contemporary products, the physical objects themselves are, for the most part, anonymous and un-located – designed in a manner that is suited for anywhere, everywhere and, arguably, nowhere.

In contrast, the propositional designs presented here are suggestive of a more radical change that includes much greater emphasis on localization and which combines product manufacture with the development of a range of local services. With regard to the nature of the functional object, this becomes intimate

to and emerges from place in terms of its materials, aesthetics and essential qualities as a thing. Such a direction demands a letting go of ego along with externally imposed notions of style so as to allow 'place' to inform and become part of the object's definition – in its materials, surface qualities and manufacture. In addition, the functional elements are all visible and explicit, rather than hidden within, often arbitrarily styled, casings. This includes the batteries, on which so many contemporary products depend, and which are so environmentally problematic. These too become visible and therefore more acknowledged in our everyday lives – perhaps prompting us to seek alternatives.

These propositions are very much concerned with the present context – not the past or the future. Such present-oriented design has to be ephemeral, partly because technology is always moving on and partly because today's concerns and sensibilities will not be those of tomorrow; tomorrow will need its own expressions for its own time.

In a more localised, continually changing material culture, the object can be tailored to cultural and individual requirements. As long as its production, use and after-use are not damaging, and parts that cannot be benignly returned to the natural environment can be re-used, the object need not last forever. To conceive of technological goods in such terms allows for a lightness of touch that is lacking in the more considered, consequential world of mass-production. It offers space for artistic and cultural expression to pervade material goods and to reflect and express contemporary sensibilities. In so doing, there is an opportunity not only to reinvigorate design, for it to become truer to the creative imagination that lies at its heart, but also to imbue mundane, functional goods with meaning, thereby contributing to cultural and spiritual wellbeing.

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Figures

1.Native American bear fetish carving "Seasons" by Bernard Liawakete of the Zuni tribe. Photo reproduced with permission of Cherry Hill, www.horsekeeping.com.
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3.Shaded vale under Abbeystead Dam, Forest of Bowland, Lancashire.
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5.Lower overflow with overhanging leaves - Abbeystead Dam.
6.Grandi Legni GL 01 by Andrea Branzi. Old beams, wrought iron, larchwood cabinets. L300 x W18 x H205. Reproduced with permission; photo by Rui Teixeira, 2010.
7.Grandi Legni GL 02 by Andrea Branzi. Old beams with larchwood cabinets. L320 x W28 x H270. Reproduced with permission; photo by Rui Teixeira, 2010.
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9.Tempo I: metronome with adjustable speed LEDs. Electronics; Sunderland Point stone Lancs.; organic hemp binding.
10.Tempo II: metronome with adjustable sound and LEDs. Electronics; climbing cord; forest floor wood from the Trough of Bowland, Lancs.
11.Lagan Bell: wireless reception bell. Electronics; Cumbria coast driftwood; Bowland river stone; hemp cord; shot silk.
12.Wireless: AM/FM Radio. Electronics; Cumbria coast pebbles; shot silk; cords (various).
Unless otherwise stated, photos are by the author, as are designs in figures 8-12.

Andrea Mendoza Ph.D.

From Hubs to Habitats

Sensitive communication and indigenous knowledge in the pursuit of urban quality of life

Abstract

According to some aboriginal communities, there are hubs around which habitats are built, e.g. an African artist makes a sculpture of a pregnant woman and a member of the tribe, while passing by, leaves a feather on it, another leaves a leaf, another a piece of intestine etc., each one goes adding something to the mud of it and thus it becomes not only an object but a gravity centre for the community (Rosa 2007).

What could contemporary cities learn from these ancient but disdained ways? Is it possible to extrapolate such knowledge using the linkage art-design-architecture to create and recreate meaningful habitats where communication brings about well being? Could traditional knowledge penetrate the collective imaginary so that shifts towards more sustainable ways of communicating start to emerge?

The aim of this paper is to offer a background regarding the sacredness of communication and its possible connections to design. This, by highlighting the communication ways of the indigenous community living around El Dorado lake in Colombia.

Possible ways of applying the knowledge embedded in these practices are suggested by exposing examples from a range of public interventions worldwide.

"The primal father of the Guaraní people, stood up from the darkness,illuminated by the reflections of his own heart, and created the flames and the transient mist. Created love and did not have who to give it to. Created language but did not have who could listen to him. So he asked divinities to build up the world and take care of the fire, the mist, the rain and the wind. And gave them the music and the words of the sacred song of praise, so that they can bring to life women and men.

Like that, love became communion, language took life and the primal father emancipated his loneliness.

He now walks along women who sing:

-We are now stepping on this land
We are now stepping on this radiant land-".

Eduardo Galeano.
The Language

Memoria del Fuego I

Introduction

Today, the atmosphere is green. Bogotá, the Capital of Colombia, and the rest of the country are precisely today, while these words get written, under a state of hope. Today the country is voting for President.

There are two strong candidates, one representing the actual government who's strength lays in military control; the other one is a mathematician, philosopher and former mayor of the city, representing the green party. People who support the second one are basically those who have had access to education or have other kind of understanding among which, the indigenous sector, a population that has experienced, first hand, the government's fight against drugs and witnessed companies exploiting natural resources, destroying their environment, livelihood and culture.

The purpose of this paper is not to go into a political analysis, but if we are to look for ways to improve quality of life in contemporary cities, based on traditional and indigenous knowledge (TK/IK) we have to acknowledge that the sector that moderates "culture" in a country is basically the state, and thus a framework needs to be exposed.

Furthermore, it becomes mandatory to understand how indigenous knowledge flows by means of language to find out if their ways to convey wisdom and communicate, may help when building up citizenship culture (Mockus)[1] , a culture that refers not only to policy laws but also to the laws that regulate material culture and means to communicate.

I. Traditional Knowledge (TK)
1. Recalling

Sacred. That very word has been used not just by former Mayor Mockus when he states that "life is sacred and public resources should be managed as sacred as well", but it's the key under which indigenous understand their relations.

Colombian Indigenous have been marginalized, such as

South Africans during the apartheid or Jews during their Diaspora, but just as Jews use to say: "we are back", indigenous are back. That "back", that for Jews goes beyond the mere territory and moves to a "taking back" their land, of honey and milk (a very deep understanding of what is sacred within nature relies in this thought) is, in a different context but for the same human condition (Arendt) reasons -which include the three kinds of activities that the human being is capable of: labor, action and work-, also happening within Colombian indigenous communities.

Now, indigenous are going back to their memories, as they say, they are: "remembering" their source, since from it comes the energy to teach the younger brothers (as they call the white man) how to overcome threatens of this era based on the way they understand "the word", and on their resilient[2] life-styles and evolution, a development that is not just embedded in genes but that has moved alongside culture.

Indigenous communities are back to cities not just as dislodged populations, but also moved by the aim of profiting the opportunities that urban settlements offer in terms of education. That is how many indigenous youngsters travel to big cities like Bogotá to, for instance, engage university studies.

Talking to them, or better, listening to them is a real pleasure since they entrench a traditional wisdom that has been passed through generations, knowledge that they read under the keys of the contemporary. They are: our young creators.

"Life has its origin in thought, over and above, everything else. For that reason, we must be careful of our thoughts. If we think lovingly, we will be creators of a realistic dream that can be integrated into the creative force that rules this world.

Do you really have control over your thoughts?".
Muisca Council

1.1. Sacred and the Academia

Belonging to the Design for Social Innovation and Sustainability Network (DESIS) its Colombian node, linked to Los Andes University thanks to faculty of Architecture and Design, has started an exploration aiming at improving the way in which citizens communicate in the urban realm, specifically inside public transportation in Bogotá. For this, the ways in which indigenous communities make use of language in public spaces is being assessed. The idea is to understand how this, their knowledge, and ways of being and doing, can be extrapolated and translated into the urban realm and language of the city. The research has two components, in one hand a theoretical approach and specially "listening"/observation exercise from the designers involved, in order to detect which promising signals could be grasped. There is to say that this exploration is not aimed at creating platforms to improve indigenous people lives or empowering marginal communities by means of communication technologies, on the contrary we start from the intuition that it is us, who have to learn from this Indigenous Knowledge.

So far, the most relevant signal has been found inside the "malocas", communal houses or places where indigenous chiefs have their talking sessions.

On the other hand, within the DESIS framework there is an ongoing semester-long exercise developed at the interior of the Sustainability class (design department Uniandes) where a projectual exercise, using the Desis tool-kit which includes a quasi-ethnographic approach (Meroni 2007) following a series of interviews, photographic mapping and design intervention proposal, has started.

The outcome of this exercise is meant to be a public design intervention inside public transport in Bogotá (transmilenio[3]) to see if cellphone users could improve their communication manners. The results of this exercise will be exposed under video formats.

1.1.2

Language has been a decisive factor regarding indigenous evolution. That is how, in order to study the indigenous tribes, historians have based their work in linguistic studies. In Colombia, these studies (ICAHN[4]) have lead to classify the tribes in 3 big families: Chibcha, Caribe and Arawak.

For our purposes, one indigenous tribe has been chosen from within the Colombian Chibcha indigenous family: the Muiscas ethnic group. From this tribe, the clan located nearby the lake of El Dorado legend (Guatavita/Sesquilé) has been elected. Among the reasons to choose them there are facts such as their evolved dialect, knowledge production, architecture, and their deep understanding of our contemporary and its problems.

Indigenous communities in Colombia have been marginalized along years and spaces, indeed in the last 15 years they have been noticed just by the drug issue in the country hence much of the land that they used to occupy has been appropriated by the drug mafia or the guerrilla displacing the tribes and forcing them to move to big cities and consequently, losing their roots, traditions and dignity. But it is the Muisca group, and particularly our focus group, one of the few that has kept on evolving in terms of coping with modern life in almost equal terms without losing their original know-how or language, also because they have not had to leave their land.

The Guatavita/Sesquilé clan has been one of the fortunate tribes that has got governmental support in terms of conserving their territory under "reserve" terms. Consequently, they have engaged a process of community based tourism in the lake; by this means they allow the "white man" to enter their lives in order to somehow help out their knowledge expansion process.

Now, Can design move from the tangible (hub) to the ephemeral (habitat)?

When establishing the framework for this research, the concepts of hub and habitat emerged as basic exploratory pillars.

A hub is here understood as a pivot around which culture is built. The habitat is all the culture build up, progressively, around it (Mendoza 2009).

Hub 1
The Poporo

When indigenous move around, being it at their reserve in

Sesquilé or in big cities, they are connected to their culture by means of a hub called: Poporo. (Fig 1).

The Poporo (Leverato Y. 2008)[5] "is a device used by indigenous cultures in present and pre-Columbian South America for storage of small amounts of lime (mineral). It is constituted by two pieces: the recipient and the lid that includes a pin used to carry the lime to the mouth while chewing coca leaves. Since the chewing of coca is sacred for the indigenous people, the Poporos are also attributed with mystical powers and social status. While using it, they become silent, this in order to get better understanding and connection with their environment, to avoid wasting energy during unfruitful dialogues and to prevent them from invading others personal bubbles (Argüello)[6].

Fig. 1. Poporo[7].

The Poporo allows them not only to "think" –before talking-, but helps them to write history in a sort of code: "The Kogui themselves explain that they chew coca in order to obtain the state needed to communicate more easily with their ancestors[8]."

"You can see the calcium build-up on the head of the Poporo gourd […] if you break a gourd, you cannot simply throw it away, because every stroke of that stick that has built up that calcium, the measure of a man's life, has a thought behind it"[9].

Hub 2
Fire

The fireplace is the centre of the community. It is there where oldest members of the community pass their knowledge to younger ones.

This very hub remains alive at the centre of the indigenous Malocas. (Fig. 2) and especially at the ceremonial house of the community: Cusmuy[10]: "a body that reflects the world, the territory, where every element fulfils a function. Likewise, the home is the school where, around the fire, we listen to the world and is shared in the fire of our hearts. At home we form ourselves as persons who take care of –and or prolong- the greatest world".

(a)   (b)

Fig. 2 Indigenous houses in Nabusimake, Sierra Nevada (a), these houses can be inhabited. Whereas the Maloca (b), is usually used by, Chibchas, for ceremonial purposes (in other regions of the country, e.g. Putumayo those are also inhabited). Photos by Andrea Mendoza

In the Mamos (chieftains) meetings, it is fire what bonds them.

It is remarkable to acknowledge how simple gestures and respect build up a peaceful and sacred atmosphere inside the Maloca while they are "escuchando palabra" (listening to the wise word). Each one of the members who sits around the fire keeps silence and works on his popóro until his fellow spokesman finishes. Any person interrupts the other. They do not go clapping, yelling or quarrelling.

Cellphones are banned inside the cusmuy, interruptions or distracters of any kind are by all means prohibited and in ceremonies or celebrations if there is going to be music, they play it themselves.

If we think about the hubs/fire around which our modern societies get together nowadays, we may have the Internet, the TV, the Wii; now, do those make our lives more sustainable? Do those help us shaping a mental ecology or building up a society based on respect by means of a thoughtful a common language?.

1.2. Communication is Sacred

Contemporary cities are witnessing the quick pace (Honoré Carl 2004) at which citizens move and specially: talk[11]. It is common to see, for instance, groups of youngsters walking together as a group but each one having a different conversation over his/her mobile phone; drivers having their eyes pointing the road while their minds are talking over the bluetooth; people assuring that they are almost there, at the fixed appointment place while they are kilometres away; people telling out loud about their private lives etc. Cities are full of those assembles. But is also full of invisible assembles (Latour 2005) built up from the intangible element of language. Words, or "small devices of thought", that give account of our contemporary "polis"[11].

The most immediate artefact that could be mentioned as a portable hub in the contemporary, is the mobile phone.

In a nomadic society mobile phones have become a necessary device. Issues such as security, connection and speediness are the key to its existence. That, in tangible and utilitarian terms, but in intangible ones, regarding the incidence in the life of citize it is necessary to ask ourselves if during a normal conversation over the mobile phone, we, as Muiscas do "wait for the "word[13]" to come".

Knowing that mobile phones are such indispensable and

useful artefacts for the daily life of commuters, the concentration here is not in censuring its use but rather finding a way to make best "use" of it with the tools of design. Not only a design of artefacts or systems but a behavioural one: a mental design.

2. Mobile

"In the deep jungles of Africa, a traveler was making a long trek. Coolies had been engaged from a tribe to carry the loads. The first day they marched rapidly and went far. The traveler had high hopes of a speedy journey. But the second morning these jungle tribesmen refused to move. For some strange reason they just sat and rested. On inquiry as to the reason for this strange behavior, the traveler was informed that they had gone too fast the first day, and that they were now waiting for their souls to catch up with their bodies."

-- Lettie Cowman, Springs in the Valley

Mobile phones, conversations, silence and respect

The need for the slow[14] , seen under the lens of "the sacred" could fit into the category of "slow talking", just as the "good, clean and fair" sense embedded in the slow eating of Slow Food[15] or the concept of Slow Cities[16] . And it is precisely there where we would like to open a conversation in order to reflect and bring about design proposals.

Can design highlight the "sacred" meaning of communication taking mobile phones as a tool to improve life quality inside commuting spaces in the city?.

The exploration done accompanied by the Muisca community is meant to be a pillar for future projects and workshops held at the academia, including the on-going one running at Los Andes university along with other design schools (overseas) and two of its thematic clusters: Urban Dynamization and Traditional Knowledge; this to assess local knowledge in various latitudes, their possible interconnections and actions and thus draw design proposals targeting: "communication manners" worldwide.

The approach is moved by the insights of Professor Ezio Manzini and his stopover in Colombia in (2009) when he visited the Sesquilé/Muisca community; by the labour of Italian designer, architect and theoretician Andrea Branzi[17][18]   who states that: "it is art which really penetrates human imaginary and thus actions and behaviours"; and by the insights of Italian artist Paolo Rosa.

3. An initial approach

In order to start working on the issue of Traditional Knowledge (TK) with the Muisca community, a series of activities are taking place based on the methodology and findings of a previous theoretical class pursued at Los Andes University called Atmósferas de Diseño (Design Atmospheres), class inspired on the theoretical labour of Olafur Eliasson[19][20]   , Andy Goldsworthy[21][22]   , Paolo Rosa or Bill Viola, from which a model to construct moments of "awe" or: responsive circumstances was born.

The reviewing approach encompasses four stages before entering the projecting phase:

3.1. Defining hubs and resulting habitats. Two questions move us there:
a. How could mobile communication be used in a non-upsetting and rather ephemeral way in the public sphere?.
b. Could mobile communication manners be "designed" so that users do not disturb the already hectic ambience inside public transportation? If so:
c. Could such manners be prompted by re-reading traditional/indigenous knowledge?
In order to deliver a set of initial answers, a preliminary examination regarding the way in which the indigenous use "the word" is being done, having as centre of the approach Poporo & Fireplace.

3.2. Maloca sessions.

A series of visits to the Malocas are also taken place, not only in Sesquilé, but also at the Botanical Garden in Bogotá, where a gather of other indigenous communities (not only Muiscas) have built up a Maloca inside the city, where they use to get together and share "the word" with citizens every week.

The approach in these sessions is to be done based on the DESIS tool-kit, involving this, a series of interviews to fill up a light and in-depth formats, mood boards, story boards, visualization templates and video sketches.

Conclusions drawn from these sessions can be summed in the concept of connection.

A connection to the inner sense of the word, a connection to the other's word and world, and a connection to the meaning of those worlds/words.

3.3. Transversal inferring, as to the pertinence of Design along the exploratory path.

3.4. Shadowing (Sclavi)[23]

Some designated members of the Muisca community are to be "escorted" on their daily lives. This to map the way in which they use "the word" outside the Maloca, to trace if effectively the behaviour that they show inside the Maloca has effects outside ceremonial rituals and realms.

This stage follows pretty much 7 rules suggested by Sclavi (2005). Specially rule number seven:
1. Never be in a hurry to reach conclusions. Conclusions are the most ephemeral part of your research.
2. What you are seeing depends on your point of view. In order to see your point of view, you have to change it.
3. In order to understand what another person is saying, you must assume that he/she is right and ask him/her to help you to understand how come so it is.
4. The emotions are basic tools of knowledge if you understand that they speak a language of analogies and relationships. They don't tell you what you are looking at, but how you are looking at it.
5. A good listener is an explorer of possible worlds. The signals which he or she finds most important are the ones that seem both negligible and annoying, both marginal and irritating, since

they refuse to mesh with previous convictions and certainties.

6. A good listener is happy to accept the self-contradictions that come to the fore in personal thoughts and interpersonal communications. Misunderstandings are accepted as occasions for entering the most exciting field of all: the creative management of conflicts.

7. To become and expert in listening you must follow a humour-based methodology. But once you have learned to listen, humour arises on its own.

A common trace, outlined from the members of the Muisca community, is the accurate use that they make of humour (Mendoza, 2008)[24] , and in this sense there is to say that at a deep level, the issue of communication deals with humour, understood not as "the joke" but as a central pin of human communication, a pivot that shakes the status quo and the rigid senses of understanding, upraising in many cases the human condition to a higher level[25] .

II. Discussion

Days have passed since this paper started getting written. As predicted, the candidate and ex-minister of defence won. According to what is heard on the streets, it seems that the philosopher, former Mayor A. Mockus lost since his language "is too complex", as argue those who prefer the straightforwardness of weapons over the dialogue to solve conflicts, without recognizing that during his period as Mayor of Bogotá, with a whole educating strategy, based on playful pedagogy using codes such as mimes, street artists and card games to sanction failures instead of punish with fines, Mockus did change the atmosphere of Bogotá, the indexes of violence decreased, citizens were keen to pay more taxes for the sake of the city improvement, peace could be breath in the streets and a sense of belonging was prompted.

Interesting is to highlight a particular episode, just before his official possession in Bogotá, the elected president was invited by the Indigenous Chieftains of the Sierra Nevada de Santa Martha (among which the wiwa, kankuamo, kogui and arhuaco communities), to make a symbolic ceremony of possession as president. According to the Mamos this was a necessary step for the younger brother in his path as head of state.

Now, today, some weeks after the possession, a bomb exploded in Bogotá. An ex-candidate belonging to the mid-left party expresses that such bomb aims at pressuring the new government to install again the anti-terrorism policy, a strategy based on fear and occupation of forests and sacred land. Thus we, from the design perspective ask ourselves if interventions to improve the way in which citizens communicate could help easing the whole atmosphere of the country, could design, beyond "design for emergencies", help in moments like this?.

If what regulates the rules of a city is basically the state, can/should design enter the political arena to start pedagogical processes that bring about change?

Finally

Citizens of the first world are used to encounter on the their daily routes, not bombs, but a-a-d interventions that prompt surprise, happiness, wellbeing, awe, but, are those urban experiences that ease the hastiness of urban life only a "privilege" for them? or could some of that "joy" also be set, by means of a-a-d in the urban spaces of the rest of the world?

As Daniel Bejarano, director of the Ojo Al Sancocho, (a film-festival[26] held at a " dangerous slum" in Bogotá) says: "we don't need to get stuck in fear, confusion or terror, we need to jump from the basis of Maslow's pyramid to the top, to the ecstasy; to the joy… there is where I focus my work".

Our work, as well, is focused in prompting wellbeing in citizens. This with the help of ancient wisdom and the inspiration of nature, because it is precisely nature and the wonder that it awakes, what links the above exposed content to the possible containers that can be shaped upon it, examples of which can be found hereunder as an Annex. Existing examples of new ways to translate meaningful knowledge to the art and public design arenas and that are there to convey the sacredness of nature, the communication way of God.

Conclusions

1. Indirect incidence. By approaching the Sesquilé community it was noticed that the clan reflected on their ancestral conventions and their ways to communicate. Thus, the role of design can also be to stimulate questioning regarding the incidence of urban lifestyles in their lives and thus ease the penetration of urban unsustainable practices in their reserves. But it is up to them to tell when we, as younger brothers, can/should "help" them.

2. To pursuit a higher connection with the "sacred" self-regulation is needed. This self-regulative capacity might help contemporary citizens to progress towards mutual regulation (based in Ernest Fehr's strong reciprocators[27][28] ,), which is key in the construction of citizenship culture.

3. As Mockus states: "public resources are sacred", and thus should: a. support actions and initiatives that rescue traditional wisdom; b. create mechanisms to establish dialogues between such knowledge and the interstice a-a-d not just at a local but a global scale.

4. his exploration aims at raising questions which along with proposals could/should be shared, compared and nurtured with global processes and networks such as DESIS[29] , Doors of Perception[30] , Human Cities[31] , the Institute of Advanced Studies form the United Nations University and their Traditional Knowledge initiative, (which seeks to build greater understanding and facilitate awareness of traditional knowledge (TK) to inform action by indigenous peoples, local communities and domestic and international policy makers); and also the Hemispheric Institute[32].

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25. http://www.festivalojoalsancocho.org/index.html

ANNEX
I. Possible Containers:
Your[33] Unexpected Atmospheres

Premise

Hereunder we focus on a series of examples worldwide that if regarded as containers, give account of the many paths under which the above-mentioned content could be shaped. Assessing this examples means to leapfrog from IK/TK, towards the language of public design and urban happenings. A shift and allows us to look at contemporary works moving in the interstice art-architecture-design (a-a-d) and that are good example of the ways in which IK/TK could be translated.

Both, content and container are part of a complex artefact of knowledge for future actions and continuous research.

By unexpected atmospheres, we understand those circumstances in which people "loose control" and unfasten their quotidian- guarded mental states getting into a joyful and self-questioning situation. Those circumstances remain in people's sensorial memory along time, affecting their quotidian (as post-visual effect). A sensitive atmosphere is breath in and kept back like a scent. A scent/seed that is left in viewers/participants/citizens every time they get in touch with an opera, allowing its posterior revival in their own lives.

Example of these seeds is O.Eliasson's The Weather Project Fig. 1 inside the Tate Gallery in London, a work that draws attention on the fundamental act of perceiving the world around us.

Fig. 1. Olafur Eliasson - The weather project 2003[34]

Eliasson: "The subject of the weather has long shaped the

content of everyday conversation. The eighteenth-century writer Samuel Johnson famously remarked 'It is commonly observed, that when two Englishmen meet, their first talk is of the weather; they are in haste to tell each other, what each must already know, that it is hot or cold, bright or cloudy, windy or calm […]. Eliasson takes this ubiquitous subject as the basis for exploring ideas about experience, mediation and representation[35] .

a.Transient design, a preliminary result.

There is materiality in the design and setting of the above circumstances created by Eliasson, pre and postproduction are needed but the "feeling" is what interests us here. That is why one of the best examples of designing sensitive atmospheres are his works, along with Andy Goldsworthy's and Bill Viola's.

Eliasson works are pretty much involved with what we have called the "awe" moment. Moments provoked upon the elements of nature to create a deep conversation between the opera, the life of a city and the spectator.

Goldsworthy also worships nature, its power, its incidence in the human mental environment and quotidian's.

Viola's work condenses in video pieces a work that talks about the origin of life, death, human relations, and up to certain extend: the sacred.

i. Public and Sacred

What the word sacred basically drives in, for us, is a connection with a supreme strength, a guiding light, a state of joy, peace and quietness, a connection with: God.

Maya indigenous for instance, used to play a ball game, which according to Bob Sterner[36] :

"drew masses from their humble wooden, thatched-roofed homes into the city was the ball court competition. The event was a metaphor for the creation of the Mayan people, and matches religious rites. The ball represented the twin gods Hunahpu and Xbalanque; the playing field was the earth; the air above was the universe […] Universally, the competition was so highly regarded by the Mayans that they believed if the game ceased to be played, the world would end[37]."

If we are to look, for example to the Soccer World Cup in Sudafrica, we could state it, on a very "banal" way, also inspires awe, and thus is "sacred" in the sense that it moves the very and most inner bits of human soul; there are rites around it, faith, music, dances, smiles, tears and a sort of trance; and how is that all expressed? With a simple and clear word: Goal.

Now, is "the sacred" always related to silence and asceticism? Not really.

i.i. Water & Sound

In terms of well-being and sustainability understood as "that what makes people happy[38]" , maybe one of the best examples of the use of sound is The Liquid City presented at the Architecture Biennale 2006 (at Venice municipal swimming-pool) by Michel Redolfi. Fig. 2.

Fig. 2. Making of Liquid City[39].

D. Harris[40] one of Redolfi's collaborators states: "the first time one hears Redolfi's music for underwater reproduction, one is immediately betaken with the depth of the sound, the sense of space and breathtaking timelessness. There is a genuine sonic "rapture of the deep […] his research is inscribed under a rather global reflection on the musical and utopic universes, the collective dreams and the hallucinating hearing […] he is interested on the physical nature of music, the propagation of the deep sounds, the songs of the whales, the resonance of dolphins […] a new way to listen and to be in society[41]".

Most remarkable of this work is that it allowed the construction of community among strangers since people were invited to get undressed, wear a swimming suit and get into a darkened space where slightly underwater lights were glowing. As people got inside to listen to an underwater concert and float, the liquid city was "built", an ephemeral one. The Liquid City lasted only because of the presence of its inhabitants (for about 40 minutes).

After that, people get dressed and continued touring Venice.

b. Strictly design

With the above examples, we would like to draw attention to the role of a discipline in constant change, looking for alternatives to extrapolate the wisdom that relies in IT/TK and the elements of nature, to catch people's attention and transform behaviours.

Is that design? Has design as discipline (beyond supporting artisanship or ethno-initiatives) already done it?

The experiences of two instances that from very different approaches have dared to design differently are a pertinent parameter:

i. Esterni

Esterni is a group of Italian designers, architects and artists devoted to the field of public design.

Esterni: "We toured the world's public spaces looking for ideas and projects to present. We gather interventions, installations, and services that will transform the way of experiencing and living in the city […] It's the daily life of cities, becoming every day a more and more difficult and chaotic place to live in for millions of people, that leads us to the first questions: how is it possible to make the urban environment surrounding us more comfortable, beautiful, and functional? How can design change and improve the relationship between people and the spaces surround them? Think public: that's the only way to survive in contemporary societies[42]". .

ii. Studio Azzurro

"Studio Azzurro is an environment of artistic research that expresses itself with the new languages of technology. SA explores the poetic and expressive possibilities of media that penetrates in great way the relationships of our times. Throughout video-environments, sensitive and interactive ambiences, theatrical performances and film, the studio has marked a path […] and has tried to build up a communicative context that can light the active a meaningful participation of spectators inside a narrative structure in continuous oscillation between the real and

Fig. 3. Studio Azzurro Midnight Sun. Milan 2007. Photo by Dela Kumahor.

Going back to the sacred, it was one of the founders of Studio Azzurro, Paolo Rosa, who first came with the concept of the hub, while accurately describing those African statues that could be hubs of interaction ; hubs from where to move towards habitats and atmospheres.

Rosa and Studio Azzurro have dared to face the constraints of logic and mainstream paths of a-a-d, theirs is a revolution against stuck states of mind, a call for re-codifying the way in which citizens approach life and thus communicate.

Fig. 3. They have managed to create non-intrusive, light, ephemeral and meaningful awe-moments in cities. Interventions that leave a long-lasting flavour of wellbeing.

Notation

1 Mockus Antanas (2005) on interview with Andrea Mendoza. Bogotá Colombia. Citizenship culture: a didactic program to enhance citizens' sense of belonging and care for the city by means of strong reciprocators (Feder's definition for those people willing to socially sanction their fellow citizens when are not obeying a social norm even if from it there is any

derived benefit for him/her). For the program Mockus engaged theatre, mimes and informal games among citizens.

2 Resilience or capacity of people to cope with stress and catastrophe. http://www.resalliance.org/1.php

3 Transmilenio is a bus rapid transit system that serves Bogotá, Colombia

4 ICANH. National Institute of Anthropology. http://www.icanh.gov.co/

5 http://www.ilcassetto.it/notizia.php?tid=794

Also Universidad Francisco José de Caldas, research on prehispanic studies http://www.udistrital.edu.co/universidad/colombia/historia/prehispanica/chibcha/

http://en.wikipedia.org/wiki/Poporo

6 Argüello Rodrigo. Colombian semiotician who elaborates on the human sphere defining it as a bubble, the small rank between other's person body and the own.

7 image retrieved from http://muldsigaba.org

8 Marshall Cavendish Encyclopaedia. http://www.eremite.demon.co.uk/Tairona/1pages/secb/b14poporos.html

9 http://anthropologistintheattic.blogspot.com/2009_08_01_archive.html

10 This Council operates not only on a political level for indigenous but is also managing the tourism in the Guatavita Lake. There the routes are lead only by members of the community who act like guides to their ancestral lands.

11 Being tell different to communicate. Whereas tell seems to come from a German root referred to convey a story, communicate implies a common issue a sense of share where both parts give something.

12 Latour Bruno (2005). Making Things Public: Atmospheres of Democracy. ZKM. Karlsruhe. Pgs. 48-89

13 "Word" in the sense of the indigenous stands for the ideas that come after a careful consideration of a given matter; idea connected with a superior inspiration brought from the attention, intention or hope of receiving it. Like that "word" is a really deep mental image that is conveyed by means of language.

14 http://www.carlhonore.com

15 Petrini Carlo. 2001. Collected Thoughts. 2007, Slow Food Nation. Ben Watson Slow Food Editore. http://www.slowfood.com

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24 Mendoza Andrea in interview with Paolo Rosa for SOLOS Self Organized Livelihood Subjects. Ph.D. Thesis. Milan Polytechnic. (2008)

25 Humour is an element able to raise the "awe" and to surprise. Because of time-space reasons we will not deepen into humour here - from it another paper can be written -, but it here it is important to have into account authors such as Freud (1927) who explained humour as a mechanisms that the unconscious uses by applying strategies of absurdity to resolve conflicts; Goleman D., for whom: "Humour, augments the capacity of thinking in a flexible way, allowing us to reach more complex levels and simplifying the problem solving, independently from the fact that those problems are intellectual or interpersonal" ; Stern D.; Berger P. (2005); Bateson (1952); Fry (1975) or Polidori (2005).

Ultimately humour is based on ambiguity, a persistent characteristic of human condition (Arendt).

26 http://www.festivalojoalsancocho.org/index.html

27 http://www.iew.uzh.ch/institute/people/fehr/publications/TheoreticalPrimatology.pdf

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cooperation, and the enforcement of social norms." Human Nature 13, pp. 1-25.

29 www.desis-network.org

30 http://www.doorsofperception.com/

31 http://festival.humancities.eu

32 "The Hemispheric Institute of Performance and Politics is a collaborative, multilingual, and interdisciplinary consortium of institutions, artists, scholars, and activists throughout the Americas. Working at the intersection of scholarship, artistic expression, and politics, the organization explores embodied practice—performance—as a vehicle for the creation of new meaning and the transmission of cultural values, memory, and identity. Anchored in its geographical focus on the Americas (thus "hemispheric") and in three working languages (English, Spanish and Portuguese), our goal is to promote vibrant interactions and collaborations at the level of scholarship, art practice, and pedagogy among practitioners interested in the relationship between performance and politics in the hemisphere." http://hemisphericinstitute.org/hemi/en/mission

33 Paraphrasing Olafur Eliasson, who uses to name is works after this "engaging", for him, word (your).

34 Image retrieved from: http://www.eikongraphia.com

35 http://www.tate.org.uk/modern/exhibitions/eliasson

36 http://www.ancientamerican.com/

37 http://www.sternereditorial.com/Copan.html

38 http://attainable-utopias.org

39 image retrieved from http://danielharrismusic.com/images/image027_pr1h.gif

40 http://danielharrismusic.com/Underwater_Music_I.html

41 http://www.redolfi-music.com

42 www.publicdesignfestival.org

43 http://www.studioazzurro.com/info

44 Mendoza Andrea in interview with Paolo Rosa for SOLOS Self Organized Livelihood Subjects. Ph.D. Thesis. Milan Polytechnic. Italy. (2008).

Jessica Irish, Jane Pirone

Urban Research Tool (URT): a Geoweb technology for intergenerational research in urban settings

Abstract

Urban Research Tool (URT) is a research initiative in new media technologies for urban and design studies at Parsons The New School for Design in New York City. Built as both an online platform and an iPhone app, URT creates new opportunities for collaborative research across thematic layers of urban history, built environments, economics, social and cultural phenomena tied to specific urban locations. Through its user-friendly interfaces and thematically focused research objectives, URT offers researchers, students and intergenerational community members a platform to create extensive, rich collaborative projects that feature shared urban locations.

Utilizing advances in Geoweb technologies, URT features a location-aware mobile iPhone app that allows participants to both enter and organize field data for specific locations as well as gain immediate access to URT's ongoing thematic layers that feature these same locations. Through this 'push-pull' field research strategy, users are offered project-specific capabilities that surpass the functionality of commercial GPS systems and many Geoweb sites that are tied to point data alone. Through its web interface, users can further contribute georeferenced audio, video, text and photographic documentation to specific project databases within the URT platform.

Designed as an inclusive, collaborative platform, URT goes beyond spatial coordinates alone to encourage rich and comprehensive research and representation of urban locations. Unlike the majority of Geoweb services with a defined, commercial focus, URT's mapping layers feature a wide variety of media and information incorporating past, present, future and imagined identities of urban geographies; and defining locations through expansive zones, routes, events beyond commercial characteristics alone.

As specific URT projects advance through collaborative research at Parsons, they are archived within the URT platform for ongoing access by the larger public. Further, multiple production capabilities− print, web, magazine, installation, public forum− can be easily accomplished from the URT databases, allowing users flexible distribution beyond the research interfaces of URT. With its collaborative focus for urban research, URT empowers both academic researchers and local intergenerational communities with an open source mapping system designed to depict the complexity, potential and challenges of urban geographies.

Key Words

urban, research, mobile, locative media, database, mapping, community, layers, history, local knowledge, globalization

I Introduction

With the rise of globalized cities and megacities, many social scientists, urban planners and demographers continue to rely on proven urban research methods to collect and analyze data in such settings. Qualitative research− interviewing, participant observation and ethnography− are often balanced with quantitive research such as statistics calculation based on US Census Data for specific geographical units- block groups, tracks and counties. While these methods continue to prove their worth in urban research, emerging internet technologies such social media, mapping services, Wikis and streaming video show significant potential for interdisciplinary research in complex, quickly evolving urban settings.

With the rapid development of internet technologies throughout the past decade, users' experiences and expectations of the web have undergone dramatic transformations. Whereas a page-like, one-dimensional quality dominated web interfaces until the middle of this decade, today's internet experience is immersive and multifaceted. This emerging web is often termed "Web 2.0"− a shift away from one-way information flows towards dynamic user-generated content and social networks [1,2]. Frequently associated with social media sites such as Facebook, Youtube and Twitter, Web 2.0 first captured the imagination and enthusiasm of young users in American colleges and 'early adopters' through the middle of the decade. Today's statistics tell of a wider, more diverse distribution of users across age and gender, with a recent, rapid increase amongst an older generation. Web 2.0 in no longer the domain of youth alone, and its intergenerational reach is growing.

Concurrent with the growth and innovation in internet technologies, urban geographies have undergone their own dramatic transformations effecting citizens young and old alike. As world

economies become increasingly intertwined through globalization, cities and regions too are increasingly globalized, subjected to external forces and flows of finance, migration and immigration, transfer of goods and larger cultural and socioeconomic trends [3-5]. For local communities situated in such urban spaces, the results of globalization are a mixed bag: on the one hand, increased economic activity can lead to new workforce opportunities; on the other, local knowledge, urban histories and distinct cultural and social heritages risk erasure and forgetting [6,7]. Further, with the increase of global economic forces in urban centers, power relationships between transnational companies, local businesses, neighborhoods and workforce organizations have become increasingly complex with significant repercussions for local communities situated in these urban settings [8].

To capture this dynamism of rapidly evolving local communities in urban research, a particularly promising technology is known as "Geoweb", the merging of geographical (location-based) information with abstract data stored in databases across the web [9]. Although the Geoweb is often associated with complex interactions of internet technologies, a series of broad, fundamental characteristics reflect its particular potential for urban research. First, similar to social media at large, Geoweb technologies capture the power of crowdsourcing to gain collective intelligence while simultaneously providing users' high degrees of personalization [10]. Second, unlike traditional digital mapping Geographic Information Systems (GIS) that are often expensive and require technical expertise, GeoWeb technologies are exceedingly available online and often free with high degrees of usability for both technical and non-technical users alike [11]. Finally, with the rise of mobile devices that are becoming increasingly location-aware, wayfinding, data-collection and in-situ information retrieval are becoming part and parcel of GeoWeb 'on-the-go'. These broad features− new forms of collective intelligence regarding place; high degrees of access and usability, and the emergence of location-aware data devices− open the way for highly innovative, participatory and timely research approaches ideal suited to the conditions of dynamic urban settings.

II The Geoweb as urban research opportunity

Since 2005, the landscape of internet mapping technologies has undergone rapid development resulting in a vast array online mapping applications, services and user communities [12]. New terminology such as mash-ups, crowdsourcing, neogeography and geostacking has been deployed to describe the capture, communication and organization of data via Geoweb technology. Like its larger Web 2.0 context, a week doesn't go by in which a significant application or new company has not utilized Geoweb technology for new creative, innovative purposes. While innovation in Geoweb technology is afoot, the current industry is largely geared towards marketing applications and purposes [10,13]. Like their social media cousins Facebook, Twitter and Youtube, after an initial introductory period of 'neutral' usability, Geoweb sites quickly incorporate marketing related functionality, both passively through the collection of user-generated data, and actively through the pushing of ads via user interfaces. As Geoweb mapping, navigational and marketing applications such as Google Earth, TomTom, Dash Navigation, Yelp and Zillow continue to grow, there remains many niche markets not served by large vendors, as well as great potential for both academic and activist mapping uses free of commercial intent [10,13].

Recent commentaries have suggested that in addition to advances made in Geoweb's commercial realm, 'bottom up' geographic mapping participation is also becoming an interesting alternative to large, corporate mapping platforms. This secondary approach which relies heavily on Web 2.0 and Geoweb elements is often referred to as Volunteered Geographic Information (VGI) [11,14]. With geovisualization interfaces such as GoogleMaps, the proliferation of location-aware handheld devices in the form of cellphones and GPS units, and open source, online mapping softwares, citizens, activists, researchers and academics are increasingly empowered towards gathering, organizing and disseminating their own observations, research and geographic knowledge. Within various contexts of VGI, this emerging mode of alternative mapping is increasingly valued for its immediacy, ease of access and streamlined ability to harness the power of collective intelligence [11,15].

Among the many alternative uses of Geoweb technology including VGI data, counter-mapping strategies in the environmental sciences and activist mapping in the social sciences are employed in rural and urban settings to protect natural resources, defend indigeous communities against corporate interests, raise awareness of political protest, social injustice and human rights violations [16-20]. While alternative mapping collectives and initiatives often target a defined, singular political goal or social issue, they often involve unique partnerships and collaborations between local communities and researchers working across disciplinary, institutional and national boundaries [19]. Such collaborative mapping alternatives offer precedence for evolving Geoweb research tools tailored to urban research and associated fields.

III Potential of Geoweb for mapping beyond X and Y

With the advent of Geoweb technologies and alternative strategies for activist and counter-mapping, the impetus to develop more complex, inclusive digital mapping platforms tailored to urban research is strong. Even as the larger functionality of Geoweb services is expanding−neogeography, locative media, spatial crowdsourcing, geocollaboration and map hacking are but a few categories of the field's growing differentiation− the prioritization of point data tied to very specific entites such as a houses, businesses, roads or GPS tracks continues to dominate the user's experience of Geoweb sites. Flickr and Panoramio allow users to 'geotag' their images to specific x,y coordinates; moblogging functionality utilizes location-aware mobile phone technology tied to blog entries; Google Maps mashups allow users content authoring capabilities specific to locations or routes; and social media review sites such as Yelp feature user reviews of businesses, restaurants and other commercial services

housed in a particular building or location. While the functionality of Geoweb sites is often innovative and unique, both the form and function of content is limited by a cartesian grid system of spatial coordinates typical of GIS and GPS technology.

As the nature of urban research in complex cities encapsulates dynamics not limited to singular entities, there is an ongoing discrepancy between the field's more inclusive research and the current functionality and content of a majority of Geoweb sites. Interdisciplinary urban research is not best served best by the likes of Google Maps, Yelp and Flickr alone. Urban researchers need a more malleable, inclusive platform that provides tools to capture urban dynamics taking place inside, outside and beyond particular locations of urban infrastructure and the built environment. If x,y spatial coordinates denote location within cities, researchers need a 'z' functionality to describe the how, when and why of places− the social, historical and political dimensions of the physical city.

The desire for knowledge and experience of place beyond spatial coordinates is nothing new to urban geography and its associated fields. From Charles Baudelaire's 19th century conception of the flâneur to Walter Benjamin's Arcades Project in the early 20th century to Guy Debord's theoretical proposition of Psychogeography in the later 20th century, writers and thinkers have sought new tactics to make sense of the increasingly complex modern city. As the 21st century has ushered in the era of global cities and megacities, contemporary urban theorists have emphasized the role that global capital, complex information technology, large infrastructure networks and urban politics play in determining the built environment [4, 21, 22]. Many urban theorists dating to the 19th century stress a myriad of psychological, cultural, technological and political facets of urban space that are just as, if not more, important than the immediate physical, spatial qualities of cities.

Through the capabilities of multimedia, social media and Geoweb technologies, researchers today have throughly new tools and strategies at their disposal to effectively represent and critically engage with not only the spatial dimension of global cities but their underlying complexities. As multimedia is increasingly integrated with the Geoweb, researchers are utilizing the coordination of the two technologies as one coherent research platform. By harnessing multimedia− audio, video, photography and animation− not just as post-research presentation tactics but integral research tools tied to Geoweb technologies, urban geographies are brought to life as past, present and future simultaneously. This temporal agency allows researchers and users new insight into the confluence of historical, social and cultural forces at work in urban geographies.

IV Precedence for URT: X, Y and Z new media projects

Although the Geoweb offers many design concepts for tailoring a new media and Geoweb Urban Research Tool (URT), few accessible sites tap the potential of mapping the narrative 'z' behind x,y spatial coordinates for urban research. Two projects, however, do offer some precedence for core features of

URT currently in beta development stages. The first, Turning From the Millennium, produced by OnRamp Arts, a community based arts organization in Los Angeles, is a collaborative on-line portrait of two culturally diverse communities in Los Angeles [23]. Produced as a year-long multi-media project which brought students together with artists, scholars, architects, designers and historians for an in-depth investigation into the history of the surrounding community, the project poses critical questions concerning urban history, spatial politics and the future direction of local neighborhoods in Echo Park and South Central Los Angeles. Working with youth participants from Belmont and Manual Arts High Schools, OnRamp Arts' Turning from the Millennium explores civic issues of high relevance- the past, present and possible future two urban neighborhoods.

While this project was produced prior to the Web 2.0 and Geoweb era, it features an interesting interface that allows for the approximation of spatial coordinates concurrent with narrative, multi-media content pertaining to intersections, buildings and neighborhoods that constitute the two geographies featured in the project. As shown in Fig. 1, the project's interface utilizes roll-over circles to denote approximate urban geographic locations. As shown in Fig. 2, these roll-over circle buttons then open flash-based panorama's that feature the project's wide variety of multi-media research content for each particular urban site− audio, video, historical documents and community-based local knowledge.

Fig. 1 Turning from the Millennium map interface design.

Fig. 2 Turning from the Millennium multi-media location panoramas.

A more recent urban mapping initiative, HyperCities, utilizes similar interface design as the Turning from the Millennium project, but profits from the intervening Web 2.0 era by harnessing the power of Geoweb technologies to link a variety of abstract data to spatial coordinates of urban locations. In the project, a HyperCity is a real city overlaid with its geo-temporal information, ranging from its architectural and urban history to family genealogies and the stories of the people and diverse communities who live and lived there [24].   Developed by researchers across three programs at UCLA− the Center for Digital Humanities, Academic Technology Services and the Experimental Technologies Center− the first Hypercities are Los Angeles, Berlin, Lima, and Rome. For each city, the platform reaches into archival collections and aggregates content across digital repositories. This data is then linked to spatial coordinates of urban locations featured in a HyperCity project. As shown in Fig. 3, a HyperCity is organized vertically through time; located along this vertical axis, abstract data− historical archives, GIS and CAD layers, property records and family genealogies− give historic depth to specific urban locations.

As shown in Fig. 4, a more detailed 'drill-down' of a specific Ancient Rome location allows for historic archeological site arrangements captured in modern CAD format. These 'Time Slices' allow users immediate access to an informed visual comparison of different development periods for Ancient Rome, all spatially coordinated through Geoweb programming code within the HyperCities project. As shown in Fig. 5, spatial linking across time and space can incorporate numerous forms of media including archival documents and images. Regardless of the raw characteristics of particular data, information is brought into the HyperCities project by KML tags which spatially link data to the corresponding urban geography.
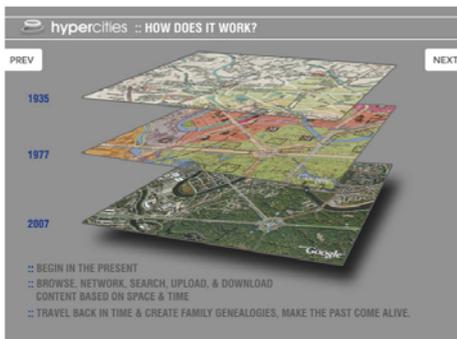
Fig. 3 Vertical layering for abstract data for HyperCities.

Fig. 4 Vertical layering of detailed CAD modeling for the Ancient Rome Hypercity.

Fig. 5 HyperCities allows for a variety of media to reflect the history of urban geographies.

While both the Turning from the Millennium and HyperCities projects serve as excellent design precursors to URT, both lack important functionality for urban researchers and community participants involved in active interdisciplinary research for rapidly developing urban spaces. As Turning from the Millennium was produced prior to the Web 2.0 era, it contains no Geoweb technology that makes linking abstract data to spatial coordinates so powerful. Even as the HyperCities project does indeed utilize Geoweb technologies to good effect, the assumed perspective of the project is limited to a historical understanding of urban spaces relative to the present.

An additional deficiency of both projects is the lack of an actual research tool that can be utilized immediately in the field to capture qualitative and quantitative data and observations akin to that found in traditional urban research methodologies. Even as both projects can be accessed via mobile handheld devices, there are no avenues to directly upload data from an immediate field location to the larger project platforms. As the URT development team at Parsons the New School for Design has determined that the capacity for an efficient, location-aware handheld device is sought after by a variety of urban and social researchers at the university, URT prominently features an iPhone app that links seamlessly with the larger project platform. In conjunction with its web-based interface, URT will provide researchers a highly accessible, open source research platform that can expand indefinitely across project locations.

V Development of the URT research tool

Through the partnership of faculty, students and researchers at Parsons the New School for Design, conceptualization of a mobile research tool has been accomplished and a beta version of the tool is in circulation within the university. Two upcoming Fall, 2010 course offerings have been designed to further expand components of the tool to best serve the needs of participating researchers, students and community members. In URTing NYC, a Fall 2010 course taught by Jessica Irish and Jane Pirone, students will examine how to develop further URT's two primary interfaces− web and mobile− so that they can serve various research initiatives and support content (i.e., data, primary documents, narratives, traditional scholarly papers, etc.) in a myriad of formats. Class participants will explore how URT can facilitate the cross-referencing and annotation of data and documents, and how users might navigate with increasing efficiency

the tool's temporal, geographic, topical, or thematic layers.

Concurrent with URTing NYC, students in Shannon Mattern's Urban Media Archaeology, a class within the MA Program in Media Studies at Parsons, will explore URT's potential for transforming teaching and scholarship. Pedagogical and methodological questions will be tailored to a specific research topic: the material layering of historical media infrastructures in New York – telegraph and telephone wires, radio broadcast zones, postal routes, fiber optic networks and WiFi hotspots. Students will conduct archival and original primary research on their chosen research topics, then build a "multimodal" argument using, videotaped interviews with urban planners and telephone workers, scanned documents from the New York Historical Society, GIS data, or animations showing the evolution of paper delivery routes.

The current Beta version of the URT tool has been constructed partly as an iPhone app that is available to participating researchers and students in test format. As shown in Fig.6, the current web interface of URT features an OpenStreetMaps base map that reflects a current urban research location− in this case, Ebbets Field in Brooklyn, New York. To its right, a multimedia portal allows access to photographs, videos, audio and comments related to the research location. As shown in Fig. 7, The mobile iPhone URT interface design utilizes a similar multimedia approach to a specific urban location− again, Ebbets Field. Through subsequent menus of the iPhone app, users are capable of uploading multimedia while present at the field location, making the transit of research data seamless and immediate from the mobile device to the project's online platform.

While portions of the tool's core functionality has been established in the beta version of URT, subsequent modules are likely to be developed through the Fall URT class offerings. Currently there is interest in developing an application programming interface (API) to visualize Twitter feeds that are tagged to research locations. A precedent for this functionality is "Eddy" − a media aggregation platform built for the public display of up-to-the-minute activity on realtime services like Twitter. A second module under discussion is the API "Photosynth" which allows crowdsourcing of multiple images from users to create 3D renderings of a specific location. This application could be very useful in the documentation of larger zones, sites and events where a single photograph from a singular vantage point is of limited research value.

Fig. 6 URT interface design features an open source map overvie with select multimedia located on the right side of the interface.

Fig. 7 URT iPhone app interface design.

As the expansion and functionality of URT in its beta stage is finalized, researchers will have the opportunity to engage community organizations and members, both young and old, to utilize URT in the capture of data directly related to lived experiences in urban places. As URT is structured along both time and thematic layers for specific geographies, the larger public will be

offered various thematic contexts in which to contribute their own data depicting urban places. Like the larger trend towards volunteered geographic information (VGI) associated with the Geoweb, community participants will be empowered with the capacity to provide and represent their own perspectives linked to urban place through the URT platform.

VI Conclusion

With the rise of Geoweb capacities in our Web 2.0 era, URT stands as an innovative use of location-aware technology, tailored interface design and open source mapping applications to efficiently capture, organize and disseminate research for urban places. As new technologies continue to influence urban spaces themselves as well as the form and content of urban studies and related fields, "multimodal scholarship" becomes increasingly relevant and legitimate [25]. By creating linkages between abstract data and urban geographies, URT allows researchers and students a tool to accomplish this new form of scholarship steeped in multi-media that can both enliven urban studies and allow for new insights into the complexity of urban places. As URT gains refinement through its beta version, its utilization in the context of local communities among user's both young and old will broaden both it appeal and application for urban locations that warrant further research.

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Eleonora Lupo , Francesca Valsecchi

Designing local cultures evolution and socialization within the global knowledge

Abstract

The search for "locality" tends to be an obsession in contemporary design: "being local" is considered a synonymous of high identity, authenticity, sustainability and quality, and therefore, deliberately pursued through a design process that points at re-contextualising a local cultural knowledge in the global dimension. Nevertheless, sometimes the reference is only to a dislocated image of the original place; this is a crucial point in the relation between the local and global dimensions of design.

This is only a design perspective from the point of view of a global design taking advantages from local practices.

This paper aims to discuss the opposite design perspective, if and how local knowledge, and its tangible aspects, can benefit from relating to the global dimension in a sustainable way. Our thesis bases on the fact that since cultural practices are the result of social relations, they increase their sense the more they are recognized and incorporated in the collective conscience of a community, "practiced" in their "use value". In this sense the global dimension could promote and activate negotiation processes in which local cultures necessarily undergo to processes of "translation", "transformation", "evolution", in other world: innovation. To make those processes sustainable and to make local knowledge benefit from facing the global challenge, knowledge ownership, control and impact factors need to be taken in account.

Our hypothesis is that ICT technology can enable and empower such as socialisation and translation processes, supporting the "coding" and sharing of local cultures. The paper will provide some examples to support the theoretical reflection.

1. Local cultures and sustainable dynamics of "use value"

What is the culture made of? It's commonly agreed, that, even if culture appears to be fixed and immutable, the concept has evolved by time. How human cultural artifacts become a shared heritage is a dynamic process, because value is not a technical quality embedded in forms and processes, but in the way they are integrated in the social lifestyles and patterns. Culture is the result of social relations, and increases its sense the more it is recognized and incorporated in the collective conscience of a community, in other words, "practiced" in its "use value".

Cultural processes require complex times of negotiation and settlement longer than the ones experienceable by a community, and it's necessary to split them in phases in order to make them synchronic and acceptable by people and their different interpretations and fruition modalities, corresponding to the user, the context and the time. The processes of "genetic coding" of culture is not neutral: something appears unquestionably worth of cultural value, only under the beliefs and the socio-cultural constructions of an age. Consequently it's necessary a precise "investment" (for instance an enhancement project) to deliberately underline a particular content as valuable to the community: it is a specific will of social construction of a community. This is undoubtedly a selective and elective process of social production and reproduction of values and meanings, that ends with a distinctive collective attribution.

Many contemporary design interventions recognize the value of these local communities heritage, shaped by collective construction processes, potentially participative and sustainable, and therefore an exemplary virtuous model to be analyzed, codified in order to make them replicable. In some ways, locality" and "being local" tend to be considered a synonymous of high identity, authenticity and quality in design, and therefore, deliberately pursued through a design process that goes beyond the physical localization, and instead points at re-contextualizing a local cultural knowledge (practices and techniques) in the global dimension. In addition, every action that is "local" is considered a sustainable action: especially when the concept of local is referred to local resources, local people, local production, local processes and their exploitation. Nevertheless, sometimes the reference is only to a dislocated image of the original place, questioning the concepts continuity, representativeness and recognisability of original forms and processes too. This is a crucial point in the relation between the local and global dimensions of design: this approach towards local capabilities, behaviors, attitudes and abilities, in not a sufficient condition in order to guarantee the sustainability of a design intervention.

2. Sustainable factors for local culture active-action in the global arena

Instead of a traditional perspective in which a global de-

sign takes advantages and inspiration from local practices and knowledge, applying and adapting them to a larger scale, by different research methods and approaches, this paper aims to discuss the opposite design perspective, that is if and how local knowledge and wisdom, and its tangible aspects, can benefit from relating to the global dimension in a sustainable way. A global dimension is a playful arena to establish socialization processes of local patrimonies and cultures: it promotes and activates negotiation processes in which local cultures and objects necessarily undergo to processes of "translation", "transformation", "evolution", in other world: innovation. In addition, in the contemporary society, the digital global environment appears to be one of the most receptive context in enabling and incorporating the expression and legitimating of new cultural forms. In fact, it includes a wide repertory in consistence and typology of "new" cultural forms and processes: from archives of digitalized tangible artifacts, to digital libraries of cultural expressions, catalogues of new forms of cultural production, and repositories of local knowledge, they all document the co-existence of the different formats that cultural identities can assume. In particular, in the digital environment, the "use value" of local culture relies on the capacity of design to enhance and make accessible this heritage as a system and as a process for new different uses and users.

Evolutionary processes are essential and tools can be designed in order to preserve the existence and continuity of a local knowledge, preserving its specificities but integrating it within the context of the interdependent contemporary world. To make those processes sustainable, anyway, and to make local knowledge and practice benefit from facing the global challenge, we propose some factors that need to be taken in account in the design: knowledge ownership, control and impact. The ownership factor defines how much the depositary of the knowledge undergoing the exploitation is involved in the process; the control factor estimates the capacity of the owner to manage and decide how and when to use its knowledge; the impact factor evaluates the amount of the benefits that the owner receive back (directly or indirectly) by the exploitation process. The impact is not supposed to be measurable economically: it's possible to foster a development in terms of identity awareness strengthening, or knowledge upgrading and exploitation and these impacts are only indirectly connected to an economic development.

As well as these three factors, the activation can follow two different but synergic paths: by one hand there is the design of the experience or fruition of the typical local knowledge, which have the objective to make the knowledge accessible and understandable through direct/indirect experience and fruition to a meaningful amount of people aiming at raising its awareness among individuals and communities. By the other hand the transmission of this local culture can be achieved through the incorporation of such characteristics in new design solutions that include products, services, strategies: this should be designed preserving the knowledge specificities but putting it in a new context of use or application taking in account the continuity with its "tradition".

3. Cooperation in digital world

The digital word that arises around the Internet networks show us rich and meaningful examples of cooperative practices and community behaviors: in the last two decades the idea of digital communities came to light from the experience of the free software, as a milestone experience in the practice of knowledge sharing and grassroots creativity. Nowadays the ongoing ferment within networks has brought wider communities join together in the production of knowledge and in the sharing of public activities. It is in the context of digital networks that we observe a quick and viral participation from the new users in the process of content generation. In this sense the information communication tools represent the capacity of the users to enable new relations. Effective use of the Internet has been achieved through its use as a means of communication, as a medium for the transfer of information and as a prime mechanism for interactions between individuals, in a networked and communitarian sustainable approach.

Experiences, learning and content production by many are the main processes that currently lead to creative innovation; these processes have been fully explored in organizational studies and we mainly refer to the "Creative Support Tools Report" (2006) for a synthesis of these concepts from a practitioners' mindset. Digital communities and creative communities share a common approach that underlines the role of sharing and cooperation as a practical action, and we consider this as a strategic tool not only for the professional creative activity like the design discipline, but most of all as a expertise that belongs to individuals enabling them to directly contribute to their own problem setting and solving. In this wider scenario creativity is a process with social nature and significance. Furthermore the recent theories of Benkler about the impact of technology in the social life, made a breakthrough in socio-economical analysis of the community organizational model: it is primarily the sharing expertise fed by the Net and practiced by communities that makes possible the expression of creativity and the related innovation. Participation and cooperation are considered as the major trends in social innovation (Benkler 2006). Through the power to join people, the network paradigm refers mainly to cooperation practices; from this paradigm comes the interest for digital communities and the digital tools that they use to connect and act in the field of production of public goods. The evolution of the above mentioned issues is tied up to the quick expansion of ICT(Information and Communication Technology), which is used for the public management of resources and data, to foster cooperative work and to nourish the emergence of a public heritage. The public domain is enriched thanks to ICT's capacity to enable new models of knowledge production; it has been observed that Web 2.0, social networking, Peer-to-Peer (P2P) and etc. are generating the new opportunities of the radical change of the way of being and doing in everyday life, and their impact affects both the digital and the physical networks. In particular, mobile communication is expected to provide important enabling technologies for promotion of sustainable everyday life where collaborative services are implicated.

4. Sharing cultures by ICT technologies

Internet is considered as a world of fresh inspiration for co-operation and sharing, that offers to contemporary practitioners technology patterns useful to the (digital) knowledge management, and also suggests the existence of a culture that has cognitive and social relevance in the topic of knowledge as public and commons undertaking. In fact the idea of network unveils new and effective organizational, social and productive models, and reveals latent and primary questions for our society: the extension, the meaning, the rules and the features of our own digital nature, which existence is widely recognized.

Indeed, we can consider that the idea of networks is concretely shaped in our knowledge environment, through social networks, community references, shared databases, user generated content activities, researches by serendipity, and in this sense Internet definitely functions as powerful material resource. The access to these contents is strictly connected with the diffusion and rooting up of the digital systems that mediate the access to knowledge space and that are present in daily life, in working time and place, as the same as within private context, etc; and the use of these interfaces impact organizations and society by the emergence of direct practice and behaviors of sharing and cooperative production of knowledge.

This broad and rank cultural perspective that is suggested by digital worlds also supplies some practical and concrete questions, that emerge from local places, related to the knowledge management issue, and asks the way and the how in which we, as humans, can richly express our digital nature built around the notions of networked, shared and public.These are trans-disciplinary questions that mostly require local, specific, disciplinary answers; this is why this research has firstly considered to encompass intimate and reflective thoughts about design knowledge that clearly refers to a meta-design perspective.Besides the reflective spirit, these questions also arouse a specific interest for the practitioners' discipline and in particular for communication and ICT design.

Digital repositories and collaborative repertories has been explored as the most recognized model of knowledge and cultural contents archive, but in the network age, the active role of the user, together with the obsolescence of data and the interoperability of formats, require to rethink this conceptual model in a more participative "locus" for the building and exchange of collective and visual identity of a territory and its community. Looking at the more recent examples, it is always more and more evident that the digital environment has changed into a "place" that facilitates the social and collective construction processes of the value of new heritage forms, and not only a "space" to store them, according to the emerging of a communication paradigm shift from availability to accessibility, from usability to participation, and as a response to the complexity of the contemporary cultural production system too. So, in the last ten years the design of digital formats for local heritage enhancement has been addressed to experiment languages, technologies, collaborative and sharing tools, to enable those cultural negotiation and legitimating processes, apart from building a collective and shared memory: in other words, to play and act the heritage beside than document it. In this sense, communication design supports the dynamics of transformation of the cultural value from "value per se" to "use value". Design driven ICT models and tools apply the strategic and communicative potentiality of design in enhancing and visualizing local culture in a "re-usable" way, connecting its physical aspects with the digital ones to suggest new opportunity of fruition and further dissemination, and contemporary empowering the owners to express their heritage and connect it to the world: first, exploiting its systemic nature, underlining the context and place where it has been generated from (from the physical localization to the natural, territorial, environmental, cultural and immaterial conditions which determined the "form" of the heritage and oriented its development); second, expliciting its process nature, enriching in its tangible elements with intangible aspects, like abilities, skills, narrations, performances and procedures, useful for its innovative production and re-production. The Cultural contents, in this systemic approach, are managed and processed by communication design as shared "products" enjoyable by the final user (experts or generic) and usable for the production of new cultural contents, or educational purposes.

5. Public cultural heritages in network society
5.1 insights for public cultural heritages and ICT design strategies

From the theory and practice of designing ICT for knowledge management and cultural heritages we depict some disciplinary milestones referred to the connection and interaction with the local and the global.

1) Design for places. The main evidence of design for local is the connection between the service design action and a clearly identified problem context. Grassroots social innovation evolves through bottom-up initiatives and experiments and starts with top-down interventions. In other words it is generated in concrete places (referred as creative places in literature) by groups of collaborative people (so called creative community). This is why, the field research and other thick-knowledge tools are fundamental steps within the service design process, and most of all during the problem setting phase of knowledge management.

2) Complexity-based design. The power of local contexts relies on the ability of creative communities to build partnership networks. In most of the studied emerging cases this takes place and works through a tacit and unconscious process. Service design initiatives deal with interpretation and promotion of these systems, and deals with the challenge of complex, rather than complicated, problem setting context

Some considerations about community processes and technological systems emerge within the network society. It is common knowledge that complex systems and networks involve complex information processes, but this is not narrowed just to digital world and information networks: it is more and more true also in networks of people and in processes that go beyond the management of information and sharing. ICT technology proves to be a useful tool that enables people to deal without intermediates with complex issues management. Within the framework of IC technology, MCT (Mobile Communication Technology) are

nowadays diffused enough to become one of the privileged tools used as drivers of networked communication. Finally, we can assume that collaborative networks are not designed artifacts, but enabling platforms for grassroots communication between peers. This is why for the design practice is mandatory and urgent to deal with the enhancing process of this kind of actions, as a wider goal within the network society.

From the following case study analysis, it will be evident the design of new ICT devices that empower the user by suggesting and enabling opportunity of practice, re-use and re-contextualization of local cultures, structuring in the web participative repertoires and tools for the bottom–up production and experience of knowledge and culture.

5.2 Cultural heritages and ICT case studies

In the following case studies analysis we present some example of digital managed cultural heritages platform that use ICT tools from the basic way of online culture sharing to the deeper way of interactive participation that allow the generation of new heritage and the exploitation of new knowledge contents. It has to be considered a selection of representative tools that show the connection between the local (as the "locus" of the knowledge itself) and the global, as the strategic place for the exploitation of culture integration and expansion.

5.2.1 Digitalization: cultural heritages from the past of common people

Storiedigitali is an example of local heritages empowered by global technologies. It provides a service of digitalization of media materials that comes from families, neighborhood, small communities, and basically represent an historical heritage of knowledge and culture on the bases of incoherent and old support materials. The aim is to use the technology to give new life to the stories and the contents from the past, and to exploit the ICT in the capability to give consistency to the material supports and to make them compliant to the standards and so far to make them publicly accessible and sharable. The service answer to two basic needs: save the images the photographs and the media material from the time damage, preserving them in standard compliant technology formats, and moreover to collect them in out of boundaries archives that depict the local stories and make them accessible and interactive through global paths of navigation. In this sense technology preserve the private memory through the technical standards, and exploit the global and collective memory through the shared and open access platform.

Fig. 1. Storiedigitali: an example of local heritages empowered by global technologies

5.2.2 Archiving: local knowledge for public access

The case of the Sardinian digital library and the Piemonte video bank are two of the most important Italian example of local heritage preserved for a global access. These examples stress the importance of digital technology in translating in common languages the contents that is typically local and referred to a given territory. The importance of this example refers to the capacity to translate in a public language the contents of a given culture, to make it accessible by others, to give insight about the local specificity through the use of complete, comprehensive and advanced multimedia contents.

The examples are really effective for the richness of the contents provided and the quality of media technology through which the contents are made shared and public.

Fig. 2. The cases of the Sardinian digital library

5.2.3 Interactions for collecting: the world itself is local heritage

The Memoro Project is a no profit online initiative dedicated to collecting and divulgating short video recordings of spontaneous interviews with people born before 1940. Memoro – the Bank of Memories borned in August 2007 in Italy and currently collect contents from all the continents. The Memoro Project is nothing more than a collection of classified content; what makes it special is the contents itself.The featured material is collected in two different ways: there are the interviews made directly by the Memoro's staff, and those made voluntarily by people all around the world. All of them are easily uploaded on the website after a careful overview made by the editorial unit that does some basic editing work and classifies the interviews by their subjects, authors and themes. The relevance of this examples refers also to its capability to be a project capable of generating cultural and economic wealth; and this wealth is not cumulated but distributed; so the model provide an economic business that is sustainable through the interaction of public and administrative funding, sponsorships and donations.

The platform of case studies by Labforculture provides an high-quality example of interactive digital service for exploration of cultural heritage through interdisciplinary and multi-local perspective. It avoids the selection by the territorial relevance, and give more stress to the interconnections between the different heritages, giving to the users the chance to explore thematic, referenced and world-wide heritages.

Fig.3. The Memoro Project collects and divulgates short video record-
ings of spontaneous interviews with people born before 1940

Fig.4. Labforculture provides an example of interactive digital service
for exploration of cultural heritage through interdisciplinary and
multi-local perspective

Both the examples suggest the idea of local cultures exploited through global narrations, and that the global access is relevant to the diffusion and the sharing of local contents. They represent powerful examples of interactive, multimedia and user centered platforms through which the actions of searching and accessing is itself a way to contribute to the heritage collections.

5.2.4 Mixing culture: interpretative European heritage

This example of Interculture Map suggests an approach that moves away from a simple cataloguing of "intercultural associations". Instead, it analyses various areas where intercultural experience can take place and give to them the key role for information and knowledge retrieval. It has been conceived as a thematic platform for access to contents and cases about interculture contents and actors within Europe, without any importance to the single projects but with a stressed relevance to the network of knowledge contents that related to the different projects. It has been conceived as a research tools within dense and populated database of contents, that privilege semantic and referenced connections more than the access to the single identities.

In this case the local heritage express in its variety and richness through the access by global paths of research and knowledge, and the intervention of users both in publications than navigations contribute to the enhancement of the ties between the single project and its multiple system of references and related contents.

Fig. 5. The example of Interculture Map analyses various areas where intercultural experience can take place and give to them the key role for information and knowledge retrieval

6 Conclusions

The analysis of the theory and case studies reports that: 1) design can play particular roles in promotion of social innovations in terms of local context, complexity of system and process of knowledge co-creation; 2) In information and network society, new opportunities can be generated into the collaborative network and digital service as enabling solutions and knowledge platforms for social innovation towards sustainability; 3) in addition the digital environment can be designed in order to empower local communities heritage accessibility and fruition, from the perspective of the owners as promoters of new forms of use and development in the global dimension. More precisely, strategic design and service design can be determinant agent of convergence between the collaborative networks or initiatives in physical everyday life and those in digital world in order to promote the sustainable lifestyle and common heritages.

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Creating Culturally Adaptive Pedagogy

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Abstract

What happens when students in Sydney are immersed in a multidisciplinary collaborative process with their Chinese counterparts to address urban issues in downtown Shanghai?

A Chinese-born Australian faces a previously rejected cultural background by bathing in clay. Mapping the city a local and a visitor explore a dialogue through which a mutual understanding of the city emerges. An architect and a designer wander Puxi throwing chopsticks to the ground to divine the site of their next urban intervention.

In 2009 PorosityC8 e-SCAPE Studio challenged sixty art, design, and architecture students, practitioners and academics from The College of Fine Arts (COFA) and Donghua University (DHU) to interact online in a process culminating in an intensive two-week studio at DHU. This paper presents case studies highlighting profound transformations made real through blended cross-cultural studio collaboration.

Globalised economic and urban territories linked by network technologies and reconfigured geopolitical relationships impel art and design educationalists to develop innovative pedagogies relevant to the needs of students, the world community, and as yet unforeseen industries. Using integrated, adaptive processes, the teaching and learning model presented provokes students to share cultural identity and methods of practice to find the common ground shared by young and old cultures.

Key words

Introduction

Across the art and design industries creative practices are changing rapidly in response to unprecedented technological interconnectedness. Multidisciplinary modes of work are superseding the traditional silo-based professions and assumptions about creative practice and how to educate for it are now significantly challenged. The emerging global professional spaces demand that individuals be able to coordinate synchronised parallel processes immersed in complex unstructured problems (McArthur, McIntyre, Watson, 2007). Therefore collaborative strengths, cross-cultural literacy, conceptual thinking and high-order communication skills are mandatory for art, architecture and design graduates intending to successfully negotiate this ambiguous territory. Marginson and van der Wende (2007) argue that universities are no longer able to seal themselves off from global effects. Education itself must become more global (Normoyle, 2003). Given the rate of change, it is unsurprising that educationalists have been somewhat slow to respond (DiPaola, Dorosh and Brandt, 2004).

Increasingly, China's crucial role in the global industrial, political, cultural and ecologic landscape reveals an urgent need for culturally based education for both eastern and western students entering the networked world of work (Buchanan, 2003). Despite numerous initiatives exploring this, in reality, creating collaborative cross-cultural educational experiences between east and west that are actually collaborations is complex and challenging (McArthur, 2008).

This paper discusses student projects from PorosityC8 e-SCAPE Studio a blended collaboration between The College of Fine Arts (COFA) Sydney, and Donghua University (DHU) Shanghai. The case studies highlight pedagogy that constructs learning in multidisciplinary, blended (online and face-to-face), cross-cultural studio environments. The conclusions assert that successful cross-cultural learning is realised within open-ended adaptive processes addressing divergent knowledge domains, language difference, and culturally embedded expectations of education.

Porosityc8 e-SCAPE Studio

PorosityC8 e-SCAPE Studio combined two COFA initiatives, The Collabor8 Project (C8) and Porosity Studio in collaboration with DHU. It provided an important research opportunity to make comparisons between the effectiveness of previous fully online cross-cultural collaborations and what could be achieved between students who met in the "real" world as well as online. Strategically, PorosityC8 promoted more formal co-operation between COFA and DHU at the institutional level.

Ian McArthur initiated C8 in 2003 as a platform challenging design students in Australia and China to collaborate online. C8 has since evolved from a visual communications focus to include multidisciplinary practices. Its goal is establishing ways of teach-

ing that facilitate common understandings between students from east and west as a basis for co-creation. To date participating universities and colleges have included Donghua University (DHU), Fudan University (SIVA), East China Normal University (ECNU), Jinan University School Of Applied Design, Shandong University Of Art & Design, Wuhan University, Beijing Institute of Technology, Beijing Communication University Of China, The University of Sydney, The University of Technology (UTS), TAFENSW, and Raffles University. C8 operates within The Omnium Research Group (UNSW) and uses Omnium Software™ for it's online interface.

Professor Richard Goodwin's Porosity Studio was established in 1996 to provide opportunities for students from the disciplines Fine Art, Design, Media Studies, Architecture, Urban Design and Engineering to explore multidisciplinary practice. Goodwin, an artist and architect, describes the studio (2009) as allowing students to "...test their practice at the scale of architecture and the city...The relationship between the city and public space remain key concerns for the studio – hence the name Porosity which speaks to the need for architecture to be porous in relation to public space." Porosity Studio has been held in Beijing at The Central Academy of Fine Art and Tsinghua University, Rotterdam at The Willem De Kooning Institute, Den Haag at Koninklijke Academie van Beeldende Kunsten, and Milan at the Milan Politecnico.

PorosityC8 e-SCAPE Studio p rovoked students to explore a range of problems at different scales (the body, the cross-cultural object, the building, the street, the motorway) in downtown Shanghai and conceive a solution as an "e-SCAPE" or new interpretation.

"The studio is not looking for Utopian visions for Shanghai. It seeks your engagement within the laboratory of interdisciplinary design and Shanghai as a city. This engagement involves the selection of a site or scale at which to work and for you to write your own brief for an imagined project… Fundamental to the overall philosophy of the studio are the principals of transformation, sustainability, questioning public space, and the primacy of art or poetic thinking." (Goodwin, 2009)

Aims, Structure And Process

PorosityC8 was conducted over COFA's 12-week semester. Its flexible structure adapted to DHU students working to own their academic calendar. Faculty on the project included four lecturers from DHU and four lecturers from COFA representing the disciplines Visual Communication, Design, Digital Media, Sculpture, Environments and Product Design from each school. Students, faculty, research grants and in-kind support from both universities funded the studio.

The aims pertaining to blended pedagogy in PorosityC8 included:
•observing and identifying factors influencing cross-cultural multidisciplinary collaboration (CCMC) between COFA and DHU students in both real and digital environments.
•integrating online technologies into CCMC as tools for research, conceptualization, documentation, and collaborative and social interaction.
•fostering deeper cooperation between Australian and Chinese academics and institutions to promote culturally appropriate blended approaches to teaching and learning.
•improving levels of CCMC in bilingual blended environments by leveraging C8 research findings to date.

PorosityC8 had three stages: (1) eight weeks of collaborative online research; (2) two weeks of intensive studio at DHU Shanghai; (3) two weeks of online reflection, peer review and documentation.

Initially students developed online profiles, discussed the readings provided, discussed research, documented mapping strategies, and conducted peer reviews of progress using a bilingual Omnium™ web interface. COFA students attended four face-to-face tutorials to plan, discuss research and hear lectures that were subsequently shared online as video to students in China.

In week eight twenty-five students and five COFA faculty met a similar number from DHU in Shanghai for the two-week intensive studio. All participating students had prepared two presentations. The first, a Petcha Kutcha-style introduction, was about their life and aspirations. Following the second presentation outlining their individual thinking about the brief, students were encouraged to find like-minded collaborators. Collaboration was consistently promoted but not demanded.

The first week featured lectures and workshops by visiting artists, designers and architects including Map-Office Hong Kong, IDEO and Moving Cities. Concentrating on conceptual development the workshops facilitated collaborations in small groups with tutors and mentors. Video documentation of the proceedings was shared online enabling remote access and review. The second week focused on highly intensive project production culminating in an exhibition at DHU. During the final two weeks of the semester, reflection, documentation, and peer review of the works and the studio process occurred online. Following PorosityC8 a second exhibition was held in Sydney showcasing and re-contextualized the work.

Old And Young

Although the relationship between China and Australia is strong there are crucial differences in culture, values and ways of being in the world. In this context it may be argued the relationship is defined by contrasts and relative cultural maturity. China is one of the oldest civilisations on earth. Despite undergoing an intense period of rapid transformation since the 1980's, China has 5000 year-old history of traditional practices and thinking which supports a strong sense of it's own identity in the face of globalisation.

"Instead of saying China is a big country with a large population my new friend … said, "China is a big family". Sort of blew my mind…" (COFA Student, 2009)

In contrast, Australia as a modern nation with a history of western settlement dating from 1778, a mere 232 years, is in an embryonic stage of cultural development. Although considered a western country contemporary Australia sees itself as a young society (notwithstanding the ancient and regrettably diminished indigenous culture) where cultural identity is still ambiguous, problematic and difficult to carve out (Castles, 1997; Marginson, 2002). Unsurprisingly, cultural identity appeared in the online discussions of Sydney students early in the PorosityC8 research phase.

"So what is belonging? What is my culture? What is it that makes me Australian? …my generation is the product of real cross-cultural contamination, cross-pollination and transformation in relation to the way heritage and tradition is reflected in our work. We are in the midst of a paradigmatic shift where notions of culture, place and our environment are becoming less about our historical cultural background and more about the cultural influences in our daily life, our habitus if you like. What we see, do, read, eat, think and hear are becoming our new cultures." (COFA Student, 2009)

Traditionally western logic has seen the individual as distinctly separate from their environment. Confucian Heritage Cultures (CHC) however reject Western duality in acknowledging that humans are intrinsically part of the complex ecologies comprising the planet and beyond. Gunaratne (2005) suggests that emergent levels of connectivity lend credence to the invisible reality asserted by quantum physics that everything in the universe is interconnected, a central belief in CHC. To foreigners Chinese culture is somewhat mysterious despite the hyperbole we might often see presented as concrete 'knowledge'. The ambiguity inherent in much engagement with CHC is not familiar or comfortable to most western minds. Kishar Mahbubani suggests,

"The Western mind is a huge world, but even in that huge world, you are actually trapped in a mental box. For those who live in the West, you assume that you can understand the world just by looking at it through Western perspectives, which gives you a limited view of the world."

Kishore Mahbubani (2004), Retrieved August 29 2009 from http://www.cceia.org/resources/transcripts/123.html

As Mahbubani (2004) asserts, if human society is to survive, a fusion of civilizations is required. The Hannover Principles for Sustainable Design (2000) developed for World Expo 2000 noted that humans must use new knowledge and ancient wisdom to manage "…the physical transformation, care and maintenance of the Earth." For contemporary educators the challenge is to equip our graduates for mobilising creative 'whole world' solutions to the complex issues human society faces. Through collaboration, young artists, architects and designers from east and west will see our world in new ways making the facilitation of such fusions a meaningful educational objective.

Culturally Adaptive Pedagogy

The cross-cultural multidisciplinary collaboration (CCMC)

within PorosityC8 is founded on approaches to learning that emphasise pedagogy over use of technology for its own sake. This ethos has inspired all C8 projects to date. Within C8 digital technologies are used to encourage community formation and build resources enabling very different groups of students to create new knowledge together.

Chinese students have consistently seen C8 projects as opportunities to practice English language. However, language in C8 has become a topic for debate with differing perspectives being expressed.

"Language and culture is no barrier – it's the level of people – in many cases I have less communication with my friends and family but doing this I am very happy - this is the most interesting and happy course during my university life…" (DHU Student, 2009)

"It's an issue but I think it is also an issue if you speak the same language, you get almost more miscommunications in your own language. And I always think you can express yourself a lot with movement and emotions – we use actually way too many words – if you go back to the beginning when we started it was just ooh and aahh…you don't need so many words…and because there is so much space in the way you communicate here you can only smile at the end and you become really happy – because its actually really funny and there is no judgment or expectation…" (COFA Student, 2009)

A Shanghai based academic observed (personal communication May 27, 2008) that the real language challenge in C8 was not to the students, but to their teachers, who found the level of English difficult. Within teacher-centered CHC contexts this limits student involvement and trust. Australian students and faculty also generally need translation assistance to communicate in Chinese. Locating translators versed in the language used within creative disciplines is however difficult. Integration of bilingual content is important even where students are bilingual as the specific meanings of words (especially terminology and conceptual language) may be unclear (Cassell & Tversky, 2005). Cognitive structures are impacted by cultural cues in addition to language and this influences even bilingual students' ability to collaborate. In C8 projects the students from Chinese universities have been the most bilingual.

"Translators are not necessary – we are all students studying design and art and we can understand each other well… sometimes translators cannot understand the meaning or the logic of art and design." (DHU Student, 2009)

"A lot of the burden of communicating the ideas lies very strongly on one half of our relationships…we have to work so hard to communicate and things come from that…" (COFA Student, 2009)

Diverse expectations of learning environments and processes have manifested within C8 as 'multiple realities' (McArthur 2008) experienced by students and faculty within the projects. Patterns of learning influenced by culture translate from the real into the digital and how students engage with lectures, discussions and briefs is shaped accordingly. PorosityC8 transformed many students' expectations of learning.

"…a lot of Chinese students usually follow their teacher's

thinking…the teachers said what they must do…(the western professors) they don't tell me what I must do but …they let me think about my project…I think it is the most important thing I learnt." (DHU Student, 2009)

Like most Chinese students (Yunzhong, 1996), the Shanghai students' experience of lecture as a dominant mode of education sees them participating quite actively in silence. Sydney students used the online space for conversation, posting and discussion of research and responding to questions posted by lecturers. In contrast students and lecturers in Shanghai referred to the website as "the resources", and used it primarily as a text to study. Their discourse was limited, but their activity consistent. This 'active silence' (McArthur, 2009) corresponds with evidence of resistance to dialogue on the part of Chinese students in previous C8 projects and notions of boundary objects (Star, & Griesemer, 1989) in communities of practice.

In particular, these behaviours challenge assumptions that students in Shanghai and Sydney will interpret and use online and blended environments in the same way. Arias and Fischer (2000) suggest creating collaborative spaces that serve as boundary objects (shared objects to talk about and to think with) where different cultures can meet and collaborate. Open-ended processes are desirable because 'use' can rarely be predicted (Christiansen, 2005 p.3) so it is difficult to design boundary objects. In C8 sharing of images has consistently proved to be successful in promoting trust, communication and collaboration. During PorosityC8 sketching also emerged as a means for students to generate shared understandings.

PorosityC8 Case Studies

These selected projects demonstrate the transformative potential of the cross-cultural blended educational process. Creative development pathways are briefly outlined and supported by extracts from student interviews, lecturer observations and artist statements.
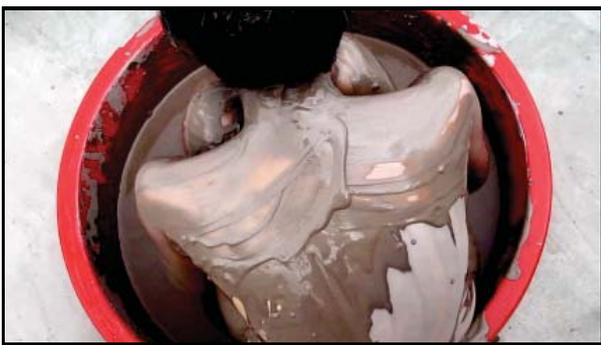
Fig. 1: The Red Bucket, PorosityC8 2009

The Red Bucket: In an online post a Sydney-based student identified herself as being born in Beijing but raised in Australia from age seven. She revealed that:

"If you were to ask me what I was, I without hesitation would say that I am a true blue "Aussie". (You would agree if you heard my accent :P) In a way I feel like a traitor. I have the face of a

Chinese, can speak the language, yet I know nothing about my heritage. I think I am possibly ashamed of my Chinese heritage... learning English, being teased in primary school for being a ching chong chang slanty eyed asian and trying so hard to be "Australian" has forced me to push my culture away and have nothing to do with it. Sometimes to belong, you force yourself to deny what you really are/were/am to 'fit' in…" (COFA Student, 2009)

What began as an investigation of 'face' 面子 (mianzi) had evolved into a journey of self-discovery. In order to embrace her Chinese cultural origins, the student proposed to bathe in mud symbolizing a return to the earth of China. The notion of the red bucket emerged after reflecting on the common sight of individuals bathing in the street in buckets in some local communities. Site selection was crucial to a successful outcome and searching for an appropriate space to carry out the performance took almost a week before the top of a building near the university was decided upon.

"The bath is symbolic of a cleansing and rejuvenation of my Chinese heritage and my desire to physically associate with my mother country. It takes place in the privacy of the public rooftop, with the backdrop of the new China." (Artist's Statement)

"...I found a photo of me upon my return to Sydney… being bathed by my Grandma and Aunt. I nearly cried, when I saw that I had been bathed in a red bucket. I guess it was always meant to be." (COFA Student, 2009)

Although somewhat shocked that a student dare attempt such a project, a group of DHU students produced the video document of the performance and protected the student during the performance.

Fig. 2: Cartographic Counterpoint, PorosityC8 2009

Cartographic Counterpoint: This collaboration examines the individual's dialogue with the city. When confronted with new cultural and urban contexts one's first impressions are often simplistic. The urban organism is too large and complex to process and sensory overload is the response.

"As a relationship develops with the city, patterns emerge and certain features become distinguishable from within the mass. A dialogue is opened up between the visitor and the space as rhythms and repetitions become apparent…" (Artists' Statement)

Slowly similarities and differences to other environments, other experiences, emotions and memories become apparent. Balance returns as the visitor begins to understand the complexity and intricacies however it is often experienced as contradictions of simultaneous renewal, destruction and construction.

The two collaborators brought knowledge, skills and ideas that complemented each other. In this project the knowledge is of Shanghai - each student understanding the city in different ways. These understandings were presented as those of a stranger to the city and one of its inhabitants, documenting their observations together as an exploration, dialogue and summary of experience, examining the city and the processes in which one finds their place. This mapping process,

"… became far more personal, and from two very different experiences of the city, one idea emerged - about the poetry of contradictions. Using photography, illustration and small-scale models, we created a response at the scale of the cross-cultural object to resolve our perceptions at the scale of the city." (Artists' Statement)
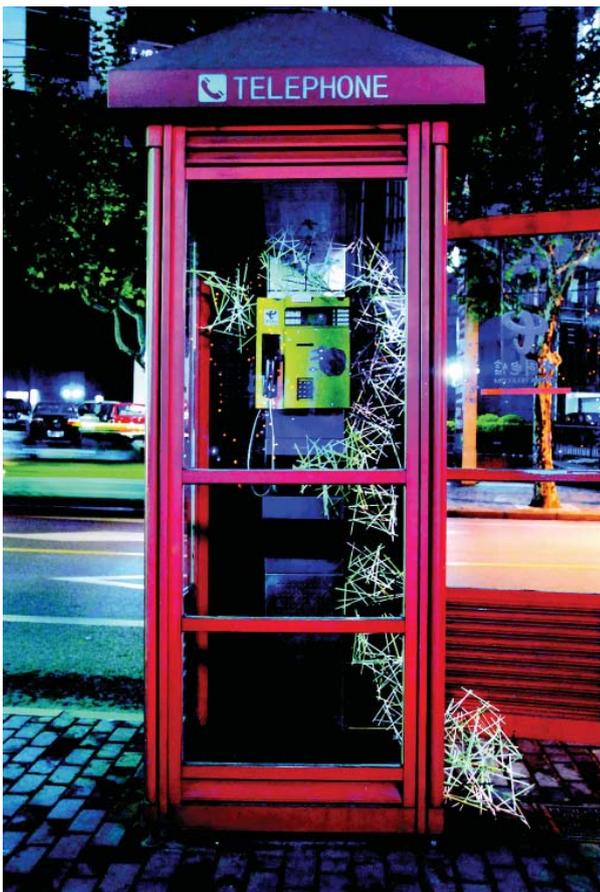
Fig. 3: Kuai Zi, PorosityC8 2009

Kuai Zi: An architecture student and a design student collaborated in an exploration of Shanghai influenced by the rhyth-

mic *chaos of the city, patterns of traffic, and the urban forest of junctions and freeways. Kuai Zi* 筷子 *(Chopsticks) is generated from a mapping process located within the Puxi area of Shanghai, through a series of wanderings. The itinerary was improvised by throwing chopsticks to the ground and following their directions, often leading to unexpected locations.*

"The aim of the mapping process was to understand the environment that will host our physical structure. Street speed and subjective time feeling have been studied in order to locate those fragments of the urban fabric where we were more likely to keep the attention of the passer-by." (Artists' Statement)

Chopsticks are one of the most common throwaway items in Asia. The decision was taken to recycle them both conceptually and as a material for construction. A structure grew built from hundreds of chopsticks collected from the DHU canteen and restaurants around Puxi. When placed in different sites the structure inserted a random component in the urban fabric of Shanghai. Kuai Zi might be summarised as the sum of its elements:

"…embracing a new culture and experimenting with a self transformation process; recycling expendable objects and the symphony of chopstick waving during dinners in Shanghai; subjective feeling of time and speed while exploring Shanghai; the sculptural forest of highways all around the city; flow and speed crystallized in a gesture; chance and chaos as a way of interacting with cities and urban agglomerations nowadays; and improvised uses for random ephemeral structures." (Artists' Statement)

Conclusions

"If humanity is to be saved, we must focus on our affinities, the points of contact with all other human beings; by all means we must avoid accentuating our differences." (Borges, 1984)

Comparisons between levels and quality of cross-cultural collaboration in PorosityC8 with earlier online iterations of C8 reveal immersive blended processes as deeply transformational for students. By combining physical and digital environments educators can use the strengths of each to augment the weaknesses of the other (Arias et al., 1997) to provide learning experiences that, in the words of one DHU student, create "fire". The higher levels of interaction and CCMC achieved mirror collaborative processes in industry where remote teams meet to develop rapport, trust and collegiality.

Collaboration between people from different cultures is inevitably subject to communication breakdowns because their realities are comprised of differing norms, symbols, and representations reinforced through education (Snow 1993, Sussman 2000). Opportunities for students from east and west to engage in dialogue that deconstructs cultural difference within educational contexts are also rare and although the online environment in principle allows us to inhabit digital space together there are complex challenges to effective communication that can limit understanding. In addition to the fact that online environments diminish communication cues such as the paralanguage of body language, facial expression and tone of voice, when working with CHC online, interactions are also impacted by the cultural dynamics of trust (Watson, McIntyre, McArthur, 2009). In the CHC

context trust development in particularly requires an investment of time not familiar to most westerners and many are unwilling to engage in this activity (Kwang-Kuo Hwang, 1987).

The augmentation of the online process with an intensive face-to-face experience challenges the notion of cultural otherness by confronting students with the realities of one's essential humanness. It is a moment when in the words of Zhang Longxi the self and the other meet and join together, a moment,

"… in which both are changed and enriched in what Gadamer calls "the fusion of horizons" …That moment of fusion would eliminate the isolated horizon of either the Self or the Other, the East or the West, and bring their positive dynamic relationship into prominence. For in the fusion of horizons we are able to transcend the boundaries of language and culture so that there is no longer the isolation of East or West, no longer the exotic, mystifying, inexplicable Other, but something to be learned and assimilated until it becomes part of our knowledge and experience of the world…"

Zhang Longxi, (1988, p.131)

PorosityC8 collaborations were considerably strengthened during an IDEO led workshop where the challenges of cross-cultural interaction were brainstormed face to face. This opportunity for a facilitated exchange of ideas in small groups created a forum where student concerns, questions, experiences, expectations, divergent, and common perspectives on the learning process were aired and discussed.

A culturally adaptive pedagogy creates collaborative platforms and spaces where students, educators and institutions can begin to envision creative 'whole world' solutions to societal challenges via open-ended inclusive methodologies. Although clearly more research and engagement is required between faculties and institutions in the east and west and avoiding perceptions of imposing challenges to traditions in eastern education is important (Zhang 2007; Ziguras 2001), some progress is demonstrated in the case studies illustrating the pedagogy of PorosityC8.

Culturally adaptive pedagogical frameworks for CCMC should include attention to:

• developing supportive and collaborative input to the educational program and process by participating disciplines, faculties and institutions.

• inclusion of translation, bilingual online tools and studio content.

• deconstructing cultural difference by workshopping the challenges to CCMC and questions of how to build shared understandings and knowledge.

• the use of open-ended social environments and processes both real and online that recognise the influence of multiple realities, active silence, boundary objects, and culturally based expectations of learning and styles of knowledge production.

The widespread embrace of digital networks provides a viable site for CCMC to occur in education. However, intensive intercultural blended methodologies offer powerful augmentations to online communities by creating opportunities for drawing on both ancient and modern understandings and knowledge to form transformational immersive learning.

"It's a big challenge but it's also interesting...they need to use the different languages and build tools and build bridges and combine them together... sometimes the students misunderstand each other but at the end maybe they find a new direction...a more interesting, more intuitive way to communicate…" (DHU Lecturer, 2009)

In fostering CCMC we also begin to deconstruct misperceptions that hold humans apart. By showing students themselves in otherness they not only share their realities they also experience fundamental commonalities all humans share. This process transforms perceptions of difference into cultural literacy preparing graduates to make constructive interventions as creative practitioners in an interconnected world.

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Katie Gaudion MPhil (RCA)

The Multi-Sensory Environment (MSE): Encouraging Play and Promoting Well-being for all ages

The role of the Textile Designer

Abstract

The Snoezelen® or Multi-Sensory Environment (MSE) is a unique concept that was developed in response to the limited range of relaxation and leisure activities available for children and older adults with unusual sensory processing patterns, such as autism spectrum disorders and Alzheimer's disease. The environment is furnished with sensory props that are designed to stimulate the primary senses, which is fundamental to the MSE experience.

Occupational Therapists are investigating the MSE as a potential leisure resource for individuals with dementia and neuropalliative conditions. Research suggests that there is a correlation between Dr Jean Piagets stages of cognitive development (1952) with the cognitive stages of decline for adults with Alzheimer's disease (Ajuriaguerra and Tissot, 1968) .

It is thought that the final stage of regression for elderly with Alzheimer's is similar to the first sensorimotor stage of cognitive development of a child (Matteson, Linton & Barnes, 1995) . With this the central dilemma is how do we provide activities and materials, which are both age and stage appropriate, as people grow older and the gap between chronological age and developmental stage widens?

Katie Gaudion is a textile designer whose MPhil research by practice at the Royal College of Art explores the history and design of the MSE. She supports her research through the development of non-age or stage specific sensory props to be used during the intervention of sensory integration therapy and the MSE.

This paper highlights the positive impact play and leisure has on our well-being and quality of life.

Key Words

Multi-Sensory Environment (MSE), Play, Leisure, well-being

Introduction

My MPhil Research by practice at The Royal College of Art was based on my own subjective experience of working in an Multi-Sensory Environment (MSE) (Figure.1). As a textile designer, I am naturally drawn to and interested in the interaction and response between the individual, the environment, materials and sensory props. Early in my career, it became clear that the props and equipment were tools that formed an important multi-sensory interface, and key mediators between the facilitator and the participant.

Figure.1 Katie interacting with props in the multi-sensory bus

My research investigates the role of textiles in designing for the MSE, seeking to assess whether low-tech props are as valid as the current mains power and battery-activated props of today. I suggest that the textile designer can offer new and effective sensory experiences which are interactive without the added complications and expense of power supply, space availability, or the need for expertise in setting up, maintenance and repair.

My research combines historical investigation into the evolution of the design of the MSE with an experiential account of current practice. The research is interdisciplinary, integrating ideas from occupational therapists, educationalists, designers, architects and new media artists, who have explored the areas of sensory stimulation, environmental well-being, leisure and play. This interdisciplinary approach is used to generate the knowledge which informs and guides my textile practice, into which I bring my work experience to inform my approach to the theory and philosophy of multi-sensory environments.

The Multi-Sensory Environment (MSE)

Cleland and Clark first developed the concept of the MSE in 1966, with a collection of sensory rooms described as a 'sensory

cafeteria'. From this early approach the Snoezelen® concept was being developed across Holland in a number of institutions: firstly in 'Haarendael', in 1974, to promote relaxation. Later, in 1978, 'Piussord' introduced the concept at a 'Play' themed conference, and, simultaneously, the De Hartenburg Institute in Holland was experimenting with the concept in their summer fetes with activity tents, which later developed into the first permanent Snoezelen® in 1983 (Figure.2).

Figure.2 The first MSE in De Hartenburg, Holland, 2008

Two Dutch therapists, Ad Verheul and Jan Hulsegge, from De Hartenburg, coined the term 'Snoezelen'®, which derived from two Dutch words, the verb 'snuffelen' - to seek out and explore - and 'soezelen' - to relax. They are responsible for its ongoing success. The Snoezelen® trademark is now owned by ROMPA®, one of the leading Snoezelen® manufacturers. Today it is often referred to as the Multi-Sensory Environment (MSE). The founder Ad Verheul (2007) explains:

"In principle Snoezelen stimulates the five senses and aims at finding new ways of approaching people who due to their severe mental impairment are generally not capable of articulating independently. With our help Snoezelen wants to give these people the opportunity to choose activities for themselves. That is where Snoezelen originated from: How can a person with multiple disabilities 'communicate' with his environment?" (p.6).

Leisure, play and well-being are three inter-connected components of the MSE; a form of leisure activity that encourages play, which promotes well-being. The emphasis placed on 'leisure' was a major breakthrough: traditionally, leisure pursuits were limited to television and art and crafts, which were quite often beyond the individual's capabilities and comprehension. With more knowledge and research surrounding the senses, leisure, play and well-being in the field of occupational therapy, its user-base continues to expand and diversify.

"Snoezelen does generate well-being and has a relaxing effect. It calms people down, but also activates. It awakens interest, it guides and puts stimuli into order, it awakens memories, organises a person, takes fear away and offers a safe environment. It can guide a person, it binds and supports relationships, it is simply fun" (Roger Hutchinson, p.8) .

Since the late 1970s, the MSE has expanded into an international phenomenon and has gained a presence in hospitals, care homes, day centres, mainstream schools and prisons. In 2005 an Accident and Emergency department of a New York

hospital installed an MSE to relax the staff, and health insurance companies in Holland finance the construction of MSEs in domestic environments.

With an aging population, the prevalence of dementia such as Alzheimer's Disease (AD) is increasing. Though leisure may not cure or eradicate AD, research suggests that the engagement of meaningful activities at all stages of AD helps to reduce boredom, offers a break from routine and enjoyment that will enrich their quality of life. With this, health care practitioners are now looking to expand the traditional leisure occupations of board games, puzzles, dolls, teddy's, and arts and crafts, by investigating innovative leisure activities that involve the stimulation of the primary senses, such as the MSE.

There is much research into leisure, play and well-being, although there seems no universal consensus for the meaning of each. The theories range across medical, social, historical and aesthetic disciplines. The text below briefly addresses each component in the context of the MSE.

Leisure

Leisure, for adults, is an activity that we independently choose outside working hours, involving active or passive engagement. It offers a form of entertainment and enjoyment - for example, shopping, going to the cinema, playing sports, and hobbies such as gardening, reading and socialising. Historical examples of cultures that have valued leisure activities can be found in the excavations of Roman cities in which the daily visit to the baths, as a complex form of socialising, relaxing, exercising, personal grooming and political networking, indicate that leisure far predates capitalism.

Individuals with disabilities are often unable to participate in work on account of their physical and mental needs and capabilities and, in this situation, leisure activity is often their primary occupation. In Judith Cavet's 1995 investigation of leisure provision in Europe, she begins her writing with a powerful quote expressed by a Belgian doctor about the needs of people with profound and multiple disabilities: 'They have to have leisure or they are not living' (p.49) . Consequently, for individuals with disabilities the important meaning and positive implications associated with leisure may exceed that of able-bodied individuals.

The MSE has made a major contribution towards the provision of leisure for individuals with intellectual disabilities, who may otherwise face difficulties in participating in the leisure activities experienced by more able-bodied individuals. The user-base has now diversified and the MSE is developing into a universal leisure activity that is neither age nor gender-specific.

The acknowledgement of a rapidly ageing population has instigated a new direction for research concerning the elderly. Occupational therapists are investigating the MSE as a potential leisure resource for individuals with dementia and neuropalliative conditions. Early research by Philip Woodrow in his study Interventions for confusion and dementia 3: reminiscence (1998) states that 'a trigger for interactive reminiscence can be anything that stimulates the senses, e.g. touch, taste, sight, smell, and hearing (p.1148) .

Research conducted in 2007 by DeLong, Wu and Baq, published in the article May I touch it? compared early touch experiences of female respondents in Chinese and American universities. This study highlighted the important relationship between touch and memory, and interestingly the results revealed that early memories of touch were often associated with the fur of animals and textiles such as blankets and bedding. These studies suggest that the MSE could also be a suitable environment for reminiscence therapy in which textiles could play a major role.

The occupational therapist Dr Lesley Collier from Southampton University discussed her latest MSE research, Multi-sensory stimulation to improve functional performance in moderate to severe dementia: interim findings from a randomised single blind trial. As yet unpublished, the study compares participants' reactions and performance between the leisure activities of gardening and the MSE. It reveals that the functional performance in people with moderate to severe dementia is greater in the MSE .

In addition, an observational study by Cohn-Mansfield and others (1992) focused on the residents in a nursing home who were severely cognitively impaired. Over three months the study investigated the relationship between agitated behaviours and occupation. The data analysis revealed:

Our most striking finding is that these residents were engaged in no activities during 63% of our observations. Moreover, we found that these residents manifested less agitation when they were involved in structured activities (those designed to hold the residents' attention) than when they were unoccupied (p.119) .

With the growing concern that most nursing home residents with dementia have a problem with inactivity and boredom, the MSE could prove to be an important leisure resource for people with dementia. It is therefore a unique platform that requires playthings which are neither age nor gender-specific, and that appeal to both children and adults.

Play

With one word denoting, simultaneously, the process of playing musical instruments, dramatic performance, sporting activities, rituals and children's spontaneous process of learning, the concept of play is complex and multi-faceted. The fact that one word is still used, colloquially, to encompass all these processes indicates the extent to which our culture has neglected to pay serious attention to the phenomenon of play. But in the 20th Century, play has begun to be understood as a profoundly symbolic and cultural process, with central importance to the evolution of the human brain.

The 20th Century social theorist Johan Huizinga, in Homo ludens (1938), defines species as 'playing animals' and suggests that play is the foundation of culture. Similarly, 20th Century anthropologist Gregory Bateson, in Steps to an ecology of mind (1972), suggests that play is universal to all 'feedback loop' mechanisms such as the human mind, and therefore to the capacity for relationships.

The MSE is an environment furnished with multi-sensory props and equipment that initiates play activity (Figure.4). The sensorial qualities of the play materials trigger curiosity and activate the mind and body. Play motivates activity, as individuals independently explore and navigate their immediate world through movement and th

Figure.4 Adrian interacting with fibre optics and bubble tubes, 2007

Amongst occupational therapists, play has been described as 'exploratory in nature, and consisting of a variety of activities that involve movement and manipulation in relation to the environment' (Robinson, 1977; Sutton-Smith, 1967, p.3) . A. J. Bundy (2005) Professor of Occupational Therapy at Colorado State University, expresses the view that "playmates, objects, space, and qualities of the sensory environment are critical aspects for inclusion in an assessment of environmental supportiveness for play" (p139) .

The 19th Century educational developments such as the work of Maria Montessori and Friedrich Fröebel placed much importance on play for child development. Play was also central to the research conducted by the child psychologists Melanie Klein (1982-1860) and Donald Winnicott (1896-1971). Klein's development of 'the psycho-analytic play technique', in which she explored the view that "Play for the child is not 'just play' it is also work" (1979, p.39) , and Winnicott's research surrounding the 'transitional object', together support the important role of play and toys. For psychoanalysts since Freud, play is understood as the opposite of reality, as the childhood equivalent of work, and as the basis for all forms of symbolic exchange where an equivalence between different sensory experiences, imaginative ideas and symbols paves the way for language use, inter-subjectivity, and full social agency and responsibility.

In their writing on play materials, Carol Onvry and Suzie Mitchell (2006) state that "for people with profound and multiple disabilities suitable resources and conditions for play may have to be provided before the latent need, desire, interests and sheer effort required for play can be activated. The more complex a person's disability, the more individually designed their playthings may need to be, and the greater the attention that must be given to the context in which play is to happen in order to cater for their play needs" (p. 181) . Onvry and Mitchell's response confirms my thoughts and observations that, unlike able-bodied people some individuals with disabilities may find it difficult to independently initiate imaginative, transformative, narrative, spontaneous, and

social or objective play activity. Consequently the type of play activity they experience is dependent on their interaction with the play worker, together with the play worker's choice of toy and the design and sensory feedback of that toy.

Maria Montessori's experience of teaching children with disabilities enabled her to learn and make comparisons between their educational needs and play abilities and those of able-bodied children. As a result she noted that:

"The basic difference between a normal child and one who is mentally inferior is that when they are placed in front of the same objects the deficient child will not show a spontaneous interest in them. His attention must be continuously aroused: he must be invited to observe and encouraged to act" (1912, p.178) .

Similarly, in the book Toys and playthings (1979, p.149) , John and Elizabeth Newson describe their observation between a blind and sighted child and their interaction with a toy ball. The description reveals that the sighted child immediately utilises its physical properties and actively bounces, rolls and throws it. However the blind child does not let go and explores the sensory qualities of the ball, engaging with the haptic experience of licking and rubbing it against his/her skin.

Well-being

In 1961, physician Dr. Halbert Dunn (1896-1975) published a small booklet entitled "High Level Wellness". Dr. Dunn saw 'wellness' as 'a lifestyle approach for pursuing elevated states of physical and psychological wellbeing' . This dispels the idea of the purely medical condition of our bodies, and of curing the body as the main priority for human well-being, by highlighting the important condition of our minds and our emotional state. This sense of well-being also relates to Buddhist teaching on meditation, as described in the book Change your mind: a practical guide to Buddhist meditation: 'Meditation concerns not the mind so much as the body, although this is really just a way of talking, as you can't separate the two. They are not two separate systems operating together, but two ways of talking about the one system which is us' (1996, p.11) .

The MSE, with its focus on the activation of the mind and body, exemplifies this notion of well-being. A 2010 study by Hutcheson and others, Promoting mental wellbeing through activity in a mental health hospital, reveals that activities such as sports, art groups, music, dance groups and badminton promote mental well-being for patients in acute psychiatric wards.

Though not a medical term, well-being is a concept that is beginning to receive much attention in healthcare, design, architecture, psychology and education. For example Anthony Seldon (2007) headmaster of Wellington College, a school in Berkshire, introduced 'Well-being' as part of the school's curriculum, suggesting that:

"Children are born with our bodies, yet schools do not provide our young with an "owners' manual" on how their bodies, minds and emotions work. We now have the information on

"positive psychology", and schools such as my own, Wellington College, are teaching well-being or happiness in association with academic institutions" .

State schools have replaced 'civics' with 'citizenship, social and personal development.

Play, Leisure and the Elderly

There are two significant events which may have played an important role in changing attitudes towards play, and put play into the framework of the UK Government's 'Every Child Matters' programme, prompting the development of 3,500 new or refurbished play areas in the UK between 2008 and 2011 .

These events both took place in 2009, and include the Kindergarten Crisis Report which was released by the Alliance for Childhood and the e-petition sent to 10 Downing Street which stated that 'We, the undersigned, petition the Prime Minister to make the provision of play services a statutory obligation for local authorities in the UK' .

The reform in ideas about play has opened up design opportunities, and in 2008 a 156-page document was published, Design for play: a guide to creating successful play spaces, funded by the National Lottery and supported by the Department for Children, Schools and Families and the Department for Culture, Media and Sport . The revival of interest in the traditional toy was marked in 2005 with a succession of exhibitions. The exhibition 'Philosophical Toys' held at Apexart, New York, displaying Friedrich Fröebel's original educational gifts, or learning toys. 'Kid Size: The Material World of Childhood' was organised by the Vitra Design Museum in Germany. In the same year Marina Warner curated the exhibition 'Only Make-believe: Ways of Playing', at Compton Verney, Warwickshire. These exhibitions are interesting as they combined both traditional and contemporary play objects that drew together the important social, psychological, historical and educational aspects of play and its impact on creativity.

Though toys are still often associated with children, toys for adults are not a new phenomenon. Google uses LEGO and play activities in its headquarter offices. Their innovative interior design is not so dissimilar to the interior design of Kindergarten schools. Interestingly, the sensory activities offered in the MSE also have a connection with Montessori activities and studies have begun to investigate the positive role of Montessori-based activities for older adults with Alzheimer's disease. Research using Montessori-Based Dementia Programming® was conducted by Camp et al (1997 ,2004). The study organised Intergenerational Programes (IGP) between older adults in dementia care units and pre-school children using Montessori-based activities, which revealed positive forms of active engagement. Montessori materials are also believed to be of benefit for individuals with Alzheimer's disease, and research has begun to explore this theory further (Vance., D.E & Porter., R.J, 2001) . Christine Mitterlechner presented her collection of gerontological materials at the European Montessori conference held in Poland in 2009. The gerontological materials are developed by combining Montessori materials with the needs of the elderly, to encourage

independence and self-activation.

Toy manufacturers in Japan are also responding to the aging population by expanding the age range of toys for the over-60s. MSE manufacturers in the UK, too, have begun to expand their age range. The MSE manufacturer SpaceKraft launched its catalogue SpaceKraft Generations 2010 which advertises games, sensory playthings to encourage relaxation and reminiscence for the older generations while the ROMPA® catalogue 2010 has a seven-page section for older adults.

In 2004 the first 'nursing care prevention playgrounds' were developed in Japan, which are in essence playgrounds for the elderly to promote fitness and enable the elderly to be less dependent on nursing care. The UK launched this initiative in 2008 with the development of a 'pensioners' playground' in Blackley, Greater Manchester. A year later, Tate Modern exhibited the American artist Robert Morris's interactive works, which resulted in what was essentially an adult playground and resembled much of the equipment used for Sensory Integration Therapy. The pensioner's playground received positive media attention and Westminster City Council has since allocated £40,000 for a 'pensioners' park' to be developed in Hyde Park, to be completed in Spring 2010.

Sensory Design for Play

New materials, new technologies and the changing demands and needs of children and adults have influenced the evolution of toy design. From the hand-made and mechanical, using natural materials such as wood and textiles, to the mass-manufactured synthetic toys made of plastic and contemporary toys powered by electricity, batteries, electronics and computers.

The evolution in materials and new technologies is evident in the MSE, where the simple low-tech props of the past (Figure.5)are being undervalued and the complicated remote control, switch-operated and single sensory screen-based activities are taking the lead (Figure.6) Though they both hold advantages and disadvantages, it is important to consider whether simple low-tech playthings will offer similar, or even better, sensory experiences than the high-tech play equipment, which can be expensive and high-maintenance.

Figures.5 & 6 Low-tech textile and screen based sensory props

My observations reveal that the low-tech playthings in the

MSE offer greater material variety, which often hold multi-sensory properties: for example, a sheepskin rug offers the properties of warmth, touch, weight, sight and smell (Figure.7). In contrast to this, the plastic heavy switch-activated props, for example the infinity tunnel light panel, offers single-sensory stimulation with an emphasis on sight, where the individual becomes a passive observer rather than an active participant (Figure.8). As Winnicott (1971) stated 'Playing is doing' (p.41)   and it is important that the 'doing', or the active nature of play, is not lost.

Figures. 7&8 Observational drawings in the MSE

It is important that the play equipment is both physically and mentally compatible with the complex needs of the individual. For a person whose cognitive abilities are at a sensorimotor stage of cognitive development, the multi-sensory nature of the plaything is important. As it is their primary senses and motor skills that help them to interact with the world around them, particularly for those who are non-verbal.

Occupational Textiles

Figure. 9 Occupational Textiles: Springy-Thingy

In homage to Friedrich Fröebel and Maria Montessori, I developed a collection of 'Occupational Textiles', which are a series of sensory props/playthings designed to stimulate the primary senses to encourage non-verbal communication, interaction, and play for adults and children.

The props are a physical representation of my research and observations surrounding the MSE and influenced by the field of occupational therapy. The sensory props are tools for health

care practitioners and parents to use as catalysts for movement, touch, play activities and as cues for narrative and interaction, during the intervention of sensory integration therapy, reminiscence therapy and the MSE.

My textile practice is inspired by the success and timeless appeal of classic toys that have lasted over generations, those which continue to evoke feelings of nostalgia in parents and continue to offer value and appeal to children today. The collection of occupational textiles steers away from plastic and capitalises on the somatic nature of textiles that naturally lends itself towards the stimulation of the primary senses, particularly that of touch, and combines this with the unusual techniques and existing materials found in the construction of classic toys, such as the Slinky (Figure.9), marbles (Figure.10) and the jacob's ladder (Figure.11). This unique combination unites different processes and materials to animate, bring to life and transform these toys in terms of scale, shape, sound, weight, temperature and colour to accentuate and heighten the sensorial, kinetic, sonic, haptic and bodily experience it perpetuates for each individual.

Figures.10&11 Occupational Textiles: Mabelous and Tip-Tap-Touch

Their unique properties create a form of sensory communication that are age and stage-appropriate for both children and adults who are at the sensorimotor stage of cognitive development. Independent of power sockets, wires and switches, it is the touch and fine / gross motor movement that will activate the prop, promoting independence and a sense of control for the participant (Figure. 12). The unique collage of materials creates an indeterminant form in which the function of play determines the form. As expressed by the architect Louis Sullivan (1896) 'The form follows the function' (pp.403-409).

Figure.12 Occupational Textiles: Tactile Journey

Steering away from the mimetic role-play posed in many toys of today, the collection of occupational props are abstract in shape, not to be recognised as an imitative thing such as a doll, but for the sensory experience of 'the doll'. As advocated by the child psychoanalyst Melanie Klein (1982-1960) 'toys should have no uniforms or special dress or any indication of occupation or role which would suggest a particular kind of play' (p.41) .

The abstract shapes and unusual kinetic and tactile qualities create a natural curiosity that intrinsically motivates the individual, exercises the imagination, and holds unusual kinetic and tactile qualities that will entice touch, movement and the occupation of play.

Conclusion

My practice-led research began with a number of experiences of working, playing and being with people whose care, well-being, education and culture presented professionals, designers and humanity in general with both challenges and possibilities for learning.

It has become evident that there is, for the textile designer, a particular significance in the way in which work with sensory impairment and neurological disability demonstrates the fundamental experience of touch and tactile knowledge. Its relationship to more sophisticated hand-eye coordination, and other multi-sensory coordination creates the rich connections between different sensory modalities that we call representation, symbolism or thinking.

Working with people in the existing MSE's I began to intuit that the experience of the textile designer could be useful as this form of design practice can illuminate the sensory and symbolic function of the hand. It can also bring the tactile, haptic knowledge base that is the designer's intuition, to bear on the design predicament.

The term 'predicament' denotes an experience that exists 'before speech' and this is a valuable insight into the fact that design knowledge, or intuition, refers to experiences that often exceed the limitations of what can be verbalised or symbolised in writing. The universe of the sensory connections that precede verbalisation is of particular importance to those whose sensory or neurological conditions do not allow them to inhabit the universe of language and verbalisation easily, thus making experiential design imperative.

Textile designers have specialist knowledge of a range of tactile experiences and materials to emphasize the senses through colour, texture, weight, mass, movement, temperature, sound and smell. In a world enveloped by technology this has never been so poignant.

Working beyond the boundaries of a culture that is dominated by words and rationality, and where sight is often the sensory modality of instructive dominance, I developed a body of responsive 'occupational' textile works with senses that are more usually relegated to secondary or even tertiary importance. In doing so I have been guided by the people

I coordinated with and have been supported by the cross-pollination of literature on sensory research.

This paper concludes with three insights: Firstly, that design practice is a form of discovering new knowledge, and is therefore research in itself, to be supported by writing and verbal explication. Secondly, that the textile designer's experience with materials has a leading role in discovering new knowledge relating to experience. Thirdly, that this is of significance to all sentient beings, not just those of us with Special Educational Needs or with learning disabilities.

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Theresa De Lobo, (PhD)

Oporto Rehabilitation Concept

Abstract

City centres throughout Europe are being subjected to major revitalization operations. This revitalization includes, among other aspects, housing improvements, retail modernizations, infill and brownfield redevelopment, public space improvements, streetscaping and pedestrianization schemes. In Portugal, Oporto, one of the largest cities had experienced some attempts at revitalization in the last 15 years, which have included mainly urban design strategies of main streets and squares. The purpose of this paper is not only to present an up-to-date research of the recent city centre revitalization intervention in this city, but also primarily to give a southern European contribution to ongoing debates about urban design interventions in urban revitalization schemes. The argument of the paper is that these revitalizations were partial physical face-lifts that overlooked the social and economic aspects of the revitalization. This paper calls for a more integrated approach between the revitalization of public and private spaces and organizational interventions.

Keywords

Oporto, Urban Requalification, Centre, Culture.

1. Introduction

City centres have always experienced changes, but probably none compare to the ones that have occurred during the last 30 years (Frieden & Sagalyn, 1989; DoE, 1994; Burayidi, 2001; Gotham, 2001; Ford, 2003). The accelerated changes experienced by the cities in the USA and Western Europe after World War II reached southern European countries relatively recently. Migration of residents to the suburbs accompanied by the opening of new retail, office and leisure spaces in peripheral locations, increased automobile ownership with the consequent congestion, air and noise pollution in central areas that led to the decline of city centres. Despite this decline, one of the distinctive features of southern European cities is that they have always had a very lively urban existence. This contributed to the fact that changes were not as violent and intense as in other western countries (Southworth, 2005).

During the 1990s, southern European cities experienced many revitalization interventions. These interventions occurred due to mega-event operations, flagship developments, cultural planning, revitalization of shopping areas, and the use of 'star architects' who designed post-modern structures, such as the Guggenheim Museum in Bilbao (Loftman & Nevin, 1995; Rodriguez & Martinez, 2003). In Barcelona the Ciutat Vella regeneration intervention began in the 1980s and was instrumental in renovating the city's historic district. The 1992 Olympic Games gave an additional boost to the revitalization of the waterfront and to the launching of many strategic projects (Monclus, 2003). Smaller cities such as Santiago de Compostela (Gonzalez, 1999) and Zaragoca (Caetano, 1999) are less well known but nonetheless their revitalization interventions are remarkable.

In Portugal, one of the cities, Oporto, experienced some revitalization attempts of it riverfront and city centre during the second half of the 1990s. In Oporto, the 2001 European Capital of Culture revitalized the public space of four squares and many streets in the baixa (Porto' 2001, 2002; Balsas, 2004). In Oporto the revitalization of city centre included improvements to public spaces, streetscaping, pedestrianization schemes, new urban furniture and housing rehabilitation, retail modernizations and embryonic attempts to implementing city centre management partnerships.

One of the most usual problems in historic centers of European cities is the lack of quality of the urban spaces, mostly because the excessive presence of individual means of transport. The urban requalification made in Oporto, shows how the requalification of public space, the rehabilitation of the buildings and mobility program can be understood as a frame to the restructuring of public space (Cochrane, A.,2006).

2. The conservation and preservation of cultural heritage

The conservation and preservation of cultural heritage is an ongoing process and it should follow the guidelines defined at the conventions, namely the recommendations and resolutions developed and proposed by the Intergovernmental Committee for the

Protection of the World Cultural Natural Heritage (UNESCO), whose crucial aim is to ensure the most effective protection and conservation, as well as an equally effective active appreciation of the Historic Centre of Oporto World Heritage.

Considering the extension and complexity of the Historic Centre of Oporto as an urban area of great heritage value within a Critical Area of Recovery and Urban Reconversion (ACRRU) and, simultaneously, classified as a National Monument, it is not possible to envisage its urban rehabilitation without a clear definition of priorities and respect for its specific issues, considering that the respective territory is very diverse, both in its origins and urban processes and in its state of conservation.

Since 1982, when Oporto City Council took on the responsibility for the works of the Commissariat for Urban Renovation of the Ribeira/ Barredo Area (CRUARB), the Historic Centre of Oporto has been subject to urban rehabilitation. This is now in the hands of the program of Urban Requalification, whose role is to manage the process, develop the strategy of intervention and serve as mediator between proprietors and tenants, and, if necessary, assume the responsibility of rehabilitation, making use of the legal means at its disposal.

Currently, the following continues to be a concern: 32% of the building ensemble is in a state of deterioration and 4% is in an advanced state of decay. If we add the 649 buildings in a fair state of conservation to this number, we conclude that there are 1302 buildings which need rehabilitation and conservation.

Faced with this scenario, and within this area, we intended to proceed with a process of unique and distinctive urban intervention, rehabilitation and conservation of this ensemble.

This objective consists of consolidating and giving continuity to a major operation of urban planning and intervention which is already in progress, while aiming to promote the conservation and restoration of 83 neighbourhoods, rehabilitating 1302 buildings,

Simultaneously promoting actions which can allow a greater, better stimuli to private investment and fiscal incentives, positively discriminating in favour of those who intend to invest in the Historic Centre of Oporto, thus ensuring:

• A new functionality to the cultural heritage of the Historic Centre, integrating its protection into the systems of urban planning at local, metropolitan and regional levels;

• The creation of services of protection, conservation and appreciation of Cultural Heritage, with specialised technical teams and the use of the appropriate means available;

• Taking legal, scientific, technical, administrative and financial measures which are suitable for the identification, protection, conservation, appreciation and restoration of the mentioned heritage.

3. Rehabilitation Programs

3.1. The program of Urban Requalification

The program of Urban Requalification came up from the analysis of a reality with dysfunctions at the level of public space – streets, plazas, and avenues – which affected the mobility of people and contributed to the degradation and loss of competitively of economical activities, diminishing of dwelling and even to the cultural decline of historic centre (Balsas, C.J.L. 2004).

The "Program of Urban Requalification for the historic centre" presents five purposes: 1. the requalification of public space;

2. the requalification of the buildings;

3. the economic revitalization;

4. the requalification of dwellings; and

5. the improvement of mobility.

3.2. Program of Rehabilitation and Mobility for the Historic Centre of Oporto

To give a better answer to this last goal, it was developed the "Program of Rehabilitation and Mobility for the Historic Centre of Oporto", which principle objectives are:

Figure 1. The Historic Centre of Oporto

a) Improving the environmental condition of the city centre,

b) maintaining the current level of parking availability (discouraging off- street parking lot for underground parking garages instead,

c) improving the conditions of public road transport and its relationship to individual car transportation in the city centre,

d) articulating an inter-modal transportation network in an effort to gain improved mobility in the city centre),

e) resolution of the loading and unloading operations problems and

f) developing information systems networks for improved public transportation, efficiency and on time coordination with other modes of transportation and departures (Balsas, C.J.L. 2004).

The program of requalification of Oporto Centre is focused on the historic district, in the heart of the city - Ribeira/ Barredo Area.

The project teams developed their proposals facing the rearrangement of traffic as public space politics: keeping the vertical plans – buildings – and reorganizing the horizontal plan – pavements – based on the reformulation of traffic structure. The mobility plan comprehends several actions that have been concretized in each one of the proposals, which gave unity to the result: the reintroduction of the electronic tram transport, sharing the public space with the pedestrian (in the plazas or in the most important streets); the expansion of areas of pedestrian circulation (generalized enlargement of the sidewalks/narrowing of the circulation channels); the introduction of dimensions, which base of calculation is the classification of the street layout in regard to its function (circulation path – 2.50 m to 3.10 m; parking – 1.80m to1.90 m; sidewalks – minimum 2.25m); the definition of a standard street profile; the construction of underground parking lot in each one of the four area (Newman, P., Thornley A. 1996).

Figure 2 Limit of the Intervention Area

3.3. CRUARB - Commission for the Urban Renewal Area Ribeira / Barredo

Oporto is the second largest city in the country and the centre of a metropolitan area with 1.3 million inhabitants (Costa-Lobo, 1991). It is well known for its Port wine, but it has been accused of not having a cultural life, in contrast to the allegedly flamboyant Lisbon. The Oporto region has a long tradition of commerce and is still one of the most important industrial regions in Portugal. Topographically, the city is very hilly. The city was born on the riverfront and its historic district has many narrow and windy streets and alleys, and a medieval urban structure.

The building typology is very diverse, but there are many three and four-storey high structures. Its renovation started in 1974 with the creation of the public office CRUARB. This public office was instrumental in renovating for many buildings in two historic districts, (the Sé and Ribeira/Barredo districts) it was always ill-equipped to revitalize the entire city centre area.

However, the CRUARB had the leading role in the preparation of the application of the historic district to the UNESCO List of World Heritage Sites, which was successfully classified in 1996. This area covers 120 hectares, has 17 000 inhabitants and approximately 3000 buildings, of which the CRUARB has already renovated approximately 500 (CRUARB, 2000, p. 156). Punctuating this urban fabric, there are 95 classified buildings, which show the tremendous rich heritage of the area. Socially, the city centre houses an ageing population

with a very large concentration of retired residents. The area suffers from a lack of parking in and adjacent to residential buildings; increasing automobile congestion causes high levels of air pollution. The area suffers also from a lack of social facilities and inadequate street cleaning. The local economy has shown a lack of vitality for several years, the property owners do not have the economic capacity to invest in the rehabilitation of the housing stock. Over the years the Fundação para o Desenvolvimento da Zona Histórica do Oporto (FDZHP), the foundation for the development of the historic district of Oporto, has had a positive, but limited, role in the creation of economic opportunities and in the social integration of the population in the historic district.

Figure 3 Historic Centre of Oporto

3.4. Public Interventions in the City Centre

The municipality attempted to deal with this problem by creating two public agencies

responsible for the physical and social rehabilitation of the historic district, respectively the CRUARB – Comissariado para a Reabilitação Urbana da Área Ribeira e Barredo – and the FDZHP – Fundação para o Desenvolvimento da Zona Histórica do Oporto. The CRUARB was created in 1974 to rehabilitate the historic district. While the CRUARB never had large budgets, it was able to achieve some remarkable accomplishments, such as avoiding the partial demolition of the historic district proposed by the Auzell Plan of 1962. In addition, CRUARB had an important role in the rehabilitation of many buildings and public spaces in the historic district and was also responsible for preparing the application that included the historic district of Oporto in the list of the UNESCO World Heritage Sites (CRUARB, 2000).

The FDZHP is a foundation created in 1990 to solve the social problems in the historic

district. It has had a positive role in the creation of economic opportunities and in the social integration of the population in the historic district.). Besides this urban and social intervention in the city centre, it is important to mention also, the public intervention in the cultural area with the 1989 creation of the "Pelouro de Animação da Cidade". This is the municipality's cultural office, which, according to Lopes (2000, pp. 179–180), has had a two fold role in producing and financing an array of festivals, and in

expanding the network of cultural facilities in the city. In fact, the sedimentation of the city's rich and varied cultural policy led by these two offices with the designation as World Heritage Site.

4. The planning approach: guiding principles and general features

The planning approach that was adopted to carry out the implementation of urban requalification actions can be systematized in its several dimensions and guiding principles, which are outlined as follows. These features reflect the way in which the priorities of urban intervention are defined and valued. They have therefore important constraining efforts on the way interventions strategies are carried on.

a) Firstly, the spatial dimension should be mentioned: the areas subject intervention hardly adjust to "problem-areas", in sense that they aren't meaningful as critical situations associated with the "urban deprivation" context identified in the city centre area. However, it is visible that those areas were selected according to aesthetical (or formal) criteria, namely for having spaces with morphology of great cultural and symbolic importance and for being relevant in terms of their "value of use" for circulation (of which squares are an example).

b) The second aspect to be highlight is the importance given to the conception of urban projects anchored in "urban design procedures", in which the public space is particularly appreciated. It could be said that the dimension constitutes "the core of the planning approach" (Fernandes, 2000).

Closely linked to those thoughts, one should highlight the issues associated with technical skill required to produce urban intervention projects. This process was carried out by direct invitation, or consultation, to particular technicians, where the professional profile of the architect was privileged. However, even more important is the "instrumental" dimension given to the project team, which, in practice, limited itself to addressing the programmatic orientations previously defined. To sum up, there is a noticeable methodological impulse on "urban project" oriented towards the formal valorization of selective public spaces.

The methodological attitude does not embody logic of adjustment to the nature of urban problems or to the integration of specific local interests.

Two other methodological aspects should equally be mentioned:

•Firstly, the regulating importance assumed by the mobility management in the process of urban requalification and public space transformation. This relevance should be understood in the context of the severe traffic jam problems that affect the city centre area and the need to direct the different urban designers to a common mobility strategy, able to coordinate the different urban public transport methods.

The central issue is, therefore, the promotion of public transports, complemented by parking policies. Mobility criteria are set in order to become norms to the urban design procedures (such as street sizing criteria, as well as of restrictions to its use for parking and for loading/unloading).

•Secondly, the importance of the coordination between "physical economic regeneration". The connection between the physical space rehabilitation and economic revitalization is the concern for addressing the issues related to the change in the functional profile of the city-centre's economy, namely in terms of the local commercial network's fragility. Therefore the commercial revitalization programme is associated with "specific areas", where an intervention occurs in terms of "urban design procedures". This space coincidence looks to capitalize, the effects of attractiveness associated to public space improvement, on the local economy.

It equally aims at addressing the (technical and financing) requirements of national programme of commercial urbanism. This "integrated" model represents, accordingly, an important methodological dimension of the urban requalification processes to carry on in the city-centre.

5. Rehabilitation Process in the Historical Centre

The Oporto's project is associated with an urban rehabilitation programme in which

300.000 m2 of degraded buildings have to be renovated in the historic centre, which is

classified as part of the World Heritage List by UNESCO. It is an urban agglomeration of great historic, artistic, cultural and architectural value, with medieval urban features. The physical environment of the historic centre was in a poor state of repair.

The main objective of this action was to improve the appearance of the neighborhood's open spaces, which had suffered serious neglect over the years. This included refurbishing all streets and squares in the target area by replacing pavements, planting trees, and improving public lighting, and introducing a new waste disposal system. The improvements also involved renovating the most remarkable and dilapidated facades, preserving decorative architectural features, and eliminating modern elements that were not "in keeping". By undertaking these environmental improvements, the project aimed to enhance the image of the area and to bring out its historic and aesthetic characteristics.

Key areas targeted by this action were the facades of the buildings in Das Aldas Street and the Viela do Anjo area. This revaluation is also part of the RESTART project, that is associated with an urban rehabilitation programme in which 300 000 m2 of degraded buildings have to be renovated in the historic centre, which is classified as part of the World Heritage List by UNESCO. The retrofitting is being done on the basis of efficient design and technology, as well as using renewable energy. It is an urban agglomeration of great historic, artistic, cultural and architectural value, with medieval urban features.

The main conclusion is that, despite the very limited potential for intervention at the design stage, due to the historic and patrimonial value of these buildings, there were still quite a lot of opportunities to explore in order to optimise the energy use for lighting and acclimatization, the thermal behaviour and the indoor comfort conditions.

The good results prove that, even under so severe and limited degrees of freedom, it was possible to improve the thermal performance and the overall comfort of some buildings.

Figure 4 Project of Rehabilitation

Figure 5 Project of Rehabilitation
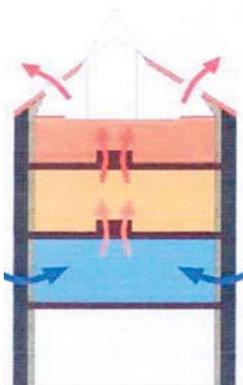
Figure 6 Application of Thermal Insulation

6. Results

The refurbishment work in the streets and squares
The refurbishment work in the streets and squares involved placing new decorative paving on a total surface of 7,800 m2 and replacing over 11,000 m of potentially dangerous cables and pipes. These interventions, particularly in the Viela do Anjo area, successfully contributed to "opening up" the district, making it a safer place to live and work. As a direct result of these improvements, this also has included traffic management and the creation of additional parking places, the area became more accessible and attractive. The facade restorations were in a total of 500 buildings and have also helped to improve the

area's image.
The most recent public space intervention completed in Porto was the renovation of the Aliados square in June 2006, the main square in the City of Porto. This square was designed by two very well known Portuguese architects, Siza Vieira, and Souto Moura. The objective was to create a unified public space with a more modern and homogenous streetscape design, which involved widening pavements, reducing the size of the central pedestrian space. The municipality is now very keen to help local retailers populate this renovated public space and has even created a system of economic incentives to foster the opening of outside cafes on the pavements adjacent to the buildings (CMP, 2006).

7. Discussion

7.1. Priority to Pedestrians … and to Automobiles
The most recent interventions in this city centre gave priority to pedestrian accessibility and mobility, but also to automobile accessibility through the construction of underground car parks in the city centre. This could be a 'double edge sword' because on the one hand both cities want to increase pedestrian activity but at the same time want to give automobiles the possibility to enter the city centre, but with all the negative impacts they can create. Instead of building underground car parks in the city centres, an alternative could have been the construction of park and ride areas in more peripheral locations.
In Porto, there were major interventions not only in public squares but also in approximately 30 streets. Pedestrian mobility in the city centre was difficult before the revitalization interventions. Many pavements were very narrow, and pavements were in a bad condition and with potholes. Many did not allow two people walking side-by-side with an open umbrella. On the pavements there were many barriers to pedestrians, including electric poles and boxes, signs, traffic metres, kiosks, etc. There were also numerous cars parked illegally on the pavements (Siza & Pereira, 2001). These situations raised safety concerns and a lack of comfort for pedestrians. The public squares were also hostile to pedestrians with streets traversing them.

Pavements have now been widened and squares have become major pedestrian areas. On the streets, automobile traffic has been made more difficult by narrowing down travel lanes. On many streets where there were previously two lanes, there is now one lane and a row of parking. Illegal parking on the street has also been eliminated. Many streets now have traffic obstacles (i.e. short pillars) to prevent automobiles from invading pavements (Siza & Pereira, 2001). Pedestrian crossings have been widened, and ramps and dropped curbs have been put in place. Two of the criticisms made of the mobility scheme are that it does not take into consideration the needs of emergency vehicles, such as ambulances and fire trucks, and it has very few places for vehicles to load and unload goods. Parking garages were built on four squares. Particularly in Porto, these changes were not very well received by businesses and representatives from the local chamber

of commerce (Balsas, 2004). They argued that the mobility scheme reduced the number of parking spaces in the city centre, even though they were informed that the replacement of on-street parking by underground car parks would increase parking by 10% to a total of 11 000 spaces. They also asked for discounted prices for shoppers in the city centre area.

7.2. Public Space Interventions

The public space interventions occurred in the most important squares in the city centres. They had two main components: first, to revitalize central areas and their main streets; and second, to preserve their iconographic elements (e.g. fountains, statues, etc.) and reinforce cities' identity and sense of place (Rypkema, 2003). In Porto they were part of a more comprehensive revitalization strategy implemented by the corporation in charge of the event 2001 European Capital of Culture (Porto' 2001, 2000, 2002). However, the interventions in this city assumed that intervening in the public space would positively induce the functional revitalization of the city centre. With regard to the increased effect on the functional revitalization due to the improvements in the public space assumed by planners and architects in Oporto, the popular press presents the revitalized squares and streets as attractive and vital spaces that have added to the already successful pedestrian precincts. This is well established now, with people walking frenetically during rush hours, window shopping, gathering at corners and at newspaper stands, resting on new benches and attending large-scale events, such as fashion shows in Porto. Although it is difficult to link an increase in the number of tourists in Porto exclusively to the public space improvements alone, it definitely helps to illustrate possible economic gains for the city in the future.

8. Conclusion

The objective of this paper was not only to present an up-to-date plan of the recent city centre revitalization interventions in Oporto in the ambit of "European capital of culture". But primarily is to give a 'southern European contribution' (Pires, 2005) to the ongoing debates about urban design interventions in urban revitalization schemes. The argument was that these revitalizations were partial physical facelifts that overlooked the social and economic aspects of the revitalization. The reasons are multiple and involve the magnitude of the decline and the deterioration levels of the building stocks, the lack of appropriate legal instruments and funding levels, political priorities and the complexity of intervening in the urban fabric of historic centre.

City centres now have to compete with other activity centers, but they can only remain liveable if they reinforce their uniqueness and sense of place, which come from their public space and the organic mix of diverse uses (Domingues, 2001, 2002; Portas, 2001). They should diversify their anchors (entertainment venues, public markets, retail stores, cafes, restaurants, etc.), not only to attract people to city centres, but also to keep them there at different times of the day and different days of the week (Lynch, 1972). In addition, city

centres should cater to multiple publics and different ages in order to keep their social and economic cohesion (Fainstein, 2000; Larsen et al., 2004).

These objectives can be implemented by renovating housing; modernizing retail stores; extending trading hours; increasing accessibility; renovating public spaces; and promoting comfort, cleanliness and safety levels; and moreover, by implementing organizational strategies that adequately analyze, plan, resource, implement and evaluate revitalization solutions. With the 2001 European Capital of Culture, the city of Oporto looked at how culture and leisure activities could revitalize the city centre (Wansborough and Mageean, 2000).

Authenticity, liveability, vitality and viability are all desirable characteristics that make city centres more interesting places to live, work, shop and visit (Rypkema, 2003). To remain competitive in the third millennium, the city centre of Oporto need to be able to recreate it existence. Urban revitalization and the promotion of synergies for the equitable and sustainable management of city centres are at the same time, the most difficult and the most critical areas of public intervention (Christensen, 1985; Whyte, 1988; Loukaito, Sideris, 2000). This implementation is greatly needed in Portugal if one of the most important city centres is to survive in the 21st century.

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Sali Sasaki
Cities x Design
Best-practice Examples from the United States

Abstract

The United States is currently at a crossroad where the transitions between its past, present and future are being articulated. Cities from around the country are challenged in unprecedented ways at the beginning of this 21st century. The American urban model, developed around cars, highways, and vast suburbs, is slowly exhausting its promises for a better life while poor planning has made cities incredibly obsolete. In this time of crisis, many places have to learn how to become relevant again.

At a global level, many people are asking what makes a city great. Are great cities those that provide unforgettable experiences? Or are they places that manage to seamlessly bind the way they look with the way they work? How should they balance both tradition and modernity?

This paper shows, through best practice examples collected during a 30-city tour, the various roles that designers play in this time of urban transformation. It also questions the implications linked to historic preservation and the relevance of both old and new ideas in urban environments.

"Humans are skilled makers of a place for themselves in the world"

Introduction

American cities differ from European cities because of their young history and infatuation with everything new and shiny. For the longest time, architectural heritage was ignored in the United States to leave space for future ambitious plans. Yet recently, American cities have been looking at their past in order to find answers on how to build a more interesting future. 1960's urban theories such as Jane Jacobs' principles on new urbanism are re-emerging and becoming increasingly popular. Her book The Death and Life of Great American Cities is a reference for many young proponents of mixed-use and human-scaled urban environments. Public mass-transit systems that were widely used before the 1950's are also experiencing a revival in many cities and states. The National Trust For Historic Preservation is nationally promoting the preservation of old buildings. Its initiatives seek to revive city centres and downtown main streets that were left abandoned for decades.

The subject of cities has become a bestselling topic, as it seems to reflect the most pressing issues of the 21st century, including climate change, social justice and economic development. The term creativity, and the dreams associated to it, appeals to post-industrial American cities that are seeking opportunities for economic conversions. The definition and the way creative cities should be built are often contested. James Heartfield wrote in Blueprint magazine that the word creativity does not create just as the title creative city does not necessarily make a place more interesting. And despite a growing interest from politicians and urban decision-makers, it seems that the building of creative cities for global competitiveness, as defined by Richard Florida's The Rise of the Creative Class, has exacerbated economic disparities. The integration of creativity in urban environments is much more complex than it actually seems.

So how do designers participate in the most pressing transformation of the 21st century? How do they help achieve principles of new urbanism, push creativity forward whilst acknowledging a city's past? How do they initiate long-term changes that can impact people's lives? And most importantly how do they help a city manage the passage of time at an environmental, social and cultural level?

To answer these questions the Cities x Design national tour was devised in March 2009. Setting out from Miami, FL, on 28 June, co-producers Sali Sasaki and Jay Corless drove for more than four months and over 14,000 miles to personally investigate how investing in design can change perceptions, boost economies and help to create unique places in 30 American cities. Through visits, observations, online crowd sourcing techniques and video interviews of local designers a clear picture of the role creativity can play in communities began to emerge.

The cities were chosen by cross-referencing academic research, with media coverage and membership representation in professional organizations. This data was then mapped and charted according to the interstate highway system and time and budget constraints. It's important to note Los Angeles and New York City were omitted from the study due to the demanding schedule and sheer availability of creative interventions within those cities. Of the original 38 cities that were mapped some were omitted in the final study due to a lack of notable creative hubs or exemplary examples of cultural heritage. The following are a few examples of the best-practice examples discovered. For the purposes of this conference an abbreviated journey is

presented to address the theme of "Old and New." In section one the study details how design processes are being used in communities transitioning from old to new histories. The second section discusses what stays and what goes in periods of dynamic change. While the last section specifically highlights what designers are doing to write new stories for their communities.

1. At the Intersection of Old and New Histories

The United States is currently at a crossroad where the transitions between its past, present and future are being articulated. In this moment of crisis, many American cities seek to redefine themselves but are uncertain about their future. The emergence of design-integrated processes, placing the end-user's needs at the centre of the development process, has led some individuals to develop ideas that could potentially reveal the direction of their city's future growth. The main difficulty in American cities is the successful balance between past, present, and future and the role of design in providing form, function and meaning.

1.1. Physical Regeneration and Economic Conversion

In recent years, design has been at the centre of many adaptive re-use projects in the United States. When it comes to regeneration, design can be used as a technical tool but also as a methodology and philosophy. It is a mindset, approach and instrument that the capacity to develop and provide new content and meaning that strengthens local economies and communities.

Figure 1. The former General Motors Technical Building in Downtown Detroit is being renovated to become the main design campus for the College of Creative Studies.

In Detroit, Michigan, the opening of the Taubman Center (see Figure 1) is set to revive the city's downtown area. This new design campus run by the College for Creative Studies was the former General Motors Technical Center and has become the symbol of a new beginning that is infused with memories of the city's golden age. The Argonaut building designed by Albert Kahn is 80 years old and offers 760,000 square-foot of space. This adaptive re-use project not only intends to provide students, from middle, high school, undergraduate and graduate levels, with the technical skills to carry out design work and an education on the philosophical underpinnings of a range of modern design methodologies it also hopes to transform the economy of Southeast Michigan and renew Detroit. The Taubman site cre-

ated 200 new jobs and will bring more than 2000 people to the area on a daily basis. This project is symbolic for Detroit. As the city that defined the American dreams of the 20th century, today it wants to redeem itself through new design practices that will help towards its economic conversion.

Figure 2. The Green Building in Louisville, Kentucky, is a 110-year-old masonry structure that was reconverted into a LEED-platinum building.

Further south, in Louisville, Kentucky, the Green Building (see Figure 2) is a project of a smaller scale but of equally ambitious goals. It is a model of architectural preservation with a modern core: an authentic masonry structure, natural lighting, eco-friendly materials, renewable energy systems, solar panels, geothermal wells and most original of all, a recycled denim insulation. This project shows that historic preservation can be compatible with environmentally sustainable design – an issue that is often raised by the U.S. Green Building Council. The owners Gill and Augusta Holland are now waiting to receive a LEED platinum certification. LEED is the Leadership in Energy and Environmental Design, a national ratings system that looks at the design, construction and operation of highly efficient green buildings.

1.2. Local Designs

Whilst the built environment works as a physical representation of the passage of time, craftsmanship embodies the practices and intangible knowledge that is passed from one generation to another. What would New Orleans be without the Bevolo family, designer-makers of the original French Quarter lights since 1945?

Designers are promoters and purveyors of local indigenous craftsmanship and culture. Such practices help define local identity, strengthen communities and are a measure of quality, motivation and skill that reflect the vitality of a city.

Figure 3. Tim Bessell from San Diego, California, hand-shapes a surfboard in his studio. He was taught about the craft as a teenager by the surfing industry's greatest.

Tim Bessell (see Figure 3) owns a small surf shop and shaping studio located on the idyllic cliffs of La Jolla, not far from San Diego, California. His passion for surfing and surfboard shaping was formed over the course of several decades that started when he was a young teenager. After years of training with the most respected shapers, he eventually became one of the most recognized experts in the industry. Surfing culture has become indigenous to the San Diego area and is a craft that reflects many of the traits associated to the region. Unfortunately, global competitiveness has led many San Diego companies to manufacture their surfboards in Asia and therefore relocate their headquarters. Tim Bessell believes in the handcrafted integrity and quality of his brand. Despite higher prices, a loyal customer base orders his products continuously, both locally and internationally.

Figure 4. Austin, TX, has a long history and collection of handmade neon signs that are being preserved as local cultural heritage.

In Austin, Texas, Todd Sanders' creative work builds on a craft tradition that is threatened by the rise of technology and cheaper manufacturing costs (see Figure 4). Austin and its region have a proud heritage of handmade neon signs and lettering that have slowly been replaced over the past decades. Todd Sanders looks at neon-sign-making as a craft positioned somewhere in between art and design. His work has been used on film sets, advertising campaigns but also draws the interest of art collectors. At Roadhouse Relics, the design of a neon sign begins with pencil sketches on paper and does not rely once on computer prototyping technology. This type of aesthetic and methodology, which once was a reflection of American innovation, is now being sustained as a local tradition. Austin's image is distinctive in the United States because it has been capable of keeping and renewing its own cultural essence.

1.3. Creative Tourism

The modern traveler searches new experiences that feed his search for local culture, originality and authenticity from past and present times. Hotels are places where such experiences can be found. Independent hotels that have existed for generations have proven to be dynamic creative hubs that reflect what a local community can achieve together. In the past few years, the popularity of the American mid-century modern style has resurrected old motels built in the 1950's. The Pearl in San Diego and the Valley Ho in Scottsdale are successful examples of places that not only work as relics that reflect America's golden age but also offer the modern services and amenities that are indispensable in the 21st century.

Figure 6. The San José Hotel in Austin, Texas, lies at the creative heart of the city and draws local and tourists crowds.

Designers, artists, photographers, musicians, tourists, and local neighbours like to grab a coffee at Jo's and slowly sip their drink in the courtyard of the San José Hotel (see Figure 6). On weekends and during the summer mornings especially, nothing stops the long lines from appearing in front of the building. Near the pool, it is crowded and lively. In a decade, the San José Hotel has become the headquarters for local creative people and its presence has transformed South Congress Avenue, making it one of the most vibrant streets in Austin, TX, and the United States.

Back in 1939 the San Jose was built as an "ultra modern tourist court" and the business grew steadily until the 1960's. Following major road changes, in particular the introduction of the Interstate Highway system, the building went through several conversions: as a brothel, a church bible school and a refuge for drug-users and prostitutes before going through its last transformation as a trendy boutique hotel. In its promotional material the San José refers to itself as a "place with a soul". By blending its unconventional history and its creative community in a regenerated design environment, this hotel holds the historical stories and narratives that continue to define the city's unique character.

Figure 7. The Modern in Boise, Idaho, is a family business that understands the functional role of modern design.

At the Modern Hotel in Boise, Idaho, the sinks are unconventionally shallow and there are no shower curtains in the bathrooms. One might think that these choices were made entirely for aesthetic reasons. In fact, the owner Elizabeth Tullis had a green vision for the 1950's former Travelodge. She wanted to create a stylish yet highly functional and practical hotel to maximize costs and avoid unnecessary waste. Because bathrooms represent the most expensive and complex features to clean of hotel rooms, a team of designers was hired to conceive eco-efficient solutions for the cleaning staff and modern traveler. Un-

like chain motels that are sadly homogenous, lack in style and comfort, the Modern strikes a perfect balance between style and function. It is a 21st century model for other independent motels to follow (see Figure 7).

2. What stays and what goes?

"Is it good just because it is old?
Is it good just because it is new?
More importantly can't we support both?
Is there a way to separate the question of value from the question of age?"

The built environment is a clear reflection of a city's identity and American places are becoming more attached to the preservation of their history than they have been in the past. Some cities exist as historic destinations; others, who suffer from deindustrialization, try to reinvent themselves by regenerating historic areas. Environmental sustainability concerns often come with the presence of ageing infrastructure. In the field of transportation, the costly transition from automobile-dominated infrastructure to something greener and more efficient is slowly taking place across the country.

2.1 Historic preservation

Figure 8. Santa Fe's pueblo architecture is one of the many historic features in the city.

Santa Fe is, spatially, a unique cultural experience (see Figure 8). The historic pueblo architecture used to house galleries and museums, showcases Native American craftsmanship and indigenous art. The city works like a container with a focused thematic approach dedicated to traditional practices. What is lacking is a contemporary twist that could bring renewed energy and reconnect old and young generations. Santa Fe is resisting the type of transformations that might suggest an idea of the future that could be built around new creative practices. With historic places, the inability to break off from the past is a risk. The overwhelming presence of historic sites can turn cities into museums. Cities should not only be physical containers but places where new meanings are being forged and new ideas are stimulated.

Figure 9. Pepe Hall of the Savannah College of Art and Design was a former military hospital that served during the American Civil War.

Savannah is a beautiful and unusual kind of historic place. The city experienced an overhaul due to the presence of the Savannah College of Art and Design (SCAD), a creative education empire established in 1978 that now counts four campuses in three different countries and over 9000 students. Walking around in Savannah, one can only notice the overwhelming presence of SCAD and the instrumental role it has played in restoring the historic districts. The School of Fibers (see Figure 9) is located in a building from 1906 that used to serve as a military hospital during the Civil War. SCAD's main auditorium is located in a former high school building built in 1920. A former warehouse built in 1956 houses the industrial design department. The School of Film is located in an old power station originally built in 1894. SCAD turned historic Savannah into a creative platform for the next generation. Its dominating presence in the city has caused a few stirs however the benefits brought by the school have most certainly helped save many failing buildings and neighborhoods.

2.2 Rebranding or Rebuilding

Some neighborhoods and districts in American cities can be reinvented multiple times over the course of a decade. Such transformations often occur by the replacement of an old brand with a new one or by rebuilding entire districts.

In San Diego, Bennett Peji runs a communication design firm that develops brands for local neighborhoods that are attached to a specific cultural heritage. His motto "form follows culture" encapsulates his vision for culturally relevant graphic identities. To Peji, the use of graphic symbols and visual language helps communities feel a sense of belonging and ownership. As the cultural impact of graphic design is hard to measure, it is in the process of developing a brand that Peji Design involves the local communities in order to reach a solution in a collective manner. The merging of individual and shared narratives is synthesized through a multiple step process to capture a sense of place. But this approach can also have its weaknesses. Some critics have described this type of practice as place marketing or "city-boosterism" that can lead to unnecessary competitiveness amongst cities.

Figure 10. The Riverfront Crescent in New Orleans is the most significant urban project since the French Quarter.
© 2010 New Orleans Building Corporation

The transformation of a district more frequently happens through architecture and property development. Following the aftermath of hurricane Katrina, the City of New Orleans has been harnessing its creative potential to reinvent itself as "an old city in a new time" . The most ambitious project of all, and certainly one of the most ambitious urban initiatives in the United States, is taking place at the riverfront district. Reinventing the Crescent is a multi-billion dollar project that is considered to be the most important transformation for New Orleans since the establishment of the French Quarter. This project intends to reconnect the city with its riverfront area, a historic place that has been left abandoned for many years. Renowned for its cultural offerings, New Orleans seeks to strengthen its creative identity by gathering a team of international architects and designers led by local firm Eskew+Dumez+Ripple. Fifteen locations near the Riverfront will be redesigned and seamlessly turned into a new neighborhood for the local community and tourists. Through the ambition of this project, New Orleans shows an experimental character that many historic cities lack. It is not afraid of repositioning itself in a contemporary context and rather takes the opportunity to renew and thereby strengthen its core identity. This is a symbolic move that illustrates the challenges that are associated to urban renewal and historic preservation.

2.3 Old vs New Transportation

Figure 11. Denver installed its first bike sharing stations in 2009.

Transportation is at the heart of heated debates in American cities and whilst the old car system is far from dead, a new system is not fully born yet. Pulled by the desire to lead healthier lives, communities are taking the matter in their hands and city officials are rushing to make their city the greenest place in America.

Bike coalitions, such as Bike Portland, have formed on the West coast, safe cycling paths are changing the cityscape of New York City, and Denver launched its first bike sharing sta-

tions B Cycle in 2009 (see Figure 11). In the majority of cities, the basic public infrastructure still requires an important overhaul. Detroit is looking to resurrect its former streetcar network, which was taken out of service in the 1950s, in order to bring back the missing social and economic vitality in the downtown area. In the meantime, Portland's United Streetcar is building the first batches of US-made trams since the mid 20th century. Over 80 cities in the United States are currently in some stage of transit line development or planning. Additionally, more parking lots are being concealed underground to leave space for energy-efficient and/or green spaces like the Millennium Park in Chicago.

The return of public transportation is not solely targeting environmental concerns. The widespread use of cars led to economic disparities and dead city centres. There is a much-needed return of the crowded sidewalk as defended by Jane Jacobs . "Walkability" brings diversity, safety and a social life for people living in cities.

3.Writing New Stories

3.1 Cultural Products by Designer-Entrepreneurs

This new millennium may coincide with the return of souvenir products as objects that are culturally more relevant and reconnected to a sense of place. This growing market is being impacted by the way creative people approach their work. Whilst many designers enjoy working for their clients, more are looking to design, produce and launch their own products, or even start their own retail space. Designer-entrepreneurs with a taste for culturally relevant objects have taken over a number of creative neighborhoods in various American cities, adding to the development of more vibrant and distinctive places around the country. Museum shops, like the one of the New Mexico Foundation, collaborate with local designer-makers to display unique objects, and design schools, like SCAD, form partnerships with corporate clients to develop products that are later sold locally and in select stores nationwide. A successful global city knows how to galvanize its local resources and talents to strengthen its cultural assets and connect with the outside world.

Figure 12. JAQK Cellars is a wine label launched by a design firm based in San Francisco.

One example is JAQK Cellars, a side business launched by design firm Hatch in San Francisco. When Joel Templin and Katie Jain co-founded their creative practice, they already had big ambitions for their company. They knew that they were going to design brands for major companies but they also wanted to

produce and launch their own line of products.

Their proximity to the wineries of the Napa Valley led to a partnership with one of the region's best wine maker, Craig MacLean. Together they launched a new wine label that smartly blends wine culture with poker references that is popular in nearby Las Vegas. JAQK is an acronym for Jack, Ace, Queen and King.

JAQK Cellars is a playful brand that focuses on offering the best quality wine from the Napa region. Their flagship bottle "High Roller" is not only beautifully packaged, it is a 2006 Cabernet Sauvignon of high caliber that appeals to both the connoisseur and design-savvy customers. Hatch is a design firm that strongly reflects San Francisco's entrepreneurial spirit and its love for innovative quality products that reflect the California savoir-vivre.

3.2 Networks, Events and Communities

Figure 13. Alison and Matthew King started Modern Phoenix, a neighborhood network that brings the local community together through a shared interest in modern design

Designers play an important role in shaping the networks and events that mobilize local communities, and attract visitors around diverse activities. The largest design event of its kind is DesignPhiladelphia, an open platform where over 500 designers from multiple disciplines showcase their work in iconic areas of the city. As a post-industrial city, Philadelphia seeks to strengthen its creative core, by turning its own problems into new opportunities, and by finding solutions through the imagination of its design community. In 2009 over 125 events, including exhibitions, workshops, lectures and tours, attracted over 150,000 visitors to the streets, universities, warehouses, schools, galleries and museums of the city.

Smaller city events are independently organized by groups of individuals who want to give something back to their community. A passion of mid-century modern architecture led graphic designers Alison and Matthew King (see Figure 14) to establish Modern Phoenix, a neighborhood network that connects modern architecture aficionados, homeowners, researchers, architects, writers and many more. Their annual home tour takes people in the metropolitan areas to look at genuine modern domestic spaces that are being preserved or have recently been remodeled. This growing network feeds into an online archive made of photographs, brochures, maps and miscellaneous documents that serve as a depository of retro American architecture that characterizes the Scottsdale-Phoenix area. Modern Phoenix is

one of many community-led projects that strengthen urban regeneration, cultural capital and social cohesion in American urban environments.

Conclusion

"The thoughts about how our environment represents or might represent the past, the present, and the future can be brought into better order if we look at how our bodies and our mind experience time – how time is built into us and yet also how we ourselves have created it"

The multidisciplinary nature of design can gradually transform neighborhoods into endearing homes in many different ways: by sustaining traditions in the 21st century, by generating new ideas in old places, by building environmentally sustainable structures, by connecting generations through networks and activities, and by providing solutions that will be relevant in the long-term. Great cities are those that make their local community proud and inspire visitors to do as well in their own neighborhoods.

In this time of crisis, American cities are in the process of learning through their past failures in order to build a better future for themselves. The perfect city does not yet exist and may never be, however, by sampling best-practice models from various places, it is easier to imagine what such place could look like and how it would function. The integration of creativity and design interventions make urban environments more relevant as experimental grounds. Designers can point to new directions and fight pre-conceptions. They make the formerly inconceivable more visible, and help build better places one step at a time.

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Design and innovation for ageing Society: an opportunity for cross boundary exchange

Abstract

With life expectancy rising, design and innovation for the ageing society will increasingly play key roles in keeping up with the socio-economic transformation and adapting to the coming surge of the silver community. Singapore's National Design Centre for Ageing, also known as >60 Design Centre (>60), was established in 2008 as a centre of design research and development that aims to be a leader in age friendly and universal design.

This paper will explain: 1) >60's design and innovation framework that seeks to mediate the needs of old and young, 2) >60's projects and design solutions for population ageing and 3) >60 and cross disciplinary collaboration and partnership with wide range of external industrial and academic partners, corporations and government agencies. >60's work anchors on its belief that such exemplary practice could be propagated all around the world.

This global ageing phenomenon has also provided a platform for the burgeoning of cross disciplinary and cross boundary collaborations amongst nations across the globe. Design and innovation will see new growth as nations come together to tap on new resources, find new solutions and capitalise on new intellectual capital to bring about a better and healthier world.

Introduction

The world is rapidly ageing and is signalling the most astonishing demographic changes in the history of humankind (Gruber and Wise, 2004). The United Nations estimates that by the year 2025, the global population of those over 60 years will double, from 542 million in 1995 to around 1.2 billion people. UN projections also indicated that by 2030, more than 60 countries will have at least 2 million with age 65 and above. This is twice the number of countries as compared to the figures in year 2000 (Cook and Powell, 2007).

As a consequence of the global demographics of ageing, the changing societies of the post millennium are being confronted with profound issues relating to healthcare, access to housing, economic resources and employment of older workers. The past several years has witnessed an unprecedented extension of the human life span. This ageing phenomenon is also a positive outcome of combined medical, social, technological and economic advancements. Yet, if demographic trends continue to escalate by 2050, the number of older people globally will exceed the number of young for the first time since formal records began (Bengston and Lowenstein, 2004). This raises profound questions of the power of nation states in the context of global ageing, and raising further global questions of how they can find solutions to the growing challenges posed by the coming surge of the silver community.

Design and innovation will increasingly play key roles in keeping up with the socio economic transformation. There is an urgent need for designers today to understand the growing needs of the ageing sector, to see the value in designing for the aged and be trained with new skills and approaches to design and develop products and services that enhance the quality of life for the ageing society through commercialised solutions. They must increasingly see themselves as solution providers, whose ideas and solutions will address the needs of the growing silver community.

At the Singapore's National Design Centre for Ageing, also known as >60 Design Centre (>60), it serves as a conduit with dual roles: 1. to collaborate with local and international likeminded agencies and companies to build and apply new knowledge and commercialise age friendly products, and 2. to introduce design for ageing in the younger population a sense of social responsibility towards the aged. This we see long term effects and influence, and in doing so, we believe that in the process of creating designs that help the ageing become more independent, the young will learn the lesson of social responsibility as well.

Supported by the Ministry of Community Development, Youth and Sports (MCYS) and Singapore's Agency for

Enterprise Development, SPRING Singapore, this Centre plays pivotal role in supporting Singapore's Vision to be a place for Successful Ageing – which aims at empowering each and every individual to age with dignity and security, and be able to contribute towards a vibrant and cohesive society. This Centre resides within a school – Temasek Design School – which is part of Temasek Polytechnic, one of Singapore's top Institutes of Higher Learning.

This paper will explain >60's design and innovation framework that seeks to mediate the needs of old and young in three ways, namely: a. Employing the Universal Design principle, b. Cultivating the social responsibility ethos and c. Developing a global mindset in design and development.

Employing the Universal Design principle

At >60, we design products and services that will directly respond to the requirements of the ageing population segment. The Centre believes that design is not only about aesthetics, but it is making products and services user friendly and age friendly. Our design approach is in universal design – creating age friendly design solutions with the over 60s in mind, but which have the potential to transcend all age boundaries and have lasting relevance and appeal.

The Centre applies inclusive design principles, engaging the users in the design process and product development, taking into consideration a wide range of individual preferences and abilities. The design outcomes are user centred, population aware and business focused. The design process will include market study and research, concept development, testing of concepts, prototyping, product analysis and evaluation and final review by the relevant panel or authorities to ensure accountability and sound quality. The end goal is commercialisation of design solutions and making them available in the global silver market.

One of the most successful design solutions which the Centre has commercialised is a set of card games to help people suffering from dementia. Known as A-HAH!, it was officially launched at the 24th Conference of Alzheimer's Disease International on 25 March 2009 with more than a thousand delegates receiving the cards from 65 countries such as United Kingdom, India, China, Hong Kong, Nigeria and many others around the globe. Developed by >60 in close collaboration with the Alzheimer's Disease Association (Singapore) and The Ad Planet Group, the A-HAH! card games encourage active brain stimulation, reminiscence, social interaction and intergenerational bonding. Caregivers from around the globe sent in their compliments for the design of the card games, claiming it as a simple solution but a powerful tool that is "useful in facilitating reminiscence whilst (clients) engage in visual perceptual and cognitive stimulation as well."

>60's design and research approach is user orientated. The Centre was approached by Alzheimer's Disease Association (Singapore) to create a care giving tool that would make playtime more enjoyable for caregivers and patients. Existing tools used in the dementia centres were puzzles

and colouring books meant for children. Using a practical approach, >60 designed an economical and game solution. Together with the Resource Panel which consists of medical doctors, occupational therapists and caregivers of Alzheimer's Disease patients, they provided the >60 team with professional advise and information to work on. Observation studies, focus groups and interviews were done through visits to dementia centres. Prototypes were developed for user testing where the researchers did in depth interviews and concept validation.

A-HAH! is successful because it is universally designed and it appeals not only to the Alzheimer's disease patients, but the seniors in general or even young children developing cognitive skills. The card games is designed to keep players mentally engaged, for them to have fun, while at the same time, improve their overall emotional and mental health. The card games can be played with grandparents and grandchildren, amongst family members or used in dementia care centres as an everyday tool for caregivers. If A-HAH! is proven to be effective and well received by users, both old and young, around the globe, variations of the design can be further developed, manufactured and made available to a wider audience internationally.

Cultivating the social responsibility ethos

The Centre agrees with Mike Press and Rachel Cooper's analysis in The Design Experience (2003) that design should be seen "increasing as the process that creates meaningful experiences for people. (p. 8)" That design should step beyond traditional understanding of product creation, communication, environment or aesthetic decoration but that designing for experience is "putting people first, seeing the world through their eyes and feeling with their senses" (p. 8). Socially responsible designers are purpose driven in their design. A generation of socially responsible designers is only possible if they were taught well at their classrooms. Their education model is the result of a well designed education strategy, exhibited by the school's ethos, driven by the school's leaders and realised through the student's passion for design.

Designing for ageing requires not only the traditional design training, but a deep inherent desire to create good design that will impact the ageing society. >60 aims to take the lead in growing generations of purpose driven designers, led by vision, driven by passion and moved by a special stirring of the heart to see their work impact society at the highest level, whose works aim to transform and create a better future of the growing ageing community both locally and globally. Through its projects and events outreach, it hopes to propagate the notion that purpose driven designers observe and understand the changes around the world, and that their design solutions can create significant impact.

One of the Centre's projects aimed at cultivating social responsibility at the classrooms was >60 101 Ideas Project. The young designers at Temasek Design School were challenged to generate design ideas for the silver market in the areas of communication, fashion, medical, environment, mobility, lifestyle

and home living. As a result, a total 824 ideas were submitted. The project allowed students to understand the needs of the seniors through experiential processes and series of workshops where they get to interact with seniors and understand their lifestyle. The project also offered students opportunities to explore cross disciplinary ideas where students from interactive media design could come up with product ideas, while product industrial design students can come up with fashion design ideas. Students also collaborated with knowledge authorities like the Geriatric Department in Alexandra Hospital and Changi General Hospital. They consulted physiotherapists, gerontologists, nurses and caregivers who provided them the medical point of view they need when making design decisions in their projects. In the process of creating designs that help the ageing become more independent, >60 believes that the young designers learnt the lesson of social responsibility as well.

Introduced in 2008, International Design Awards (IDA) was another project which >60 started. The IDA competition drew interest from more than 200 participants from Australia, Canada, China, Hong Kong, Malaysia and Singapore. The competition aimed to attract and motivate designers who have a passion for designing products that cater to the lifestyle of seniors. This was an avenue which provided an opportunity for all designers, professionals or students, to submit their ideas on products that can enhance the lifestyles of the elderly. The Centre hopes that the competition has encouraged designers to think a little deeper into the growing needs of the ageing population and how their design solutions may impact society. >60 is hosting the Global Age-Friendly Design Awards (GADA) in November this year. Its purpose remains the same; that designers would come out of the competition learning more about social responsibility and designing for ageing.

Also, a notable design project which >60 has done in joint collaboration with Electrolux Singapore is the Silver Generation Project. Forty design students in Singapore were challenged to design tomorrow's kitchen and kitchen appliances for the growing silver generation of those over 60 years of age. The project offered students the possibility to work with professionals from the industry who were experts in kitchen appliances, the kitchen environment and the targeted consumer group. Through this project, >60 hopes that the sessions offered the young designers opportunities to understand the needs of the seniors in a kitchen environment and be enriched in their understanding of the problems they were designing for. All eleven kitchen concepts for the silver generation were exhibited at the Singapore Design Festival last year.

>60 plays its role as a mediator between the old and young in cultivating the social responsibility ethos in young designers today. Growing generations of socially responsible designers may be a long and arduous process, but >60 believes that it is paving way for future generations in the new world to have better lives.

Developing a global mindset in design and development

With globalisation, ageing can no longer just be viewed as a 'national' problem but one that affects trans-national agencies and communities. It is defined as the process whereby nation-states are influenced and constrained by trans-national actors and it has become inadvertently an influential force in shaping responses to population ageing (Powell 2005). Growing old, thus, has become relocated within a trans-national context, with international organisations and cross border migrations, creating new conditions and environments for older people.

The world is changing at a rapid pace, and the scope and impact of change have multiple dimensions and implications that transcend geographical and cultural boundaries. Globalisation impacts on global ageing on questions associated with migration and relationship to healthcare, employment, housing and access to economic resources. Both developed and developing countries alike are acknowledging this phenomenon in their attempts to deal with the complex relations of correspondence and contradiction emerging from population ageing (May and Powell, 2008).

At >60, the Centre believes that it has to develop a globalised mindset in their design and development of products and services for the worldwide silver community. Understanding the pervasiveness of globalisation, the Centre sees the importance of collaboration with local and international partners to build and apply new knowledge in research and development, and commercialise age friendly products for the silver market. This is evident in its product development and partnerships with likeminded agencies to enhance the lifestyles of the global ageing community.

The Centre is a firm believer in forging strong partnerships with industry to achieve maximum impact on society. By establishing partnerships and collaborations locally and globally, the Centre hopes to tackle the issues and challenges via a multi disciplinary approach that can result in global solutions and impact the world in a significant manner. >60 recognises the prowess of cross boundary collaboration in the field of designing for the ageing community. A global consolidated effort to share new ideas and breakthroughs is necessary for a smooth transition from the old world to a new globalised ageing world.

It is >60's vision to set up affiliates in every major city worldwide by the year 2020. Termed as >60 Global Contacts Network, it will serve as a vehicle for governments, communities, commercial associations and private sector companies to manage their domicile's respective societal changes. This is aimed at encouraging knowledge exchange and information sharing on relevant design trends through international conferences, study trips to the cities and research or project collaborations.

The growth of ageing populations has galvanised nations across the world to tap new resources, find new solutions and capitalise on new intellectual capital to bring about a new way of living. >60 believes that it can be more effective by pooling resources, and by transcending barriers that impede the flow of knowledge and expertise. The task is a shared responsibility among governments, industries and individuals to bring about positive change for generations to come.

Conclusion

With life expectancy rising, design and innovation for the ageing society will increasingly play key roles in keeping up with the socio economic transformation and adapting to the coming surge of the silver community. There is a growing need for designers today to understand the needs of the ageing sector, to see the value in designing for the aged and be trained with new skills and approaches to design and develop products and services that will enhance the quality of life for the ageing society. They must increasingly see themselves as solution providers, whose works will directly address the needs of the growing silver community.

>60's design and innovation framework that seeks to mediate the needs of old and young is anchored on the three aspects, namely a. Employing the universal design principle, b. Cultivating the social responsibility ethos and c. Developing a global mindset in design and development. >60 believes that concerted efforts have to be made to train future generations of young designers to create solutions that are age friendly and universal, to think laterally and be bold to explore cross boundary collaborative partnerships that will see flourishing of new ideas and design outcomes.

This global ageing phenomenon has opened up opportunities for the burgeoning of cross disciplinary and cross boundary collaborations amongst nations across the globe. >60 hopes to engage a wide range of external industrial and academic partners, corporations and government agencies. Its vision is to propagate such exemplary practice through the establishment of Global Contacts Network globally. Design and innovation will see new growth as nations come together to tap on new resources, find new solutions and capitalise on new intellectual capital to bring about a better world.

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Jo-Anne Bichard
Everybody Goes: Designing Age-Friendly Public Toilet Solutions

Abstract

This paper will report on current design research funded by the New Dynamics of Ageing programme and being conducted at the Royal College of Art Helen Hamlyn Centre, into the design of public toilet facilities for an aging population (TACT3). Current provision, where it exists, does not meet the needs of ageing users. This paper will report on inclusive design research that has adopted a 'lifespan approach' involving users, to assess current toilet provision and design. It will highlight technological and innovative design solutions, but show that by not considering the needs and behaviour of users, such 'innovations' have been rejected by members of the public due to the complexity of cultural attitudes and social norms towards this most personal activity. It will therefore propose that many of the current technological interventions do not meet future needs. The paper will conclude by highlighting how current designs can be made more age friendly for minimal cost and would result in creating more accessible environments, as well as move towards the normalization of special interventions aimed at an ageing population.

Introduction

The design and provision of toilet facilities for people with disabilities has been covered in great depth by research (see Feeney, 2003), that in the United Kingdom, helped develop the 'British Standard BS8300: Design of buildings and their approaches to meet the needs of disabled people' and 'Approved Document M of the Building Regulations'. However, research undertaken by Hanson et al (2007) has found that many older people do not think they are 'entitled' to use the accessible (disabled)[1] toilet and therefore feel their needs are not being met, both in design and provision of lavatory facilities they may need when 'away from home'[2] .

Current research being undertaken at the Royal College of Art Helen Hamlyn Centre (RCAHHC) is aiming to address the issue of older peoples access to 'away from home' toilet facilities. The research is focusing on the environmental barriers our ageing society faces when attempting to access a toilet away from home. Access to toilet facilities is one of the primary issues faced by many people who manage continence conditions, either as a temporary situation or more long-term chronic health concern. Examination of the issue of continence is being carried out by the

RCAHHC in conjunction with a consortium of other researchers[3] on a project called Tackling Ageing Continence through Theory Tools and Technology (TACT3). This is a three-year study that is specifically focused on age related continence, and is funded By the New Dynamics of Ageing (http://www.new-dynamics.group.shef.ac.uk/) a unique collaborative research programme that is investigating the needs and issues of an ageing population and funded by all five of the UK's research councils.

This paper will specifically discuss the work package 'Challenging Environmental Barriers to Continence'. It will highlight current innovations in the design of non-domestic lavatory facilities and interventions, and highlight how these may not be suitable for an ageing population. The provision of toilets used by members of the public will be presented as a case study of how design needs to negotiate the physical and cognitive needs of a population to meet needs across the life course.

Toilet Provision for an Ageing Population

Besides dementia, which will be discussed in more detail in the next section of the paper, nothing is more feared by many older people than incontinence. Whilst the condition is not directly a consequence of ageing, urinary incontinence affects between 30-60% of women over the age of 40, and around 15-30% of men. Studies have shown that whilst urinary function does diminish with age, this can be exasperated by medication taken to counteract other chronic illnesses associated with the ageing process including; heart failure, some forms of cancer, Parkinson's and Alzheimer's disease. Even for many older people who are not managing health conditions, the general effects of ageing on the body may result in the need to use the lavatory urgently and with more frequency. Ageing amongst the oldest old, those aged eighty, ninety and even centenarians, may make physical mobility more difficult and affects continence simply because an older person may find it harder to transfer on and off the WC pan or even reach lavatory facilities in time.

After climate change, the second most pressing issue for many of today's societies is the global ageing population. It is currently estimated by the World Health Organisation that there are 6000 million people in the world aged 60 and over, and this figure is predicted to double by 2025 (WHO 2004). In the European Union it is estimated that 20% of the population are aged 60 and over, and like the global phenomenon this figure is also expected to double.

With a global ageing population, the issue of accessing appropriate lavatory facilities will be seen to be more pressing for independent living, well being and quality of life issues for older people. In 2007 it was estimated that half of the global population now lives in cities. The course of the twentieth century saw the mega city, with populations over 10 million people, extend from two to twenty. It is estimated that by 2030, 3 out of 5 people in the world will live in a city (WHO, 2007). With the growing ageing population and the move to more urban centres, The World Health Organisation has identified the provision of public toilets as essential to its 'Age Friendly Cities' programme.

Due to difficulties accessing toilets when away from home, many older people have been known to limit the time and the distances they leave their homes for. Yet, in contrast to a growing ageing population in the UK, the charity Help The Aged (2007) has found that the number of available public toilet facilities has dramatically declined.

In the United Kingdom, local authorities generally operate public toilet facilities. Provision is discretionary and there is no legislative enforcement that ensures an area has public toilet provision. Estimates suggest that current toilet provision operated by local authorities has dropped from approximately 10,000 in 1999 (Audit Commission, 1999) to 4423 in 2008 (Value Office Agency, 2008). With the UK population estimated by the World Bank to currently stand at 61,399,118, there is approximately one public toilet for every 13,882 people.

Help the Aged's research has found that the reduction in provision especially at the local neighbourhood level can severely limit people's activity's of daily living such as going to the shops for food. Such restriction on movement can result in social isolation and avoidance of travelling to visit family and friends and going to work. The larger consequence of such access concerns has been found to be greater instances of low self-esteem, depression and loneliness, all of which draw on the resources of the local health authorities and social services.

We therefore have a need for facilities to be placed in the built environment that can be accessed by all but especially an ageing population. Yet for successful toileting a number of supporting interventions need to also be considered as part of the wider spectrum of toilet provision.

Design Innovation for Toilet Provision.

Despite the closure of many of the UK's public toilets, there have been a number of innovative designs that attempt to address the issue of toilet provision with innovative and technology inspired designs. The Automatic Public Convenience (APC) also known as the 'Superloo' or 'Tardis' (Figure 1) began appearing on UK streets in the early 1990's, but has not found favour with the toileting needs of the Public (Bichard & Hanson, 2009). Previous research undertaken by Hanson et al (2007) found that many people would prefer to travel to the top floor of a department store then use an Automatic Public Convenience. In addition, their case studies of provision found that women over the age of 65 would not use this type of toilet provision.

Figure 1. An Automatic Public Convenience (APC)

One user commented that the reason they avoided this form of provision was because it was too unfamiliar and perceived as complicated

'I don't know how to use one (APC)… I'm not standing outside reading instructions on how to use a toilet'.

A more recent innovation has seen the needs of evening toilet provision addressed by the 'Urilift' (Figure 2). This 'pop-up' urinal is raised by remote control at dusk and set back in the ground at dawn. Designed primarily to counteract the effects of street urination (both the unsightly behaviour associated with this practice and the environmental distress caused by uric acid in urine), the Urilift has become a popular option amongst local authorities seeking to address the need for evening toilet provision. Noticeably the Urilift (and other temporary urinal solutions) only addresses the needs of the male population, and within this sector is not a toileting solution for men who have Paruresis (shy bladder syndrome); men who observe faith and hygiene practices with regards to toileting, and older men who find such urinals still somewhat exposed.

Figure 2: 'Urilift'

A more recent design incorporates a urinal into a 'wheelie bin' (Bischof, 2009) (Figure 3) and like most recent design solutions; this only meets the need of one small segment of the population. In addition, such design interventions do nothing to challenge and discourage street urination. Indeed, it can be argued that such solutions continue to indulge the practice of street urination, which in general is considered anti-social behaviour.

Figure 3: Wheelie Bin Urinal (Bischof, 2009)

Given that these current innovations do not meet the wider public preference and therefore needs, especially those of the ageing population, the researchers at the RCAHHC are investigating how provision can be best maximised to offer toileting facilities that are well designed for hygiene, access, comfort and dignity, and that will be welcomed by the majority of users.

Thinking about the needs of an ageing society

Whilst not exclusively a consequence of ageing, many older people do develop some form of cognitive impairment, and it is currently estimated that over 800,000 people in the UK have some degree of cognitive impairment associated with dementia. This number is expected to rise to over one million in the next 30 years (Matthews et al 2005).

Dementia is a degenerative impairment, and therefore the cognitive functions of people with dementia are unlikely to improve. Current and future medical advances are likely to increase the survival of older people, and thus it can be surmised that the populations of people with cognitive impairments are likely to increase. Globally, over 35 million people are currently estimated to have dementia, and 4.6 million new cases are diagnosed each year. There is a myth that diseases like Alzheimer's are only associated with living in developed economies with the rate of dementia expected to double between 2001 and 2040. Yet 60 percent of people with dementia live in developing countries and it is forecast to increase by more than 300 percent in India and China (Ferri et al, 2005).

The Second Nature of Toileting

For many people, the act of using the toilet does not require much thought regarding of the use of the space and it's supporting products. After the initial conscious cue for the need

to excrete, the use of the lavatory environment from opening to closing the door, sitting on, or standing in front of the WC pan, flushing after we leave the cubicle and washing our hands at the end of the toileting ritual can be considered mostly an unconscious activity, in many ways 'second nature' (Bichard et, al 2005).

Yet such instinctual behaviour may become more conscious through the ageing process. Freund (2001) has noted that age associated impairments may shift how an individuals experience of their body. Stiffness, loss of strength and aches and pains may become more acute, making routine and everyday activities increasingly difficult and therefore more noticeable. This may lead to a once familiar friendly space becoming associated with pain and anxiety. Hence it is suggested that the use of space with ease is not an issue in the context of mechanistic ergonomics, but one of an 'embodied relationship to the physical artifacts and environments' (Freund 2001:699). In the case of using toilets when away from home, the unconscious and second nature of toileting may become conscious and fraught with difficulty due to the lack of available facilities with familiar products and associations. These might in turn, be primarily based on familiarity with the design of the domestic toilet facility. For people with cognitive impairments the familiarity with domestic designs such as the shape and operation of the flush handle can act as a signal for the 'embodied relationship' such as flushing the toilet after use, and therefore action the appropriate behaviour within the space. Such deviation in design of such essential facilities within the built environment may confuse some users and result in a familiar space and wider environment becoming unfamiliar and possibly threatening, and therefore avoided.

Challenging Environmental Barriers to Toilet Access for Older People.

To address the toileting needs of the ageing population, the first year of the TACT3 research has been talking to users to understand their experience of using toilets when away from home. In year two of the research we will take the user insights and requirements to those who manage toilet provision to understand what barriers they experience in providing facilities that users want. Finally, in year three, the research will consolidate the users and providers perspectives and experiences into design briefs that will aim to address the needs of both users and providers.

Initially user consultation was only to be with members of the public aged 50 and over. However at the first 'expert forum' with members of the New Dynamic of Ageing's 'Older Peoples Reference Group' the researchers were advised to include the perspectives of all ages in the research, as access to toilets is a lifelong concern. Subsequently, the researchers constructed a methodology that would include the toileting needs of those aged 1-101 .

A Life Course Methodology

A life course framework has become a major methodological per-

spective in epidemiology and Public Health studies, as well as in wider notions of health and well being (Ben-Shlomo and Kuh; 2002). In contrast to more conventional epidemiological studies that recruit subjects in mid-life, a life course perspective offers a multi-disciplined approach that can illustrate how biological, behavioral and psychosocial pathways can 'operate across an individuals life course, as well as across generations to influence the development of chronic diseases' (Ibid, 2002;285). Life course approaches have also been adopted by sociologists' to examine sociohistorical and biocultural contexts as well as biological anthropologists to explore disease consequences and has been presented as a powerful tool to test social interventions (ibid, 2002;291). Thus it can be surmised that the life course approach is based on biological and social factors that influence disease experienced in adulthood through factors that are independent, cumulative and interactive.

Whilst the connections between urban design and public health are not new, Northridge et al (2003) propose that there has been a demise in considering the links between urban design, especially planning, and public health, and urge for a re-establishment of the historic link between the built environment and public health, especially when considering the impact of mega cities.

Considering a life course approach in the inclusive design of public toilets offers a number of challenges. The research does not set out to create links between provision and continence, rather it is assessing how the design of the toilet cubicle maybe a barrier to use throughout the life course. For example, young children may have difficulty getting onto the WC pan, whilst older people may experience difficulties getting off the WC pan. By identifying issues that are experienced across age groups, the research aims to pin point areas where new design briefs may offer interventions that are suitable across generations and can therefore be considered to be more suitable for the life course of the population.

Identifying User Preferences

Currently over 100 Telephone and face-to-face interviews have been conducted with members of the public and providers of public toilets. In addition to personal details such as age and gender, each interviewee is asked to identify the type of area they would primarily require toilets in (home or work). The area types are identified as urban, suburb, town or rural. This last question helps the research to identify how provision can sometimes be a 'postcode lottery' in which locality determines the adequacy of provision, and what alternative solutions might be preferable. More importantly, as a user-centred inclusive design project the researchers will focus the design solutions on the areas of importance that users cited. We therefore asked interviewees to identify three main issues of concern that they felt should be addressed by the research. Interviews have been analysed by reference to re-occurring themes and the current issues that have emerged across age groups and genders are hygiene, information and cubicle design.

Hygiene

One user summed up the issue of hygiene as:

'Your confidence in the cleanliness comes from what it looks like on the outside and if you can see an attendant… if you can't see those things then your confidence level starts dropping and you just don't want to go in there'.

The importance of hygiene for the majority of users made it apparent that it is a central aspect of the design is for the toilet facility, in that it has to be accessible, not only to the user but to those who maintain the cleanliness and management of the facility. Therefore ensuring that the cubicle can be physically accessed by users, and those who maintain the facilities, such as cleaning and maintenance professionals, can be considered an essential element of the design brief.

Information

The second key issue for research participants was the information used to not only find a toilet facility, but to ensure a hygienic level of provision. One participant commented:

'You can look at a map of the town, it might tell you where the toilets are but its not going to tell you what they're like'

Many research participants commented that signs often do not include distances to the facilities or are often out of date resulting in finding the toilet facilities closed or gone altogether. The research is therefore including design briefs for directional and maintenance information.

Supporting products

Hygienic consideration of a number of supporting products has also emerged. One user commented:

I like it where you don't touch the taps, its all sensored, that is a good idea, especially now people are so aware of cleanliness, like the dryers and the taps, sometimes as well the flush, so now the only thing you really need to touch is the locks on the doors.

In contrast another user commented:

What's important to me is the ease of using one (toilet). For example there is one hat is atrocious to use, you don't know how to get in, you don't know how to get out of it. You have to read a few things to know how to work the functions of what works automatically, which one to push, which colour to push, although they forget that people can also be colour blind.

Here we see the tension between user acceptability of technological innovations and user resistance to the unfamiliar within the space of the toilet. These design issues are not new and have been identified by previous research in regards to access for people with cognitive disabilities and age related degenerative cognition (Hanson et al, 2007).

Design Dilemmas

Research participants have identified a series of essential design interventions that are needed to support not only

age positive toilet provision, but that can also extend across the populations life course. However, a number of design solutions have considered these issues but have proved not to be user friendly. This paper will now illustrate how some technological interventions can be considered to have hindered rather then helped toilet access and use.

Information: Way Finding and Signage

For many people but especially older people who may need to find toilets urgently and people with dementia who may experience confusion, remaining continent is a major element of maintaining independence. As such, in the design of care centres and care homes, the maintenance of independent toileting has been an important aspect for interior design guidelines. It is recognised that an essential aspect of this is through making toilet facilities easy to locate and identify. Yet, as Greed (2003) has noted, such design consideration has not been extended to the built environment, and what remains of public toilet provision in the UK is sometimes positioned in segregated 'out of the way' locations that are difficult to find, and in some instances can feel threatening to potential users.

Previous research of care home design identified that adequate signage using a singular word such as "toilet" or a graphic of a familiar household toilet, increased usage. In the UK the current sign for the accessible toilet is a pictogram of a person using a wheelchair. Older people have reported that they would not consider using the 'disabled' facilities, even though the use of grab rails and accessible hand washing facilities such as levered taps may make toileting more comfortable. In addition, a person with dementia may not be easily recognise the 'wheelchair' symbol as an indication of an appropriate facility for them to use. Signs representing the appropriate gender often signify standard facilities. However, it is increasingly common for smaller businesses to provide as their only toilet facility a 'universal accessible toilet' to be used by both sexes and signified by the wheelchair pictogram. In addition, many UK public toilets are known and signposted by varied terms these include "WC" "Public Conveniences" and "Lavatories". The lack of cohesion concerning the name of facilities could further confuse the person with dementia as well as users who are unfamiliar with the English language. Clear signage of toilet facilities would help all users, but would be significantly helpful for those who need to find toilet facilities quickly as well as people with dementia and learning disabilities who may experience difficulties with way finding.

Figure 4: Toilet Signs

Supporting Products: Door Locks

For the comfort, safety and dignity of most public toilet users, the first and possibly most important aspect of using the toilet will be to close and lock the door once they have entered the toilet cubicle. In recent cubicle door lock designs, especially those on 'accessible' trains, a three-stage electronic operation has been introduced (Figure 5). Whilst removing the need for physical strength and manual dexterity to open a door, this mechanism involves pushing buttons in sequence to close lock and then open the door. This first two-stage operation (push button to close, push separate button to lock) effectively separates two closely related operations. To open the door a third separate button is pushed. Although instructions for the operation of the door lock are clear (and also provided in Braille), the need to pause and read in order to lock requires a degree of cognition and therefore such cognitive requirement to operate the door lock may cause difficulties for people with cognitive impairments as well as non-English speakers, and could lead to embarrassing and distressing situations.

Figure 5: Automatic Door Lock

Supporting Products: The Toilet Flush

There are a number of varied design options for toilet flushes. Carers of users such as children with autism and people with learning disabilities, have noted that the act of flushing can be considered the 'reward' for successful toileting, with the reward involving the twofold action of flushing as much as the consequence of the act (Bichard et al, 2005). More recent technological innovations such as Sensor-flushes actively remove the need to touch, pull or push the flush. Sensor-flushes operate by waving hands across the sensor (Figure 6). Yet, for people with cognitive impairments, the replacement of 'hands on' flush mechanism such as a handle, button, lever or pulley, with a hands free sensor application, may remove a familiar aspect of the toileting ritual and therefore may cause distress to a person who can not understand why they can not actively flush the toilet, and for some users receive the 'reward' for good toileting behaviour.

Figure 6 Sensor Flushed (UK and Japanese models)

Conclusion

These examples have been used to illustrate how, in the case of toilet provision in public space, a technological approach may not be of benefit to the needs of all those who make up the potential users.

For many people abut especially people with cognitive impairments many aspects of the toilet may act as a cue for appropriate behaviour. The familiarity of a sign, the door lock and the handle of a flush, may all act as objects that focus the user on the use of the toilet. The replacement of such familiar objects with hi-tech solutions may effectively distract or confuse those with impaired cognition, and lead to an avoidance of perceived unfamiliar and unfriendly spaces.

There is a need for designers to understand precisely how each of the fixtures and fittings in WC cubicle may differ in use between a range of users of varying ages and abilities. This is a particular challenge for designers of Automatic Public Convenience's (APC's), but even in the familiar standard toilet block, the numerous technological 'advances' in fixtures and fittings, coupled to the 'technisation' (Freund, 2001:699) of the routine of using a public toilet facility may prove too complex for many users, especially for those with cognitive impairments.

Kitchin and Law (2001) have used the term 'the bladders leash' to describe how the mobility of people with disabilities is restricted in the urban environment by the absence of accessible public toilets in city centres. In addition, parents with young children and older people have reported that they too are limiting the amount of time they are away from home explicitly due to the lack of available toilet facilities.

The design of toilets used when away from home superficially presents itself as a technological affair in which successful design can be seen in getting a specification right (Hanson et al, 2007). Without understanding how the WC cubicle is actually used, by the wide range of prospective users, there will continue to be costly design responses that may exclude rather then include users, and do so from child to adulthood and into extended age.

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Endnotes

1 For users under the age of 16, consent was sought from parents and/or guardians. For older people who are in care settings consent was sought from family members and/or carers.

2 There is currently a number of smart phone applications for finding toilets that include the opportunity to comment on the condition of the facilities. The include Water Aid's toilet finder http://www.wateraid.org/uk/donate/7965.asp
Sit or Squat http://www.sitorsquat.com/sitorsquat/home/map
And Where to Wee http://www.wheretowee.com/

Notation

1. It is recommended that toilets for disabled people should be referred to as 'accessible' toilets rather then 'disabled toilets, as the latter can be considered stigmatising and offensive. However, in the 1970's when the facility was introduced, and throughout the 1980's when more facilities were built, the term 'accessible toilet' was not in common currency. Pre 2004 legislation referred to 'toilets for disabled people', and today many people with disabilities still refer to the facilities as the 'disabled toilet'.

2 'Away From Home is a term coined by the British Toilet Association to describe all lavatory facilities used outside of the domestic space. This include public toilets operated by local authorities but also provision found in department stores, cafes, supermarkets, public houses etc.

3. The multi-disciplinary consortium is comprised of researchers from: Brunel University, The University of Sheffield, University of the West of England, Bristol Urological Institute, The University of Manchester, Dalarna Research Institute and the Royal College of Art.

Pei-Chi Su, Shang-Chia Chiou , Chen-Yu Chuang

The Study of the Context of Taiwan's Traditional Craftsman in Japanese Occupation Times- Based on Household Information in the Chiayi

Design visions, proposals and tools

Abstract

Purpose of this research was to look for Taiwan's traditional crafts. We investigated related census information to look for Taiwan "craftsman's" records. By sing investigated statistics as the basis, we divided the investigation into three areas, including people, inhabiting areas, and organization. The task's purpose was to understand the possible contextual origin of Taiwan's traditional craftsman. As for the investigated area, Chiayi, due to the development of Alishan forestry during Japanese Colonial Period, work opportunity for craftsman also increased. Many people left their hometown and migrated to Chiayi for craftsman's jobs. And census data, which included career, race, residing area, and other related messages, was craftsman's record. The information helped researchers to look for craftsmen's possible distribution areas and social life's context. That is to say by using census data the research discussed the context of Chiayi's craftsmen and the possibility of skill transmission. The research results showed that the census information can retrace craftsmen's past migration and the related working environment. The migration of traditional craftsmen was largely related to local society's development at that time. Besides, craftsmen also formed their own life circles, which also signified that craftsmen had the so-called craftsman gang's organization and social beliefs. The research found that because of migration, craftsmen created their own organization, which distributed in Chianan area, and the organization's belief and methods for joining in the organization formed a craftsmen's religious gang. It was understood that in old days traditional craftsmen and the prevailing industries in the society were mutually constrained. Although craftsmen's development declined, they still have ways to organize themselves. For this, craftsmen, who came to urban to work, would develop and pass down their skills in the city; it had relative impacts on the city's development. The research results are going to help understand traditional craftsmen's skills and traditions, and the foundation of this research allows the understanding of the context of this cultural asset, i.e. Taiwan's traditional craft.

Keywords:

I. The motives and purposes
A.Motives

Traditional Craftsman (referring to construction carpenter in this research) is an enigmatic Chinese art. As for Taiwan, because of its island structure and also because of its complicated political environment, it can be said that Taiwan's architectural technique was inherited from China's craft. However, started from Japanese Colonial Period to R.O.C. National Government, there were almost no records about craftsmen. Hence, clarifying traditional craftsmen's skill transmission and context became a motive of this research. Moreover, the investigated area, Chiayi, once had prosperous forestry business; it is still a major lumber providing area in Taiwan today. Therefore, this research used Chiayi as the investigated area.

B.Purposes

The followings were purposes of this research:

i. To investigate Chiayi craftsmen's developmental history and to discuss possible relationships between their origin and China's craftsmanship.

ii. To connect craftsmen's social and living areas to the development of forestry in the investigated area.

iii. To conduct a preliminary exploration of craft's skill transmission records and the possibilities of the founding of craftsmen gangs.

II. Research methods, areas, and literatures

A. Research methods and area

The research used field investigation as the research method to carry out historical analysis. The investigation focused on craftsmen's distribution based on craftsmen's phenomenon reflected in all registered census data in the investigated area (i.e. Chiayi city). Taiwan's traditional craftsmanship originated from China; this we can know from literatures of the late Qing Dynasty. But in fact, started from the end of Qing Dynasty, records

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recording craftsmanship were gradually decreased. At the time, even if industry technology was introduced into Taiwan, it also affected craftsmen's construction skill in Taiwan during Japanese Colonial Period. Under the governance of Japanese, Taiwan was established the concept of census system. The research checked and analyzed Chiayi city's censes data. Through field investigation and research analysis, it was found that in Chiayi's census data, there was a great quantity of people involved in "wood" related jobs, including lumbering, timber management, wood sawing, and wood worker, etc… From here, we know that the development of forestry in Chiayi city affected its job opportunities and became main reason of population migration.

Problem → Specify the area → Collect evidences → Evidence for comments → Confirm the context→ Contents and story.

Illustration 1: Research methods and steps

B. Literature review

According to Taiwan's research reports, we can almost extrapolate China's traditional craftsmen and Taiwan's traditional craftsmen had the same origin. For example, the craftsman's groups in Tanshan mentioned in China's literatures could be main reason to preserve Taiwan's traditional architectural crafts. In the book [China's ancient craftsmen]by Huan-Xu Cao, he mentioned that ancient craftsmen were bound to work for the government by household register. This system continued for a long time until Qing Dynasty. After that, craftsman became a regular job in civil society. From here, we know that the registration of census data was an important system in traditional Chinese society.

III. Extrapolation of the relations between census information and traditional craftsmen's context

A. The response to census data

Chiayi city's census data was checked and reviewed. The researcher checked 453 volumes of household registers from year 1914 to 1940. The statistics showed that there were 1812 families including both original domiciled families and sojourners[1] . There were averaged about 11 persons in a household. According to the census information, the researcher analyzed the following important contents:

i. The reflection of job titles recorded on household register during Japanese Colonial Period

The household register made by Japanese can reflect the truest appearance of the city's producing industry at that time. According to the statistics and records based on this research's emphasis "wood", in the aspect of producing industry, employments involved in wood business included carpenter, cabinet maker, furniture maker, construction worker, sawyers, bamboo worker, cattle driver, and temporary carpenter. Those were directly related to craftsmen; the research organized the information according to the statistics in the following table.
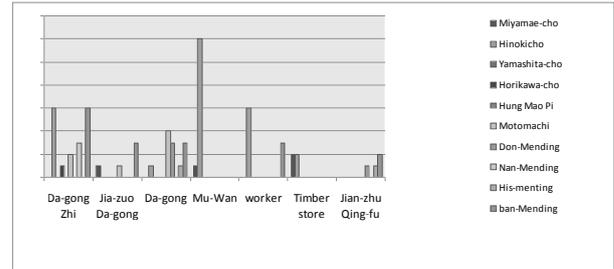
Table 1: Statistics of craftsman's population in different professions

While investigating Chiayi's census data, it was found that at the time forestry established the city and also promoted wood selling, wood making, or other related jobs. Craftsmanship at the time was deemed labor service and was considered lower level of work in Taiwan. But the census data also obviously reflected that the social structure was mainly composed of "labor", "servant", and "coolie". Those were in lower class, but they were important foundations of traditional industries.

Others	Construction	Business
Temporary worker, rickshaw, cattle driver, coolie	Land leasing industry, carpenter, sawyer, furniture maker, bamboo worker	Timber store
About 30%	About 45%	About 20%

Table 2: Statistics of craftsmen in different fields

From the classification by census data, traditional craftsmen's works can be divided into many types, including Buddha statue engraver, furniture maker, staff of the forestry business, construction contractor, carpenter, sawyer, and painter. These traditional job titles can be expressed in modern phrases in the following table:

The reading of job title during Japanese Colonial Period	In Taiwanese	The reading of job title during Japanese Colonial Period	In Taiwanese
Da-gong Zhi	Carpenter	Shi-ji Zhi	Masonry worker
Jia-zuo Da-gong	House building carpenter	Jian-ju Zhi	Door and window maker
Jian-zhu Qing-fu	Construction contractor	Mu-xi-gong	Woodworker
Mu-Wan	Sawyer	Tu-jiao-ji-li Zhi	Soil stack maker
Zuo-Guan	Painter	Fo-xiang-gong	Buddha status engraver

Table 3: Explanation of the jobs mentioned in census data (focused on "wood" related jobs)

Data Source: The translation and edition of household register's law and phrases during Japanese Colonial Period (2005)

ii. The refection of craftsman's distribution area

From analysis on the census data during Japanese Colonial Period, main job distribution areas included Kuai-ting, Ximen-ting, and Rong-ting, and carpenter was the most popular job. Other jobs related to wood industry were distributed around Dongmenting, Yuan-ting, and Beimen-ting in this area. Below are illustrations of job distributions:

Illustration 2: 1937 Chiayi – carpenter's distribution area

In analyzing craftsmen's distribution, the direct reflection of locality make us can infer that craftsmen's activity areas were directly related to the city's producing industry. By comparing with current spatial area, there are still some traditional industries in these areas, including Rong-ting and Kuai-ting, where were the most distinct areas showing the city's development and also were the most obvious areas to reflect craftsmen's context. According to literatures, during the most prosperous era of forestry, there were timber stores and factories at both sides of Zhong-shan Road in Chiayi. Workmen and temporary workers filled with the city. This area was already the most developed area at Japanese Colonial Period. And we can obviously see craftsmen's territory and areas of activity developed here.

iii. The reflection of traditional craftsmen's hometown

The "sojourn" information on the census data mainly reflected craftsman's address of native home (native home means the birth place). From the distribution of craftsmen's native homes, the research discovered the possible origin of Taiwan's craftsmanship during Japanese Colonial Period. The statistics showed that there were 141 people, who recorded their jobs as craftsmen on the census data in Japanese Colonial Period, registered their identities as sojourners. The addresses of their native homes mainly were in Minhou County and Changle County in Fujian Province, China, and Taiwan's Sihu in Yunlin, Beigang, Taichung, Hsinchu, Tainan, and Penghu areas. More than half of the craftsmen registered their sojourner identity in two ways. One was whole family's sojourn and the other was to register by oneself. Census data can directly reflect that there was a big chance that craftsmen's context was from China, because most craftsmen's native places were in Changle county and Minnan county, Fujian Province, China. The information of native place reflected

people's origin and directly prove the possibility that craftsmen were originated from China.

Sojourn type	Sojourning members
Whole family	Sojourning members included craftsman's wife, sons and daughters, brothers and sisters, workers, temporary servants. The whole family was registered under main carrier's household register.
Individual	Only one person registered in main carrier's household register. Most of them were individual sojourner.

Table 4: Explanation of the sojourn chart reflected on the census data

B.   Meanings and context of traditional craftsmen

According to the investigated information and messages passed from the census data, the census data clearly recorded craftsmen's living and sojourning areas. However, following the changes of the society and the development of industry and city, we can extrapolate that craftsmen's past living structure was drifting migration. They were directly related to the producing industry. And in old days, craftsmen were considered under class in the society; they passed down their skills without an official system, so there was no explicit record. Thus, the technique was lost and a serious fault phenomenon was found. For this kind of phenomenon, we can explain with the following possibilities:

i. Craftsmen was considered under class in the society; their context was closely related to China

All kinds of relations reflected in the investigated area made us to extrapolate craftsmen that lived along the coastal line gradually moved north from Kaohusing, Tainan to Chiayi. The migration phenomenon was because the developing industrial environment and competition provided many job opportunities and attracted traditional craftsmen to move north. In old days at industrial era, their skills more or less spread to other areas and became today's traditional architecture and temple's designing style in Taiwan. In the literature of migrating population in Taiwan recorded by Min-fu Hsu showed that a few craft masters that came from Fuzhou and Quanzhou came to Taiwan to build traditional architectures and became official professional craft masters that inherited their skills here. And of course, some of them chose to stay and pass down their skills in Taiwan. From literatures, we can find a common origin between the context of Taiwan's craftsmen and China's craftsmen. And from census data, we can more distinctly find craftsmen had close relationship with the development of Taiwan's society.

ii. The traces of craftsman organization's contexts

In census data, there were two sources for the context. One was that craftsmen's native homes were in Fujian areas, China. The other was the craftsmanship was spread from Taiwan's coastal areas. According to occupational survey on the investigated census data, the statistics showed that the native homes were mostly in Changle and Minnan areas, Fujian, China.

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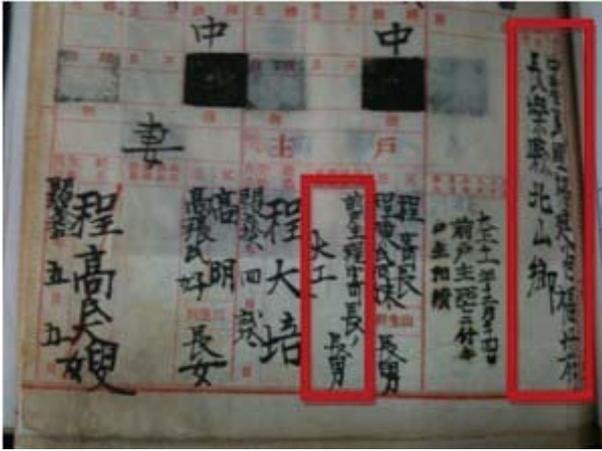
Illustration 4: Native home's record on census data (recopied by the researcher)
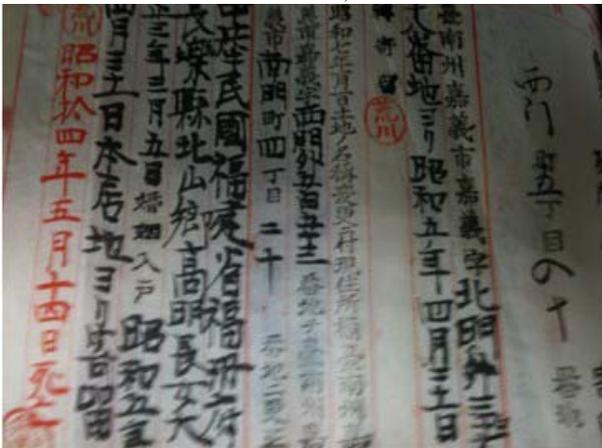
Illustration 5: Picture showing the migration history on census data (recopied by the researcher)

Many traditional temple structures that have historical values, such as Nan-Kun-Ni Dai-Tian-Fu (Carpenter Jin-mu WANG, native place was Quanzhou), Lugang Mazu Temple (Carpenter Yi-shun WANG, native home was Quanzhou), and Beigang Chau Tien Temple (Carpenter Ying-bin CHEN, native home was Zhangzhou), were made by craftsmen in Quanzhou and Zhangzhou areas in China. In China at the end of Qing Dynasty, craftsmen had to bring their families or lead other craftsmen to workplace, where they had to stay for about 3 to 5 years until the construction finished. Because of this, they would choose local workmen to help them with the construction work, and of course transmit their skills in the area. And also because of this, people in Taiwan gradually learned this skill, and of course those included Chinese people who chose to stay in Taiwan. In early days, being a sojourner for craftsman was normal; hence, a common contextual period for sojourn phenomenon and craftsmen was established at this time.

iii. Craftsmen's social development in Taiwan

The 2nd phenomenon reflected by craftsmen's census information was the establishment of social groups and villages around the living area, because of the intersection of life and work. By analyzing the similarity of such groups, we can see there were craftsmen circles inside social circles. And because of commonality, craftsmen circles formed gang-liked organization and context. Because of the commonality in skill transmission and social life, those craftsmen's gangs promoted the sharing of skills and created a technology circle and, for a further step, formed craftsmen's circle.

Workmen who involved in wood related business in the society transformed their living area's "commonality" to tribe's "communality". Context of the communality might be established mutually by exchanging and transmitting craftsmen's skills. After passing on his skills, craftsman in mentoring relations might be moving to another area and continue transmitting his skills in another areas. However, craftsmen's skill transmission can be carried on following this system, living styles, and skill methods developed at the era of craftsmanship and craftsman's gangs. And we can see potential context of the development of craftsmen's organization from the small-sized social life circle developed by craftsmen, who relied on forestry business.

Illustration 6: The establishment of traditional craftsmen's context

IV. Research results and Discussions

A. Research results

i. Results of this contextual research constructed several new matters from craftsmen's lives in the past. Because census data included phenomenon developed by craftsman's organization, individual, social, and environment, the guided results included:

"Workman → Craftsmanship → Construction → Migration → Re-implantation & Transformation → Cultural assets that preserved craftsman's skills"

1. Chiayi's forestry in Japanese Colonial Period developed and provided two essential living foundations, "wood" and "craftsman", for the society.

Fromm Chiayi's census information, we can see a great quantity of people worked for forestry. Forestry was the main cause. This important industry allowed craftsman building their own living circle, social style, and past experiences. Because forestry supported people's living needs, it constructed a complete life model. Forestry provided resources and established the craftsmen groups' distribution and family organization. Their migration record became an important clue for the context.

2. In the field of "Particulars of a Matter" on household register, it recorded craftsmen's migration and living style, which became the foundations of the city's spatial appearance.

Craftsman's migration and life recorded on household register revealed the hardship of being sojourners. Continuous changes due to sojourner's migration formed craftsmen's tribes, developed their lives, and constructed street areas and a common life style. And because craftsmen had common interests, they evolved and formed the concept of organization and community.

3. Native homes of Taiwan's craftsmen were in China and Taiwan's coastal areas, or even as far as Japan.

This research focused on the investigation of the context of traditional craftsmen. In the past, because of life considerations, China's craftsmen had to leave their hometown and stay in areas far away from home to work for at least 3 to 5 years. China's craftsmanship was a symbol of history and technique, and Taiwan's craftsmanship was deeply affected as well. But different life styles in Taiwan also made some modifications (on belief, life style, activities, changes of life) and created Taiwan's own craftsmen's society. However, while investigating craftsmen's origin, we still believed that Taiwan's craftsmanship was from China.

B. Discussions

Past researches on craftsmen mainly looked at traditional architectures to carry out the investigation on craftsmen; this method was kind of "matter-related" investigation. However, my research focused on designated craftsman's groups found in census information and I tried to clarify how did they appear in a city and how did they progress to develop in another cities. By this kind of extrapolation and matching, I tried to construct traces for finding craftsmen's context. Meaning of this research was to make further clarification on the structure of the context of both Taiwan and China's craftsmen.

In the aspect of era, the analysis on census data reflected issues in producing industry and spatial area. In forestry areas, we can clearly see craftsmen's residing areas. From the theory, how does "symbol and the space economy" change a city's appearance, by sociologists, Scott Lash and Urry, it described that a city's symbol was a true phenomenon, and forestry was the source of income; it also became an important basis for helping build the city's appearance and senses.

Of course, Taiwan's city appearance was still kept with its original appearance from past craftsmen's society. Traces of skill transmission and context of these people, who once were considered under class in the society, can only be found by clues. But from census information, we can infer the possible context. Craftsmen in the past were not valued very much in the society, but now they have become higher class for our culture. The past of traditional craftsmen was even added some possibilities that allow people to guess continuously. Traditional crafts in the West were redefined as "luxury" and "quality". Thus, we know that the research on traditional craftsmanship that is valued by both western countries and eastern countries should focus on the understanding of ways to establish traditional technology, because after all craftsmen are people who have the technique.

For modern society, craftsmen's context is still having a lot to be discovered. This research only conducted analysis based on literature's research and filed investigation; there should be more in-depth researches here.

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Notation

1 Original domiciled family refers to aborigines and sojourners are people who temporarily stayed in the area for works.

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Understanding users:

A phenomenologically-inspired study on design educators and students experiencing user study in design

Abstract

As an emerging discipline, design is facing new challenges, in particular the understanding of users. In the context of design education, there seems to be a mismatch between the educators' and students' perceptions of users. While design educators expect young design students to learn rigorous and systematic ways of user study and design methods, young design students attempt to capture the essence of design in other ways.

Drawing from the authors' teaching experience and from the experiences working with potential design students, we attempt to show that the natural attitude of design students, the pragmatic nature of design practices, the background of design educators and playfulness would affect one's understanding of users.

Keywords

Phenomenological approach, users, design research, human centered design, design education

The changing landscape of design practice and design education

As an emerging discipline, design is facing new challenges in the ever-changing and competitive environment. External forces such as ubiquitous computing, media convergence and the need for new literacy for the 21st century are some of the challenges that the landscape of design and design education currently face. Additionally, the roles of designers today are no longer limited to craft making or someone being called upon only at the "downstream step in the development process" (Brown, 2008, p. 86). Instead, they are seen as "knowledge producers and strategic thinkers, in part because the working methods and cognitive practices of design are being cast as skills that everyone will need for the future … [and graduate programs in design] have all shifted the emphasis onto the activity of designing and the knowledge that designers have as a result of the way they work rather than things they make" (Burdick, 2007, ¶ 9). Furthermore, the impact of globalization, digitization and

the advancement of information and communication technology (ICT) have moved designers away from designing in isolation to crossing boundaries and crossing cultures in collaborative design (Poggenpohl, 2009).

These external forces and challenges certainly pose significant implications in terms of the (re)-definition of design process, its body of knowledge, and the emphasis on design research to name a few. In fact, Davis (2008) rightly points out that the chasm between design practice and education is no longer about "debates of skills versus concepts, theory versus practice, or professional versus liberal arts education … [but] about the disorienting relationship between the circumstances of 21st-century life and what and how we teach design; about the world view of professional practice against which we devise the content and pedagogy of professional design curricula" (p. 28). Perhaps, it is timely for design to take a critical look at itself beyond the notion of 'design as an object' and move away from craft-making to 'design as a discipline' – one that focuses on 'process or action' or what Jürgen Habermas (1998, cited in Poggenpohl, 2009) refers to as 'know-that' or "the explicit knowledge of how one is able to 'know-how' [i.e., how to produce or accomplish something]" (Poggenpohl, 2009, p. 4). Poggenpohl (2009) distinguishes 'know-how' and 'know-that' with an example, where as the "design practitioner who can intuitively select, size, and position type for legibility ['know-how'] … an educator who knows why the type is better perceptually and how the typographic variables interact with page or screen space, reading ease, and comprehension ['know-that']" (p. 5).

Furthermore, Dubberly (2008) argues that as the design profession shifts from a 'mechanical-object ethos,' where "design practice adopted something of the point of view or philosophy of manufacturing" (p. 36) to a more 'organic-systems ethos,' where "emerging design practice is adopting something of the point of view or philosophy of software and service development" (p. 36), designers and educators need to reflect on how ready we are to prepare for coming changes in practice and the future of design education.

Table 1 presents the core characteristics of both the mechanical-object and organic-system ethos (see items 1-14) as described by Dubberly (2008). From the Table 1, we can identify possible clues that inform us about changes in design practices and education. Particularly, the two ethos could be interpreted as two different eras (see item 1), signifying the former as the old and the latter as the new era of designing. The shift also suggests changes in: control (see item 5), the identity of designers and clients and their relationship (see items 7, 9 and 10) and the role of designers (see item 8). Consequently, the outcomes of designing will also be different (see items 11-14). All these

changes would have an impact on both design practices and design education (see item 15). We could certainly expect the near future to be more volatile, where designers will be highly valued and perceived as or assumed with the role of strategic thinkers that work collaboratively in interdisciplinary teams; the focus of design will be less about making discrete objects and more about designing for services, systems and experiences.

While Table 1 presents the key characteristics that set the two ethos apart, one item remains hidden – the concept of users. The remaining part of this paper pays specific attention to the understanding of users through the three cases derived from our teaching experiences to illustrate how the shift from one era to another (as per Dubberly, 2008) or from design as craft to design as discipline (as per Poggenpohl, 2009) may have changed the way we define and understand users and how educators should or could prepare to teach differently in the context of higher learning when users are one of the main concerns in the project brief.

Table 1: Comparison between Mechanical-object and Organic-system ethos

	Mechanical-object	Organic-system
Economic era	Industrial age	Information age
Paradigm author	Newton	Darwin
Metaphor	Clockwork	Ecologies
Values	Seek simplicity	Embrace complexity
Control	Top-down	Bottom-up
Development	From outside Externally-assembled Made	From inside Self-organizing Grown
Designer as	Author	Facilitator
Designer's role	Deciding	Building agreement
Client as	Owner	Steward
Relationship	Request for approval	Conversation
Stopping condition	Almost perfect	Good enough for now
Result	More deterministic	Less predictable
End state	Completed	Adapting or evolving
Tempo	Editions	Continuous updating
Possible implications for design education	Design as craft making Design for discrete artifacts Complexity as "problem to be overcome through reductivist artifacts" (Davis, 2008, p. 30 Individual performance and ownership	Design as strategic thinking Design for experiences Complexity as "an inevitable and pervasive attribute of life" (Davis, 2008, p. 30) Interdisciplinary teams and Collaboration

Note: Items 1-14 are adopted from Dubberly (2008); while item 15 is a synthesis of
key implications for design education from the works of Burdick (2007); Davis (2008); Poggenpohl (2009)

Understanding of Users: A quick sketch

The understanding of users in their everyday context – also known as user research or user studies – is one aspect of design research. Essentially, understanding users has always been one of the crucial steps in the designing for user experience or more specifically human-centered design (Calde, 2003; Hanington, 2007; Kuniavsky, 2003; Kreitzberg & Little, 2008; Tannen, 2006). In fact, there have been growing debates and literature on getting users involved at the earlier and subsequent stages of design to ensure project success (Dubberly, 2008; Hanington, 2003; Hanington, 2007; Lee, 2008; Sanders & Stappers, 2008). Realizing the criticality of such research, many design schools have begun to emphasize the importance of user research and has made this one of the components for many human-centered design projects at both undergraduate and postgraduate levels.

This apparently would affect pedagogical aspects of design education (refer to item 15 in Table 1), in particular, how design educators facilitate learning and guide design projects. While many design educators have gradually moved away from the master-apprenticeship teaching model, the way design curricula are structured remains unchanged. For examples, learning by doing is still the predominant method (Dorst & Reymen, 2004), learning is still seen as gradual progression from simple to complex (Davis 2008), form giving remains the main focus of many design education programs, and individual development takes higher priority than interdisciplinary project work especially at the undergraduate level (Davis, 2008; Dubberly, 2008). In response to Davis (2008), Dorst and Reymen (2004) and Dubberly (2008), we revisit our teaching experiences and attempt to find possible explanations hoping to stimulate further discussions.

Background information

This section briefly describes the three cases that underpin the foundation for this paper. Table 2 summarizes and provides the basic participant information and their level of study. A brief description of each case follows.

Case 1: The 2009 Design.Live Workshop: This was held in Hong Kong as a revised teenager version based on the original 48 Hours Inclusive Design Challenge held in Hong Kong in 2008 (see Lee & Cassim, 2009). The aims was to provide potential and novice design students to experience the inclusive design process and to introduce the fuzzy front-end and the unfolding process of design in a shifting social context. The participants included (i) a group of volunteered students from both the secondary schools in Hong Kong and year one students from Shan-

tou University, China; (ii) a group of creative partners comprising disabled people and elderly from Hong Kong; and a group of volunteers from a local university in Hong Kong serving the role of facilitators. Eight design teams were set up. Each team was comprised of one creative design partner, 10-15 students made up of students from the local secondary schools and those from Shantou University, and a facilitator. For the purpose of this paper, an additional observer was included into one of the eight teams.

Case 2: The Design Research Studio 2008/09: This was a three-week undergraduate intensive studio subject focusing on application of design research methods to solve a given open project brief. The aim of this subject was to conduct a user research study where the findings could be used to support the proposal of potential design concept(s). This was a compulsory subject for all year two students and each tutorial group was made up of approximately 15 students from the same design discipline, e.g., visual communication or industrial and product design. The students were divided into four teams with three or four members each.

Case 3: The Graduate Design Workshop 2009/10: This was a seven-week interaction design studio subject focusing on a remote design collaboration project. The aim of this project was to work collaboratively to design a system that allows users and facilitators to find every opportunity to use available spaces by disassociating specific functions from all possible spaces. This was a compulsory subject for all 18 interaction design students. The majority of the students (about 2/3) joined the program after graduating from their basic degree, while the remaining (about 1/3) came in with a basic degree and few years of working experience. Students were divided into nine groups and paired up with the respective nine groups of architecture students from a university in Australia.

Case	Setting	Participants
The 09 Design. Live Workshop	Informal workshop	Mostly from secondary schools with a few year one university students
The 08/09 Design Research Studio	Formal subject	Bachelor of Design (Visual Communication) year two students
The 09/10 Graduate Design Workshop	Formal subject	Master's of Design (Interaction Design) second semester students

Table 2: Summary of cases, settings and participants

Understanding users from multiple perspectives

In the context of design education, while design educators expect design students to learn systematic ways to do user study and use design research methods, design students attempt to capture the essence of design research in other ways. In fact, our findings suggest that there seems to be a mismatch between how educators and students understand the concept of users.

This paper identifies four contributing factors or themes to such mismatch, specifically, (a) the natural attitude of design students, (b) the pragmatic nature of design practices, (c) the background of design educators, and (d) the readiness in relation to seriousness and playfulness regarding how students treat design research.

(a) The natural attitude of design students

Designers are generally perceived as problem solvers, opportunity seekers or change agents to name a few roles. Press and Cooper (2003) suggest that design education provides "possibilities, challenges, skills and understanding, and, with these, they make [designers'] lives" (p. 6) and these designers, according to the authors, are those who play different roles in the process of value-creation, including:

•designers as craft makers where the responsibility of designers are to solve problems and as a result produce appropriate artefacts;

• designers as meaning makers or 'cultural intermediaries' – as a 'value-driven' activity, the ultimate goal of a design solution is to provide human experiences that "carry meaning [through] forms of representation" and this in turn creates a culture (p. 6);

• designers as opportunistic entrepreneurs, where designers define their own role and utilize appropriate skills, knowledge and attitudes to create opportunity for themselves or their client; and

• designers as active citizens, seen as the ultimate role of designers as responsible change agents to tackle social and environment issues.

This implies that, fundamentally, every design student carries with them the natural attitude of a designer as a result of their education. One of the commonly talk about subjects being design thinking or the like. In fact, there have been discussions on different levels of expertise in design education and how that could help educators to help students develop their design expertise (this is beyond the scope of this paper. For further details see Dorst & Reymen, 2004; Lawson & Dorst, 2009). The designerly attitudes, or what phenomenologists refer to as natural attitudes are "our original, world-directed stance, … the default perspective, the one we start off from, the one we are in originally" (Sokolowski, 2000, p. 42); or simply put, the taken-for-granted attitudes. This natural attitude of designers is usually more visible when we observe designers in action. To some extent, this is similar to what Cross (2006) referred to as 'designerly way of thinking'. The following three abstracts illustrate the natural attitude of design students and how this attitude affects the understanding of users.

In the case of the Design.Live Workshop (see Case 1), the intention was to make students aware of their target user as a design participant or co-creator – hence the term design partner was used to introduce Granny T to the students. However, Granny T was perceived as an elderly person who doesn't know

anything about design and her presence suggested a need for some forms of assistance. Students were more interested in finding solution(s) to 'help' Granny T instead of paying attention to her story.

Likewise, in the case of the case of the Design Research Studio subject (see Case 2), while the students were fully aware of the general public as the target users and able to frame their design problem, nevertheless many teams were unable to provide a clearly defined and descriptive persona from their initial user research. The majority of the students saw themselves as potential target users too, hence, understanding their own personal experience as the source of reference was deemed sufficient. To meet the project requirements, students completed the task by asking friends to fill up their questionnaire through email, text messages or instant online chat – without having much clear understanding of the importance of the real users' role in their design project.

Equally, in the case of the Graduate Design Workshop (see Case 3), the natural attitude of designer was not suspended when a few students with working experience discussed their plan for site visit. It was interesting to observe how some of the students with years of working experience could quickly generated a few types of 'imaginative users' and even volunteered to 'pretend' and play the role of business traveller and or the role of married woman with one son and daughter.

From the three cases illustrated above, students disregarded the presence of 'real' users, and treated themselves as a 'constructed concept' or a 'collective identity' that represents a group of people (much like marketing or its segmentation). When discussing about users and personas, students tended to focus on abstracted features that can be easily 'made up' without user research rather than on the experiences of users (Ma, Ho & Chuah, 2010). In addition, the level of maturity, exposure to design research and working experience also affected students' understanding of users. In all three cases, the concept of users was present – at least all thought they were clear about their target users – but the actual, physical users were close to nonexistent except in case one. Perhaps the reason why students were not able to 'truly' appreciate the need to understand users was that understanding others' experience was hidden or missing.

In fact, to expect secondary students to understand fully the essence of inclusive design, or to expect year two students who were introduced to human centered design research the first time may be as hard as asking the more experienced graduate students to temporarily suspend their preconceptions partly due to their working experience and how practitioners usually work (see subsection (b) below). From these cases, the understanding of 'real' users seems to be less important to most students. And according to Davis (2008), "[F]or the typical design student, clients and users are exotic others, understood from the student's own observations and assumptions, not through much input from real people" (p. 32). We argue that to truly suspend one's natural attitude is not an easy task. This is partly due to the pragmatic nature of design practice.

(b) The pragmatic nature of design practices

Dubberly (2008) points out that the stopping condition, result an end state (see Items 11-13 in Table 1) in the new information age are different from those of the industrial age. While the designers may hope to achieve 'close to perfection,' it is perceived as impractical for designers to achieve such a state when given such a short time. In most instances, while most design projects may still have a completion date, projects today are likely to evolve over time and continuous updating is usually expected (Dubberly, 2008). The design of an informational Website and applications such as iTunes or operating systems for PC and Mac are obvious examples. The longer they take to evolve, the sooner they will lose their competitive advantage in the highly volatile marketplace.

Additionally, design problems are fundamentally wicked by nature (Rittel & Weber, 1973, cited in Coyne, 2005; Dorst, 2006). This suggests that, essentially, each design problem is unique and that the solutions are usually distinctive (Dorst, 2006; Löwgren & Stolterman, 2004) as each designer tends to approach and frame the problem differently. Reworking on the similar design problem is likely to yield a different approach and result based on the previous experience (Lawson & Dorst, 2009). Due to the time constraints and available resources, designers and design researchers may not be given sufficient time to complete a thorough user research. This is particularly true in design practice where in-depth and rigorous ethnographic user research will be conducted differently than in research conducted based on more traditional anthropological studies. This could explain why some of the user research methods need to be adapted from other disciplines and more innovative research methods are emerging as a result of practical needs (Hanington, 1999). This pragmatic approach to designing is most obvious in the following case illustration:

In the case of Graduate Design Seminar, project teams who opted for the use of personas in their user scenarios video showed very little concrete evidence demonstrating creation of personas were supported from user research conducted at the beginning of the project. In fact, project teams with members who had few years of working experience before joining the program, took a more pragmatic approach to their design solution. For instance, one group of experienced students have chosen to abandon the more rigorous approach – i.e., building their arguments and recommendations based on supporting evidence and objective criteria. Instead, the team relied on their intuition or epiphany as a result of their work experiences.

While both approaches may yield possible solutions, the question remains unanswered: how do we determine if students have experienced an understanding of user study? To expend this question further, can a more systematic and rigorous process of design research yield a better understanding of users than those who proposed their design solutions based on intuition or epiphany? Dorst and Reymen (2004) rightly point out that "[due to] the complexity of design issues and the ill-structured nature of student design problems, it is not even always clear what exactly is learnt by the student. Moreover, students cannot always express explicitly (in words) what it is they did learn" (p. 1). Inevitably, this also bring a conflicting view of how design

research should be introduced to the students. This issue will be dealt with separately (refer to subsection (c)).

No doubt, academic rigor in the educational context and pragmatic nature of design practices would set learning design research and practicing design research apart. The argument here is how rigorously do we want design research to be taught and practiced in the formal learning environment? Furthermore, there isn't an agreement on how design research should be taught. While some design schools would approach design research from a more traditional way – hence produce more academic type research output; others would advocate pragmatic approaches to design research using adapted and innovative methods. In addition, especially at graduate level, different schools have different requirements for research / capstone project or thesis essay, project and/or presentation. This has added additional challenge to the planning and teaching of design research.

(c) The background of design educators

The following two views were abstracted from a conversation between two tutors after the completion of the Design Research Studio (refer to Case Two).

"It is ok to let them try out the analysis and synthesis of their findings. After all, we have already given them the steps – which I find they are pretty self-explanatory – I will correct them during their presentation. Some of them will explain how they have gone through the process. They will learn from their mistakes." (Tutor A)

"My concern is not so much about whether to let them try out on their own. While both [designing and researching] can be 'learning by doing' and there isn't one best way to analyze and synthesize data, I did realize that there are things that we could have prevented. I could have stopped them from mixing the two different sets of data if I have time to sit down with them to observe how they perform the analysis and synthesis." (Tutor B)

Based on the conversation above, it can be argued that 'where,' 'when' and 'how' both the design tutors obtained their design education affected the teaching approaches adopted by them. More traditional design education (predominantly from art-based design schools, i.e., BFA and MFA) or education received more than ten years ago would have a different focus and yield different design students than more contemporary design education – i.e., BA (Design) and MA (Design) or Master of Design. Tools and techniques or even areas of focus have evolved as a result of emerging fields such as interaction and service design. How design was taught ten years ago may be very different from now.

The distinction is not to provoke yet another sensitive topic regarding if one is better than another. Instead, the intention is to highlight that contemporary designers today face a greater degree of change and the world is much more complex. The identity and role of designers have evolved over time to become more of a facilitator that builds agreement than as an expert that makes decision. For instance, looking back ten years or earlier when interaction and service design do not yet exist, communication designers would still focus much on print and static typography

and not many would have thought of communication through new media. And to most communication design students and educators, the concept of human-centered design was less familiar to them then compared to now. Unfortunately, our current curriculum may not respond fast enough to meet the changing needs for the future and the preparation for our design students to assume leadership roles "to imagine systems, services, ecologies, experiences and networks … to shuttle between the macro and the micro, for they need to design not only an object or a communication but also its context" (Burdick, 2007, ¶ 5).

Hence, the question worth considering is how could we introduce design research to students at various levels? Given that educators come from different educational eras, differing years of working experiences and to some extent, different levels of exposure to design research, how can we take into consideration the various factors when planning and designing for a design research subject that helps students to understand the importance of design research and connect the research findings that leads to informed design decisions? Perhaps one possible way is to ensure that faculty members share a common ground. The following case abstract illustrates this argument.

When two groups of students (from different disciplines) were asked to present their findings, it was clear that there were distinct teaching strategies employed that led to noticeably different outcomes in terms of their concepts. One group's design solutions were concrete taking the context of use into consideration; while the other group's design solutions were more conceptual.

The distinction between the groups could arguably be understood as the way how the students approached and framed their design problem under the guidance of the assigned tutors. In addition, the distinction could also be due to readiness – from both the educators and students perspectives, which will be discussed in the next subsection.

(d) The readiness of how students treat design research – playfulness vs. seriousness

To what extent design students are being prepared for design research is dependent on how design research gets integrated into the design curriculum. Poggenpohl recently suggests that design research could and should be tightly integrated and incrementally implemented at various stages of the design curriculum – starting as simple research activity that helps design students understand the use of research findings as supporting evidence and gradually moving into more advanced human-centered design research, where the findings can be used to support actionable design solution (personal communication, May 8, 2010). Undoubtedly, what was proposed by Poggenpohl would be an ideal situation where an appropriate scaffolding structure is put in place to support and promote learning that bridges gaps between zones of proximal development (Vygotsky, 1978). However, our recent observations suggest that there is still more room for improvement. In the case of informal learning context (see Case 1), most design students with the exception of a few year one design students perceive 'research' as the typical library or desk research they are familiar with. The concept of human-cen-

tered design research is close to nonexistent. Furthermore, the intention of the Discover Design Workshop 2009 was to provide a fun learning experience for students to understand or appreciate the inclusive design process. As a result, the understanding of users as part of their learning process was treated less seriously in this context.

More recent literatures (see Rieber & Matzko, 2001; Rieber, Smith & Noah, 1998 for examples) suggest that the concept of play offers "a means for understanding motivation and learning in a holistic way. Serious play is not easy to achieve, but the reward is an intense and satisfying experience for both students and teachers" (Rieber, 2001, p. 1). However, psychologist Brian Sutton-Smith (1997, p.1) points out the ambiguous nature play, and states that, "

[W]e all play occasionally, and we all know what playing feels like. But when it comes to making theoretical statements about what play is, we fall into silliness. There is little agreement among us, and much ambiguity."

Realizing that, Rieber (2001) make a clear distinction between play and serious play:

"[P]lay sounds fun and even frivolous, but never serious. But I use the term serious play to draw attention to the fact that I'm interested in play that has a purpose, though a purpose equally negotiated between learner and teacher … A simple way of understanding serious play in education is with the advice of 'experience first, explain later.' A teacher who follows this advice looks for ways to engage learners in some meaningful experience as early on as possible and then uses this experience as an anchor for later instruction" (Rieber, 2001, pp. 4-5).

Based on Rieber's (2001) distinction, we turned to our observations to look for possible clues and found that students need to be briefed at all stages if user research is to be conducted successfully. To illustrate, in the case of the Design.Live Workshop (see Case 1), students were less serious when they leave the workshop venue.

This was especially obvious when students were at the old folk's home, where Granny T lives. During their visit, many of the students paid very little attention to the environment, activities and her neighbours, whom also sharing the space within the old folk's home. Instead, they were playfully running while making noises around the corridor, kitchen and areas that beyond the sight of our observation. The situation got worse when students were focusing on consolidating their work for the day in the common room of the old folk's home, which has inevitably left out the involvement of their design partner. This experience of exclusion might have caused Granny T to withdraw from her participation in the originally planned three-day activities.

The maturity and experience of design students plays a critical role in the understanding of users. Inexperienced design students (secondary students and year one undergraduate students) need more focused and specific guidance. However, no conclusive evidence (through our limited teaching experience) supports the argument that more experienced students by default requires less guidance.

Instead, findings suggest that potential areas that require attention are the data collection and data analysis stages. For instance, at data collection stage, students may not be fully prepared before pursuing field study – e.g., not knowing what to ask and what to focus on – or some may have jumped into conclusion with their imaginative personas. Similarly, during data analysis, students may not use appropriate method(s) or rigidly follow the process of what was taught and some may not have sufficient experience to analyze the data on their own.

Conclusions

In summary, through our teaching experiences we have identified four possible mismatches when it comes to how educators and students understand the concept of users. Specifically, through our observation from three teaching cases, we have identified four contributing factors or themes to such mismatch, specifically, (a) the natural attitude of design students, (b) the pragmatic nature of design practices, (c) the background of design educators, and (d) the readiness in relation to seriousness and playfulness regarding how students treat design research. We have put forth some arguments why these mismatches occur and provided a few possible suggestions for how the gap can be tighten. Some arguments were more speculative while others were supported by concrete evidence. Further in-depth qualitative study on this topic with special attention focusing on the students' perspective is recommended.

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Gisele Raulik-Murphy, Gavin Cawood
Historical review of the paradigm shift in design policies

Abstract

For a little more than a century the design sector has progressively gained attention from governments in recognition of its contribution to social and economic development. From the use of design in crafts to the exploitation of design in industrial policy and a recent broadening of scope to include social innovation and user-centred policy-making, the perception of design has gradually evolved. This paper aims to present a historical review of the evolution of design policies, in order to enable researchers and design practitioners to understand how governments have been employing design to promote economic, social and cultural change. The study findings highlight the relation between historical events (e.g. the Industrial Revolution, the post-war period, the recent fall of communication barriers) and the paradigm shift in design policies.

Keywords

design policy, social economic development, design programmes, historical review

Historical review of the paradigm shift in design policies

For a little more than a century the design sector has progressively gained attention from governments in recognition of its contribution to social and economic development. From the use of design in crafts to the exploitation of design in industrial policy and a recent broadening of scope towards social innovation and user-centred policy-making, the paradigm shift is noticeable. This paper highlights the relation between this change and historical events (e.g. the Industrial Revolution, the post-War period, the recent fall of communication barriers) through a historical review of the practice of design policies across the world. The objective is to enable researchers and design practitioners to understand how governments have been employing design to promote economic, social and cultural change. It is important to note that this paper is not a historical review of design overall, but that it specifically focuses on the development and applications of design promotion programmes and design policies.

This research was developed through a review of the literature on government policy and programmes for the support and promotion of design, including research papers, non-peer-reviewed publications, seminar proceedings, articles published by practitioners and government documents. It is important to state that this paper adopts a broad meaning of design, one that has been evolving considerably through the past century.

In 'design', we include the early manifestation of arts and crafts, but only when these manifestations led to the establishment of organisations that later adopted this view of design for larger production and that targeted at consumers. This review places a strong emphasis on 'industrial design', in particular because this was the main focus of design programmes and institutions during the last century. More recently the definition of 'design' has been broadened to include skills, strategy, innovation and management, among other areas. This is acknowledged in this paper, but only when design programmes and policies also evolved in such directions.

A short introduction to design promotion and design policies

Despite many positive statements about the value of design, how design can contribute to the world's development is far from clear, insufficiently exploited and often underestimated (Thenint, 2008). At a micro level, there is the problem of helping companies, in particular small and medium-sized enterprises (SMEs), to understand how to find a designer, and to commission and manage a design project in order to achieve business improvement. At a macro level, there is a need to demonstrate how

to use design and designers for the improvement of a nation's competitive advantage and its social and economic growth. Because of the lack of understanding at both these levels, there is a requirement for intervention in many countries. The intervention takes place to inform citizens, companies and governments about the benefits that design can offer and how to take full advantage of them. It can happen in a range of forms, such as design promotion, support programmes for companies and government policies for design.

Policies for design are government strategies that aim to develop national design resources and/or to encourage their effective use in the country. Part of these strategies is the creation of an environment where design and creativity can flourish; where companies are encouraged to develop their own products and services by making use of the expertise of design professionals; and where the public sector works with designers in order to improve its processes and therefore provide good, accessible and inclusive services to the population. The design policies determine a strategic vision and plan for the use of design in a country, which are delivered through design promotion and support programmes. Design Promotion Programmes are planned to raise awareness about the benefits of design. They target the general public through exhibitions, publications, events etc.; or they target groups through conferences, workshops, promotional campaigns etc. Design Support Programmes work directly with businesses and the public sector, providing advice and assisting them to make effective use of design.

Design Education also must be an integral part of design policy, ensuring that the number, quality and expertise of design professionals are sufficient to meet the expectations envisaged by the policy.

Design policies have been practised for many decades across the world, as this paper reports. However, only recently has design policy become a subject of debate, due to the increase in global market competition which has fostered interest in tools for improving countries' competitive advantage, among them innovation and design. As expected for a new subject of debate, there is little material available to guide or challenge practitioners. Thus, there is a need for research in this area, in order to understand the scope of design promotion, to identify references, to question current practice and to develop new thinking that will help in the advancement of this field. This paper is intended to contribute to this advancement.

Historical review of the practice of design policies and design promotion programmes
Stage 1: The beginning of policies for design promotion

Government intervention in design is not a contemporary practice. For centuries government decisions have influenced the development of design, creativity and innovation in both positive and negative ways. Heskett (2010) highlights aspects of design policy in ancient history, noting that 'the interference of rulers in economic affairs, however, was to prevent innovation, which was widely regarded as dangerous in that it undermined

existing skills and the stability of society' (p.3). This author cites the early Pharaohs of Egypt and the Mogul shahs of Northern India, who held workshops with highly skilled workers in an attempt to control the production of icons symbolising their power. Early examples of the positive promotion of design are presented from the 18th Century, when measures were adopted by governments in Europe to protect their national domestic manufacturing industry. Among them were tax incentives, incentives for the development of local production, support for international trade and investments in the education of craftsmen.

It was in 1798, incited by the emerging Industrial Revolution, that the first event for the promotion of national industry took place. France began the first in a series that would become a frequent activity in the 19th Century: the great exhibitions for industrial promotion. The pioneer event was held in Paris in 1798 to encourage improvements in progressive agriculture and technology in France. The exhibition proved so beneficial to French industry that the event was repeated, increasing in size each time, in 1839, 1844 and 1849.

At the time the initiative was copied around Europe: Berne and Madrid (1845); Brussels (1847); Bordeaux (1847); St Petersburg (1848); and Lisbon (1849).

…the experience of foreign countries has proved that great national advantages have been derived from the stimulus given to industrial skill by bringing the manufacturers of different establishments into competition with each other, and by presenting Honorary rewards… cheapness of production and excellence of material, both in execution and durability, being assumed as the criteria of superiority. (Declaration, Council of the UK Society of Arts, May 1845 cited by Hobhouse, 2004, p.4)

In response to this competition, the rival British nation responded with the 'Great Exhibition of the Works of Industry of all Nations', in 1851. Although this was not the first event of its type, it was the largest and the first to invite contributions from all over the world, confident that British manufacturers could stand up well to competition. There were 100,000 exhibits from all across the globe. The objective was to encourage art and science together in order to stimulate industrial design. The Great Exhibition was a celebration of contemporary industrial technology and design (Gibbs-Smith, 1964).

The Great Exhibition of 1851 and the modernisation it exemplified impressed Napoleon III, during his exile in London. Back in France, he set the objective of modernising Paris and launched an exhibition in 1855 to celebrate the consolidation of his empire. Thirty-four nations exhibited in a specially built Palais de L'Industrie in the Champs Elysées, covering 168,000 square metres. Technical novelties included aluminium sheets and Goodyear waterproofs (British Library, 2008).

Unfortunately, the French exhibition had a negative financial result, as the amount invested could not be recovered. In contrast, the British exhibition was extremely profitable. The Royal Commission for the Exhibition of 1851 was responsible for managing its revenue under the duty of 'increasing the means of industrial education and extending the influence of science and art upon productive industry'. Eighty-six acres of land were purchased in London, where a unique cultural hub was built in-

cluding three museums, one theatre and some of the most important educational institutions, including Imperial College and the Royal Colleges of Art and Music. Subsequently, in 1891 the Royal Commission set up an educational trust to give fellowships and grants for research that supports the development of science and technology for the benefit of British industry. Annual charitable disbursements in 2007 were reported to exceed £1.6m (The Royal Commission for the Exhibition of 1851, n.d.).

Besides the promotion of industry, design also found promotional channels through its association with the arts. At the end of the 19th Century, two important institutions were founded in Scandinavia: the Swedish Society for Crafts and Design (1845) and the Finnish Society of Crafts and Design (1875). Both societies were created with the same objective – to encourage crafts skills in industries that were gradually 'progressing' towards cheap manufacturing production – and had the same core activity – supporting a Sunday school for teaching manual skills. Both developed into promotional activities in the organisation of international exhibitions and publications, and the establishment of museums and support programmes for industry and academics. The Sunday schools evolved into important contemporary educational institutions: the University College of Arts, Crafts and Design (Konstfack) and the University of Art & Design Helsinki. The societies themselves became important national design promotion organisations: the Svensk Form and the Design Forum Finland (Design Forum Finland, 2006; Stenros, 2007; Svensk Form, 2005).

At the beginning of the 20th Century the demand for products, the availability of machinery and the rise of mass production encouraged the establishment of the design profession. In 1913 the title 'industrial designer' was first registered at the US Patent Office, used as a synonym for the then-current term 'art in industry', and the American Union of Decorative Artists and Craftsmen (AUDAC) was founded with the objective of organising a legal framework for design patenting and protection (Gantz, 2008).

Stage 2: The foundation of national design programmes

The two world wars are important to mention here as a period when design was demanded to support the industry of war, including products and propaganda. However, it was not a period of government incentive programmes for the use of design by industry. This happened after World War II, when design promotion and government strategies for the support of design in industry flourished, stimulated by the demand for consumer products and opportunities for export and trade. In this post-war era design and architecture played a major role in the reconstruction of countries and the improvement of citizens' quality of life around the globe. As a result, many design events took place in individual countries as well as on the international scene:

1. The founding of national promotional bodies: the Design Council in the UK (1944); the German Design Council (1953); the G-Mark Award in Japan (1957); the Norwegian Design Council (1963); the Design Institute in South Africa (1965); and the Japan Industrial Design Promotion Organisation, JIDPO (1969).

2. Biennial exhibitions of design at the Museum of Modern Art in the USA (from 1950 to 1955).

3. The establishment of international design promotion associations: International Council of Societies of Industrial Design, ICSID (1954); International Federation of Interior Design, IFI (1961); and International Council of Graphic Design Associations, ICOGRADA (1963).

4. The publication of the first 'modern' design policy in 1958: the 'India Report', also known as the 'Eames Report' (Eames & Eames, 1958). This document established the foundations for a design education institution in India, which culminated in the opening of the National Institute of Design in 1961.

From the 1950s the link between design, style and industry started to be recognised as an asset for commercial advantage and exports. With this idea in mind, many governments invested in the establishment of industrial design organisations.

Stage 3: The rise of design promotion in Asia and Eastern Europe

During the 1980s and 1990s two important 'groups' of design promotion organisations emerged: the Far East Asian countries (e.g. Japan, South Korea, Taiwan, Hong Kong) and the Eastern European countries (e.g. Estonia, Slovenia, Hungary, Slovakia).

The Far East engaged in design promotion with the challenge of changing the perception that it produced cheap products, which copied others' designs, to those reflecting excellence in design, innovation and use of technology. With this clear goal aligned with exports and economic development, East Asian governments were keen to make large investments in the promotion of design. Besides specific programmes for industry, competitions and seminars, their investments also included the opening of Design Centres. Usually these investments followed well-planned policies, normally revised after a period of five years, as with the five-year plans in Korea and Taiwan (Blaich & Blaich, 1993; Cho, 2004). The scale of investments, the size and number of centres, the ability to develop policies successfully and the results accomplished became characteristics of design promotion in the Far East.

Eastern Europe faced important political reforms in the 1980s, with the fall of Communism, the dissolution of the Soviet Union and the consequent opening up of markets. This change was directly reflected in the use of design by industry, which faced international competition and a need to export goods. Interestingly, this change of scenario (from a protected and controlled market to open competition) and subsequent implementation of design programmes in Eastern Europe has caused great challenges for design in these countries. The testimonials below describe the situation in the Czech Republic (then Czechoslovakia) and Hungary:

...at this time (before 1989) of total planning, the design was planned as well. Companies had to apply design to production and in many there were even so-called 'creative committees' that were in charge of assessing the aesthetic quality of the production. ... The first years after 1989 caused problems in the world of design. Many producers considered design redundant,

regarding it as something that made products more expensive and caused only more trouble. ("Interview - Z.Vokrouhlicky," 2007, p.12)

Contrary to expectations, designers have not all benefited from the market economy. Product design is an example. During the Communist era, social programmes, such as housing development, and large, centralised industrial enterprises provided good employment for industrial designers. Following the political and economic changes, the previous large, centralised industrial conglomerates were broken up into smaller companies, which were sold or closed. The in-house design teams were thus disbanded. ("Interview - J.Varhelyi," 2007, p.5)

To face these problems, design promotion has been emerging strongly within these countries. Sometimes with strong government support, and sometimes by the initiative of the design sector itself, there is great interest in raising the profile of design in Eastern Europe. European funds have also been used to finance the implementation of programmes. Another characteristic of the Eastern European countries is the strong network and mutual support between them, which stimulates the flow of information and benefits the implementation of design promotion activities. Regional meetings have taken place to incentivise the sharing of information and a directory of design-related organisations in Central and Eastern Europe has been maintained by the Hungarian Design Council. With mutual support and trying to learn from the experience of Western European programmes, these countries are developing their own national design programmes: the Estonian Design Centre, the Design Your Profit programme by the Institute of Industrial Design in Poland, and the Slovak Centre of Design, to name a few.

Stage 4: Broadening the design agenda

At the beginning of the 21st Century, design was starting to be recognised as a strategic tool and not only as a stylish asset. This was reflected in design programmes and their approach to companies. The Danish Design Centre was at the forefront of this idea, launching the Danish Design Ladder, a framework employed to assess the level of design activity adopted by a company. The framework consisted of four stages: no use of design; design as styling; design as process; and design as strategy (Ramlau & Melander, 2004). The Design Ladder presented a clear framework for its application to companies in practice. Besides providing an easy explanation of the design process, the Ladder also allowed design support programmes to measure the impact of their intervention. For these reasons, the approach was also adopted by other countries in Europe (Sweden, Austria, the UK).

In the first decade of the 21st Century, Asian countries were also continuing their high level of investment in design promotion, in particular in international campaigns targeting Western countries. Korea had the most prominent policy. The Third Comprehensive Plan for Industrial Design Promotion, running from 2003 to 2007, included the construction of regional design centres in the country, in addition to the Korea Design Centre in Seoul, which was opened in 2001. Another strategy for promotion adopted by the Far East was the organisation of international events, such as biennial conferences and International Council meetings (ICSID and ICOGRADA).

As design became strategic, design promotion and support programmes evolved. The need for better planning also became apparent. In consequence, design policies grew in importance. Besides the examples of Korea and Taiwan, which had the practice of following five-year plans, other countries published policy documents: Finland (Design 2005!) in 2000; the UK (The Cox Review) in 2005; Denmark (Design Denmark) and India (National Design Policy) in 2007.

Stage 5: Design integrated into government policies

The first decade of the 21st century was one of remarkable advancement for design policies. At the end of the decade most of the advanced economies in the world were developing programmes for the promotion of design (Raulik, Cawood, & Larsen, 2008). As just a few examples we can cite the Design 2005! Policy from Finland, the many programmes implemented by the Design Council in the UK and by the Danish Design Centre in Denmark, the consecutive 5-year design plans implemented in South Korea and the Better by Design Programme in New Zealand, among many others. The topic of 'design policy' grew in importance as a result of a myriad of converging factors, not least of which is the increasing number of success stories where design has been part of a government strategy to help the economy grow.

The increased experience has also led to improvement of the practice as well as diversification. Moreover, the scope of design policies tends to broaden as the design discipline evolves. The use of design solely for industrial and economic benefits starts to be questioned by an increasing recognition of the potential of design promotion strategies for the improvement of people's quality of life, public services and countries' infrastructures as well as the political process itself (through the facilitation of participatory democracy, e-government and co-creation for example). This concept follows the principles presented in programmes such as Design of the Times (DOTT, UK) and Design for All Europe (EIDD). It has been recently emphasised in the debate over a design policy for Europe (Thenint, 2008) and also the North American design policy (e.g. Thorpe, 2009).

This broadening of understanding – from the application of design in manufacturing to include its strategic use among private and public services – was further accentuated after countries faced financial crises and recession in the second half of the decade. As a consequence, the search for alternative ways out of economic and social problems became inevitable. In Europe, two key issues identified by policy-makers to address Europe's competitiveness and social development were innovation and sustainability. The traditional drivers of innovation (R&D and product development) were being supplemented by a broadening of the scope and depth of the innovation remit. The shift required new policy measures based on new complementary tools for innovation: tools capable of addressing broader societal needs, such as environmental and social concerns, as well as competitiveness. Design emerged as one of these innovation tools deserving greater attention at policy level.

At this stage of integrating design into government policies, there is an emerging trend towards the inclusion of design as a cross-disciplinary discipline rather than as a standalone entity requiring its own specific policy. There is a realisation that design can be a key component in the innovation and sustainability policy domains; and that this new positioning can be more influential and relevant than creating policies solely dedicated to design. This new scenario has the potential to integrate design as a fundamental part of socioeconomic policies, rather than its remaining an independent – but inevitably weak – discipline. This constitutes a substantial paradigm shift in the perception of design in policy-making.

Conclusion

It is difficult to define when the practice of promoting design started, but it is possible to study its roots in government intervention and the promotion of national industry. Nowadays this practice is widely spread across the globe. This paper only mentions a few countries, but many more could be acknowledged for their recent design initiatives, including Canada, Australia, Colombia, Mexico and China (for a more complete review of design programmes across countries, see Raulik et al., 2008).

This review suggests that the great exhibitions of the 19th Century were the first important series of events for the promotion of industry and industrial design. With large government investments, these events aimed at encouraging competition among industry and therefore its improvement.

In Scandinavia towards the end of the 19th Century the first design organisations were established based on design associated with arts and crafts. Svensk Form and Design Forum Finland are two of these organisations which are still in operation.

The next important time for the establishment of design centres was the post-war period, when the design sector was playing an important role along with architecture in the reconstruction of countries and the improvement of citizens' quality of life around the globe. It was a time when industry benefited from the combination of optimism, consumerism and demand for products. Many national design programmes were established in this period.

In the past three decades the fall of physical, political and communication barriers has also encouraged design programmes. Eastern European and Asian countries invested in their own design programmes, aiming to enhance the competitive advantage of their products in the worldwide market.

The expansion of design policies and programmes across the world was characterised by the exploitation of design for economic development and market competition. In this context, design policy emerged from industrial policy. Government intervention was justified in cases of market failure.

Recently, however, this focus has been questioned. The broadening of the use of design, the better understanding of design's strategic role for businesses and the example of successful government policies for design have had an impact on the perception of design policies. There is an increasing interest in design policies as opposed to isolated design programmes.

Moreover, the industrial focus has tended to shift towards the use of design for the improvement of national infrastructures, services and systems. The current most important paradigm shift in the field of design policies is its integration into cross-disciplinary policies for innovation and sustainability.

This paper has examined the history of design promotion policies. The most important conclusion from this study is the interrelation between historical facts and the evolution of design programmes. It is indicative that some key events (e.g. the Industrial Revolution, the post-war period, the recent fall of communication barriers, economic crises) have generated a demand for design, which, in turn, stimulated the implementation of design programmes and policies across the globe. This understanding confirms the relevance of national contexts for developing design policies and promotion programmes; and for developing the ability to interpret the economic and social context in order to drive the advancement of design promotion strategies.

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Loredana Di Lucchio

What's Design in China

A reflection about if and how the Chinese Design is focused on the social and cultural impact of products.

Abstract

The recent cultural debate is concentrated on the social role of design, recognizing its capability to influence, throughout products and services, human behaviours: a direct consequence of the lacking of cultural importance of the economy of production in favour to the economy of knowledge, in particular in the mature western societies.

Not surprisingly, the offer of the Design Schools is increasingly focused on social, environmental and economic sustainability.

But, what does this change of 'design focus' mean in those countries economically emerged at the beginning of the new century? In particular, what does it mean in China, which is considered as the 'factory of the world'?

If much economical and cultural attention has been given to Chinese production, it's also important to identify 'what' kind of Design is emerging in China, considering that our 'everyday-life equipment' is almost totally 'made in China'.

And if, as well as in the western countries, the design debate in China is focused on social and sustainable issues, which is the real influence for the professional activity of Chinese designers? Especially those designers involved within the Chinese SMEs, that must to meet the unstoppable demand of the global market.

The paper reports a critical mapping about the activities of young designers from 4 of the major Chinese cities (Beijing, Shanghai, Shenzhen, Zhejiang) in order to understand if and how we can state an incremental 'shift' within the design skills towards the social and cultural impact of products in China too.

From principles to practice: emergencies of Design

It is no doubt that, nowadays, the design activity is placed in a very critical social and economic context.

From economic point of view we face with two evident trends: the productive growth of Est Countries – where work and technologies are available at a more lower social cost; the social and cultural resumption of the BRIC countries – Brazil, Russia, India and China – where the simple aesthetics value of products is the most recognized expression of status symbol (Morace, 2005).

From social point of view, turbulence and complexity, uncertainty and evolution are factors of the new paradigm of post-modernity. Nowadays, the available market is with "zero sum": the purchases are not for lack but for substitution. (G. Fabris, 2003).

Furthermore, the meaning of "market" is changing: it isn't anymore a place of trade of goods, but a place of social exchange; now it's more important the immaterial aspect of consumption where the irrational choices are crucial in order to drive towards the pleasure of possession to obtain wellbeing and enjoyment. The "homo aestheticus" is now a reality (M. Maffesoli, 1985).

In our world full of objects, the consumer hasn't any more needs but dreams, and the purchase is driven by the emotions that are from any kind of external stimulus.

If Design's cultural mission is to define the material outcome of contemporary society, according to these current conditions - between an inexorable overdose of production and a constant cultural need of new stimulus - it is possible to assert that Design now operates on two levels:

- on one level, Design pushes towards the exploration of all possible relations between man and technology;

- on another level, Design pushes towards the correction of all failures within contemporary mature society.

In the first level Design is connected with a sort of feeling of omnipotence, because it is focused on the development of all possible interfaces linked to emerging technologies, in order to explore their social, cultural and ethical consequences, notably in everyday life; this is the approach known as Design of Interaction (Dunne – Raby, 2001)

In the second level, Design is connected with a sort of feeling of frustration, as it tries to predict and to correct the impact of human activities on the global eco-system; this is the approach known as Design for Sustainability (Manzini – Jegou, 2003).

Each approach is also connected to further feelings: in particular, the first approach is aware of its weakness and it makes proposals without any presumption of substituting the design solutions at the political tools for social change; on the contrary, the second one believes in its own power and ability, as a key "player", to solve the contradictions of mature societies.

These different approaches of Design can be considered the most important topics of the scientific debate, involving researches, studies, didactic programs, conference themes, exhibitions and more over: sometime with a very disciplinary dichotomy other times with interesting overlaps.

In any case, it is no doubt that, in its professional declina-

tions, Design is primarily a translator between the society needs and the production possibilities.

As mentioned, nowadays this relationship is so complex that seems even more difficult, for theoretical debate to generate a virtuous transfer in the professional performances.

Relatively to this, the modality with which young designers approach to the labour market is an interesting viewpoint to analyze and understand which is the real capability of scientific debate to have influence on the society: in particular in those dynamic markets where society and production push.

And, in this scenarios, China represents a very emblematic expression of contemporaneity: on one hand, as a growing society, Chinese people desire to obtain the same availability of goods and benefits of the western societies, on the other, as one of the most industrialized country in the world, they need to gain a control of its development to avoid a productive "over-dose" that might be harmful both at the social and the economic level.

To be Designers in China

That China is a "factory of the world" is a wide spread belief.

Goods made in China are present at almost all the corners of the world. Especially, in the Western countries it's in evidence the profound effect of the Chinese manufacturing behemoth in every aspect of lives. Products have never been so cheap, and may never be again, as world politics and fuel costs inevitably take their toll. (Design Week, 2006).

A wide number of Chinese SMEs work as subcontractors for much of the foreign companies; the most big foreign companies have delocalized a plant in one of the numerous industrial areas in China; Chinese companies seek to become global brands; each global brands aim to boost sales in China.

Furthermore, at present, the best Chinese companies know Design is crucial and even Chinese small companies are starting to understand the benefits of good design.

Therefore, it's not difficult to believe that this means a more and more wide request of Design and that the country's Design business is turning.

A "design business" in China that developed from the beginning of 1980s.

In fact, it was in those years that China has started a series of opening up policies that created a favourable environment for the growing and development of Chinese enterprises that was a push for the development of design itself, in particular product design.

Moreover, during the same years, the Chinese Government contributed financially to send the first generation of executive and professional employees of companies to study in abroad.

It was thanks to this supported training of young people in foreign Universities, that the activity of designers was systematically introduced in China that quickly became a powerful resource for Chinese companies considering, also, that in those years within the Chinese market there wasn't the competitiveness of foreign products.

Instead, it must to wait the 90s to see the first generation of designers "home grown" when the Government had started to finance the increasing of specific didactic programs for training designers within Chinese Universities.

An increase that starts from the only five Schools in 1990s (Hunan University, Tsinghua University, Tongji University, Jiangnan University, Wuhan University of Technology, Guangzhou Academy of Fine Arts) to the exceptional number of around 300 at present: with the unbelievable result that, nowadays, more than 3000 graduates in Design are annually cultivated!

Therefore, the question is: how these young Chinese designers face the professional experience? What is their design production? And what comes to society?

The research reported in this paper had tried to reply at these questions building a map around the career opportunities of the young Chinese designers and, moreover, trying to understand which is their impact in social and productive system not only in China but, also, in the entire world.

This cognitive map about young Chinese designers has been developed from April 2009 to January of 2010 as a Sino-Italian collaboration during the grant research program of Xuesong Wu (from Hunan University) at Sapienza Università di Roma. This research will be published in the next issue of the research journal DIID – Disegno Industriale Industrial Design (www.disegnoindustriale.net)

The research activities were organized in three operative steps.

The first step has been to define the cultural background where the phenomenon of the young design growth is expressed, not only in China but also in all developed countries. This analysis has started from the results of a former research about the Italian and European young designers professional activities (L. Di Lucchio, L. Imbesi, T. Paris, Designer After School _ Work in progress, RDesign Press, Rome (IT), 2009).

In parallel an analysis about the Chinese Design Context has been developed in order to identify its most evident features, starting from two representative questions:

Where goes the "mass" of young Chinese graduates in Design?

What are their activities?

The three faces of Chinese Designer

First of all, it has been recognized that in China, not differently to the other countries, there are three different curricula that young Chinese designers can undertake:

- to be researchers within the design education system;

- to be designers employees, in particular, within R&D teams of the big companies;

- to be free-lance designers providing independent design consultation.

The most distinguishing feature of these different professional conditions in China, compared to other countries, is that they correspond to a sort of cultural and professional emancipation.

As said, in the 80s, the numbers of the graduates of industrial design (especially graduates in foreign Universities) was very small and most of them was involved in the educational system.

Therefore, it was usual that these researcher designers, under the University management, were involved as Design Consulting within the Companies.

Obviously, at the beginning, this practice was a necessity but in time it become a specific professional activities: in fact, currently, the Chinese research teams within the Design education system are relatively large-scale and are composed primarily by graduate students. They are very active; they work especially on the definition of the concept design with the aims to improve knowledge more than production.

In this way, the educational Chinese system in the field of Design, in a form of self-power, pursues two complementary aims:

- the first aim is central for the existence itself of future designers, because those research teams exert a direct influence on the enrichment and the quality of the design skills of the professionals.

- the second one has played an irreplaceable role in creating a design atmosphere within the Chinese production system and, accordingly thanks to its products, within the whole Chinese culture.

The second professional condition of designers employees, as mentioned, was started in the middle of 90s, when the Chinese companies showed a large request of Design Skills.

In those years, the new Chinese Design graduates (from Chinese Universities) entered in great number within the companies as employees. Their task was to create the brand image and a position within the Chinese market that increasingly grew up.

Of course, yesterday as today, each company, according to its own core-business, required different skills:

- the companies which provided subcontracting for international and domestic brands, required design skills able to support especially the manufacturing aspects;

- the technology-driven companies required design skills able to define products with an high market competitiveness;

- all the others, focalized on producing mass products (often without any technological innovation), required design skills able to create a reliable brand image for the customer.

The common aspect, in all these companies, was that designers used to work in team.

And now, we can recognize three typical patterns, of these teams of designers employees, connected with previous described skills:

- according to the first skill, product designers are included in the Engineering department with the task of develop the aesthetical of the product as complement of engineering design;

- according to the second skill, companies grant leadership to product design skill, integrating it with the engineering design, user-interface design, packing design and advertising design, too; this is the case of the big brands as Haier or Lenovo, or others that have established relatively independent Design Centre directly under the leadership of high-level design management;

- according to the third one, the definition of product briefs is a task of Market department or Research&Development department while the product design activities are in outsourcing.

Therefore, designers within these teams, play more coordination activities rather than the precisely designing work.

Finally the latest professional expression, as free-lance designer, has been developed in the last 10 years, due of the increasing of the number of new Design graduates and the decreasing of opportunities to be employed within the University's Research Teams or within the Company's Design Teams.

This professional mode allowed the born and the develop of the independent Design&Consulting Agencies.

Nowadays, it possible to assert that designers employed in the independent Design&Consulting Agencies represent, in China, the largest group and also among the most active ones. Their team members range from about 5 people to as many as about 150 persons.

The first and more interesting feature of this professional condition, compared with the company's design teams, is that their design activities are on more sorts of products. Their customers are especially the SMEs that range from household appliances to electronic enterprises, from IT companies to medical device companies.

Their offer of design services moves from the simple aesthetical design to the process of complete products developing now.

These independent Design&Consulting Agencies are mostly distributed in the Chinese area with more developed economies, especially with a large number of SMEs, as the pilot cities of the China's reform, Guangzhou and Shenzhen. But, with the rapid development of the Yangtze River Delta and Shanghai, also in this area is possible to find several Design&Consulting Agencies.

In the two first cities - Guangzhou and Shenzhen - Design&Consulting Agencies were started as a semi-independent department of specific companies. Then, becoming gradually independent, they have started to work with different companies. This is the example of Shenzhen Dragonfly Design, Guangzhou SFDA, Midea Industrial Design Center, New Artop Design Center and Newplan Design Firm.

Due to the particularity of the production system of these areas, despite their longer history, the most of these Agencies are more involved in the aesthetical design and less in the complete development of the products.

On contrary, thanks to the geographical and cultural advantages, the Design&Consulting Agencies set in Shanghai or Beijing – as as S.point or Loe Design - have set up their own design brands faster and more effectively, have accumulated several clients with excellent quality, including foreign companies, developing more complete design skills.

For example, at this moment, Beijing area is the heartland of the research and development of high technology in China. A lot of well-known multinational corporations have set branches in Beijing and have transferred their Asian R&D Department here.

Thanks to this first overview on the professional perspectives of the young Chinese designers, it was possible to answer at the first issue: "Where goes the "mass" of young Chinese graduates in Design?" They become part of the Design&Consulting

Agencies, often very young Agencies without a strong experience.

Therefore, the second step has been to reply at the question: "What are their activities?"

In order to understand the real conditions, limits and opportunities and moreover approach, an indirect identification of these Design&Consulting Agencies has been developed in 4 areas of China: Shenzhen, Zhejiang, Shanghai and Beijing.

Thanks to a network of Chinese Advisors, more than 80 Agencies have been identified and involved in two phases survey.

In first phase, the survey has been focused to know better each Agency - year of establishment, number of people of the team, developed market areas – and their portfolios of products and clients.

The second phase of survey has been submitted to a selection of structured and active Agencies.

After to have collected these factsheets, a first analysis has been performed in order to distinguish which are the specific Design skills of these Design Agencies.

In order to this the renowned features of Design, described by E. Frateili (1969) are been considered as measure of innovation impact of their design activities.

The morphological sphere is relating to all skills necessary to obtain products and services with a functional and aesthetic quality.

The technological sphere is relating to all skills necessary to develop new of products and services performances exploiting all production capabilities.

The social sphere is relating to all skills necessary to observe consumers behaviours and highlight their real present and future needs.

The map has been organized in three arrays, one for each design sphere, under which 80 agencies were grouped. The result has been that all Agencies could be included under the morphological sphere, only around the half could be under the technological skill and a very few number under the social skills.

The second step has been to have a focus, on two or three Agencies from each areas, asking to them to describe their specific design process and in particular about the relationship with their clients – business contracts, concept brief, deliverables.

The most typical approach of these Design Agencies is about those kinds of services, that we can call "fast-food" design due a quick subrogation of products. They develop a design cycle of product shorter and shorter, also considering the technological opportunities offered by the CNC machines for the mould-making.

Young Chinese Design: creativity vs innovation.

This mapping about the activity of young designers in China, in particular the young product designers that express their profession within the Design&Consuting Agency, is an attempt to have an objective vision about the real impact of Design in Society.

Therefore it is interesting make some points, naturally, starting from the role that the products design by these Agencies play within contemporary social communities.

Considering that everyday tools (from computers to telephones, from domestic appliances to banking services) are becoming ever more complex, and market seems to be increasingly extreme, in terms of technological innovation, it is emerging a consumption behaviour in which human actions, even the basic act of thinking, seem to be more and more useless and redundant: our cookers decide how to prepare our food, our fridges decide what we should eat and our navigation systems tell us where to go.

Our experiences with this overdose of products involve a passive form of acceptance especially considering that the intrinsic value of these products has fallen dramatically - they are now almost disposable.

Our approach to purchasing is shaped by what we expect to pay for what used to be high value items. Despite our better ecological intentions, when something breaks we are happy to throw it away and buy a new one, because it is cheaper to do so than have the old one fixed.

As mentioned, these Agencies design just for those same Chinese companies that produce those products that invade world markets. Practically, we can assert, that everything we buy is made by these companies and designed by these Agencies.

It is precisely through this feeling of inadequacy that it is possible to reinterpret the creative drive of young designers who, in search of a place in the operating processes, express their potential by imagining objects, contexts and meanings.

However, in the subjects that they deal with and in the objects they propose it is possible to identify a common thread in the shape of a fundamental rejection of any innovating offerings. In all of the proposals – in what almost seems like a refusal to face up to the complexities of society, which increasingly seem like nothing more than 'complication' – there is a clear desire to simplify consumption.

These young designers, who have been observed through their proposals, choose to act in a scenario that rejects any changes and proposes a practicable path involving objects made for nowadays life: a vision of a simple world that embraces as many people as possible without imposing new rules or conditions, while supporting desires, needs and basic functions.

Even when new technology is included in a product, it is considered more a tool than an alternative form of nature (a form that the latest developments in research seem to be telling us is the only kind of evolution possible).

Therefore, young designers appear to be demonstrating a specific and definite desire to avoid pushing the limits. Instead, they take a moderate position, or rather an 'intermediate' one.

In its creative offerings, young Chinese design seems to avoid all responsibility for the construction of the future. It concentrates on the present, with a clear desire to express itself but without claiming to point out fresh directions: a 'middle class' that creates without necessarily expecting to innovate.

This 'creative middle class' is thus certainly widespread and non-elite. It is 'massproduced' in the many design schools in China, but by placing itself in-between established elements and totally new ones, it is also a class lacking in the ability to change.

Maybe the traditional design's skill to develop the morphological aspect of products is insufficient today: an urgent need to define other abilities is growing and design Schools must try to adjust their training programs.

Obviously all value judgements are difficult. What counts for something is the logic of observation and the certainty that all forms of creativity, including those in the 'middle' ground, for designing, inventing and discovering new things require social settings, cultural infrastructures and political strategies that allow them to become means of innovation.

And thus the challenge comes back from young people to schools and to society as a whole!

Appendix

Just as examples, here below are some descriptive products developed by some of the Agencies selected in the second phase of the survey, and identified according to the most evident design skill.

Beijing Opera Idol | Exmade Design Consultants Co., Ltd. (www. exmade.com) | Beijing

Design skill: Social Spheret

'Beijing opera idol' concentrates the quintessence of Chinese opera, integrates the modern fashion with the ancient civilization. 'Beijing opera idol' vibration speaker is not only a new technology, but also the Chinese culture. It is so different from the traditional speakers that we can make it smaller and more special. The lovely faces came from the characters in Beijing opera, but more fashion. We want to make the 'Beijing opera idol' vibration speakers become the intersection of culture and fashion, making the Chinese culture and fashion be known by the world.

Skyworth L01 | Beijing Yi You Dao Industrial Design Co., Ltd (www. ideadao.com) | Beijing t

Design skill: Technological Sphere

Skyworth L01 is intended to meet the vast majority of Chinese consumers' demand for their aesthetic appreciation and consumption, whose design will open a large LCD TV market with a pretty appearance and a lower price for enterprises to achieve the strategic leading position in the same industry. Skyworth L01 started to sell the product in 2008, and the total sales reached more than 730,000 units up to March 2009, which became the main profitable product line of Skyworth brand in 2008.

Notebook PC, Intel | Shanghai Longyu industrialdesign co.,Ltd (www.loedesign.com) | Shanghait

Design skill: Morphological Sphere

Throughout the design process, we always take into account a combination of the popular and the sense of technology, taking full account of its structure and production of rationality.

Lemon Chicken, Joyong | Hangzhou To out industrial design Co.,ltd (www.toout.com) | Shanghai

Design skill: Morphological Sphere

"Lemon Chicken" is a modern kitchen appliance for a new kind of thoughts. Lovely appearances give the psychological feelings of joy. To subvert the l impression that general kitchen type mixer is noise. After the removal of the first motor, which is

a very pleasing kettle, the design of the bottom make the refraction of light is more abundant, Fruit juice in the cup circulates with enticing colours. Soymilk has sold more than 5 million units.

Ultrasound Systems Cart, Terason Ultrasound | Green-ID Industrial Design Shenzhen Co.,Ltd (www.green-id.com) | Shenzhent

Design skill: Technological Sphere

This product is a simple and practical Ultrasound Systems Cart, composed of various functional blocks, Proper use of the technology of sheet metal, Center-symmetric design. The frame of probe made by small piece of steel plate (which can be scrap) effectively save the cost of the mould and materials reflect the characteristics of easy and convenient and modern simple style of health care.

Double-sides slippers | Zhang Xun & Lee Cheng (www.newplan.com. cn) | Shenzhen t

Design skill: Morphological Sphere

The slippers are made of thin rubber, can be put on from two directions. Firstly press half of each slipper with feet, and then wear them. The concept is from the traditional Chinese Yin and Yang dualistic philosophy. The slippers have a comfortable and harmonious shape and colour that match the house environment. The soft and flexible rubber enables the slippers to relapse by themselves. The thin and light material shoes make people feel comfortable when wearing them.

Design skill: Morphological Sphere

With high-performance rechargeable batteries, it also can be used by hand. With two colours high-quality plastic on the surface, at the same time the product has been specially treated against slip. It's comfortable to grip. The part of metal was treated against rust.

3D Headphones, Cyberlimit (USA) | Rising industrial design Co., Ltd (www.rising-design.net) | Hangzhou

Design skill: Morphological Sphere

This product uses a special structure; the user can use the headset multi-angle rotation. Part of articulation may avoid directly to stimulate the ear direction can be freely adjusted according to user needs, therefore, to protect the hearing and to reach the three-dimensional sound effect.

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Tsai-Lin Yang , Ming-Chyuan Ho

A Study on the Model of a Culture-Centered Creative Industry

Abstract

Creative industries recently have been promoted in many countries as an attempt to stimulate the vitality of economics for new values and job opportunities. Culture is identified as one useful resource for developing creative industries. However, effective ways of using culture resource in creative industries remains undefined and hence a framework for analyzing culture-centered creative industries is necessary.

Based upon literature review, industry observation and expert interview, a basic framework is proposed, which is composed of three dimensions: resource, operation and production. The resource dimension is consisted of four fundamental culture elements, namely natural culture, socio-culture, artificial culture, and ideological culture. The operation aspect contains various marketing strategies, including price, place, promotion, and product, to name the most significant "P's". The production facet can be illustrated through 5W1H framework as outputs resulted from people, work, time, place, object, and knowledge. Through the framework and its constituents, creative industries can be deconstructed as a network construct with multiple paths and nodes.

Mazu temples and the religion are considered as a culture-centered creative industry. It can be applied as a case study for validating the framework. Through the proposed framework and with the three dimensions and concerned elements, main bodies of cultures involved in a creative industry and their interactions among the three aspects can be analyzed and identified, which helps to examine the construction of the creative industry.

Keywords

Creative industries, culture-centered, Mazu religion

1. Research Motivation and Objective

In recent years, many countries have been promoting creative industries to construct the economic value, invigorate the economic vitality, and create job opportunities. During the industrial era, the core of the industry was the technology and mainly based on the application of industrial techniques to create industrial value and profit. The information technology (IT) industry has its advanced technology as core value that forms industrial competitiveness and expandability. As nowadays the industry has become more culture-oriented, it is still unknown how to select, add value, and create culture-based industry to promote cultural consumption and create another wave of economic miracle. Each country has various reasons, operations, objectives and terms regarding to promoting the cultural industry, creative industry or cultural creative industry. The model constructs are not available for reference. Even though each country is struggling and competing with each other, they are independent.

Taiwan started promoting its cultural creative industry through the community development in 1994(Executive Yuan, 2002). At that time, the researches focused on the discussions and case analyses on the development of cultural products, local cultural industries, and cultural art industry. There are still few researches regarding the constructs of new industry. The process of constructing industry determines the success or failure. An excellent structure facilitates a sustainable operation, while the bad structure will waste the resources and labor force.

This research investigates the contents and value of culture as a core in the culture-oriented industry compared to the information technology (IT) industry, which requires an advanced technique. A higher core value increases the possibility of forming and developing an industry. Hence, based on the investigation on elements related to the cultural core, this research attempts on constructing the model of the creative industry to analyze how the cultural creative industry is formed and established (i.e., construction elements and their relationships). Furthermore, a reference regarding the model of a culture-oriented creative industry will also be proposed in this study to increase the possibility of success in constructing a creative industry. This research also investigates on the influence of development, fusion, transformation, and sustainability towards the model constructs.

2. Related research
2-1 The elements of culture-oriented creative industry

The cultural creative industry mainly consists of cultural elements. Edward Burnett Tylor (1920), a British anthropologist, defines culture as follows: "culture, or civilization, taken in its broad, ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society." An American sociologist called David Popenoe (1932) stated that "culture is an outcome achieved by a group or society that includes value, language, knowledge and materials." The United Nations Educational, Scientific and Cultural Organization (UNESCO,1972) seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered

to be of outstanding value to humanity. This is embodied in an international treaty called the Convention concerning the Protection of the World Cultural and Natural Heritage. Natural heritage includes nature, geographic structure, animals and plants. In the Chinese perspective, culture consists of the following factors: intuition, spirit, and value (Si Wei, 1995).

This research proposes the core elements of culture as follows: natural culture, socio-culture, artificial culture, and ideological culture. Natural culture consists of mountains, river, forests, flora and fauna accumulated from the natural phenomena. Socio-cultural dimension includes the accumulation of life experiences, such as moral, law, system, religion, belief, custom, habit and so on, which are derived from the intangible norms. Artificial cultural includes those forms created by the human, such as excavation, relics, languages, knowledge, literature, music, art, dance, plays, and so on. Forms of artificial culture can be corporeal (e.g., artworks, paintings, crafts, etc.), incorporeal (e.g., languages and knowledge), and carriers (e.g., music, plays, dance, and various performing arts). The ideological culture is based on the personal values and intuition. The core elements of culture are as follows:

Table 1. The elements of a culture-oriented creative industry

Dimension	Element	Derivation	Form
Natural culture	Mountains, river, forest, flora and fauna, etc.	Natural resources	Concrete objects
Socio- culture	Moral, law, system, religion, belief, custom, habit, etc.	Accumulation of life experiences	Intangible norms
Artificial culture	Excavation, relics, languages, knowledge, literature, music, art, dance, plays, etc.	Incessant creations by the human race	Corpo-reality, in corpo-reality, carriers
Ideological culture	Intuition, spirituality, value	Personal values	Spiritual value

Source: The author

2-2 The Operational Dimension of Multi-P's Value

Marketing Mix 4P's Strategy, the earlier marketing strategy suggested by Jerome McCarthy (McCarthy, J. 1960), includes Product, Price, Place, and Promotion, which deal respectively with developing and searching for the right products to sell, pricing method, marketing channel, and marketing strategy. Later on, the 4Ps model was upgraded into 5P's model by adding the element of "People," which refers to the staff in the service industry. Power and Public Relations were included afterwards, with an emphasis of increasingly external influence. In particular Booms and Bitner's (1981) extended the 4P's framework to 7P's, which consists of the original 4P's and three extra elements- People, Process, and Physical Evidence. Not only staffing is stressed, the whole marketing process and proof of

service are also emphasized. Philip Kotler (2004) proposed the STP Marketing Strategy, which refers to segmenting, targeting, and positioning, respectively. A customer-oriented marketing strategy called 4C, which consists of Customer, Cost, Convenience and Communication, was also proposed. The intellectual property marketing 6P's strategy consists of people, positioning, physical evidence, proposition, process, and public relation.

In 2003, the Ministry of Economic Affairs' Cultural and Creative Industries Promotion Office defined the creative life industry as any industries engaged in integrating the core knowledge of life industry and providing in-depth experience and high-quality aesthetics of the industry (Council for Cultural Affairs, 2003). The main elements are Space, Service, Promotion and Product.

The variable factors of culture-oriented creative industry are established according to the marketing and the elements of creative life industry to decide the operational dimension entitled "Multi-P's Operational Dimension," which also includes the operational mechanism. Hence, when the cultural core is applied according to the output of economic model, it is possible to determine the P value of the operational dimension and make sure that the operation, design, and creative processes can be smoothly executed. The operational dimension of Multi-P's value is defined as the following table.

Table 2: The operational dimension of multi-P's value

Multi-P's	Operational dimension
People	Who should be involved? Searching for stakeholders, design professionals, operators, consumers, participants, etc.
Place	Spatial reconstruction, local area activity, spatial reuse, etc.
Product	Product development, product searching, etc.
Produce	Production scale, capital investment, production management, etc.
Promotion	Advertisement, sales promotion, etc.
Policy	Law establishment, policy influence, policy modification, etc.
Presentation	Presentation method, visual, hearing and design related to the five human senses.
Participation	Participation and experience in design, planning, interaction, implementation, etc.
Position	Position of competitive value, diversified value and advantage.
Process	Commercialization, industrialization
Paradigm	Vision, creative value, idealism, goal, etc.

Source: The author

Multi-P's operational dimension is an application of operational strategy. Selecting different P value means selecting different operational strategy. When design is seen as a source

of motivation, then the application of Multi-P's is an augmented ability. Hence, the following factors, such as capability, humaneness, culture, etc., should be considered when selecting the strategy. The meaning of Multi-P's lies on the selected operational dimensions, which can be solitary or multiple. The results of the model and output are varied depending on the operational strategies applied in that industry.

2-3 the output dimension of 5W1H's mixed value

The ultimate goal of the cultural creative industry is to create innovation and job opportunities in order to enhance the living environment, such as wealth, employment, environment, and so on (Executive Yuan, 2002). Wealth is a materialistic achievement; employment is access to talents; living environment is the changing in time and space. Hence, the 5W1H framework strategy is applied to analyze the ultimate goals of a culture-oriented creative industry. It can also include different categories, such as "who" or value-added people (i.e., job opportunities, talent development, celebrity production, and cultural heritage), "where" or value-added place (i.e., land development, flourishing commerce, community improvement, etc.), "what" or value-added object (i.e., industrial improvement, brand image, etc.), and value-added intellectual property (i.e., patent, copyright, intellectual property, knowledge economy, etc.).

Table 3: Mixed value-added 5W1H framework

value-added framework	Cases in Taiwan	International cases	Output
Who	Artists, designers, painters, poets, novelists, musicians, actors, etc	Artists, designers, painters, poets, novelists, musicians, actors, etc	Opportunity Talent development Producing celebrities Cultural heritage
Where	Memorable places: life - Jiufen; religion – Tianhou Temple; specialty: Baihe's Lotus Festival; life: Kenting (Spring Scream)	Land development – Queensland University of Technology, Australia- Flourishing commerce – Orchard Road, Singapore Community improvement – Ruhr industrial complex, Germany	Land development- Flourishing commerce- Community improvement
What	Historical events: The 228 Incident	Cultural innovation – Walt Disney America (blending various history and culture from all over the world)	Cultural nostalgia Cultural innovation
When -	Traditional festival: Lantern Festival, Yan-Shui Firecrackers, sky lantern, etc.	Developing tourism – Hokkaido Snow Festival, Japan	Developing tourism Life taste
which	Relics: the Imperial Palace, art	Industrial promotion – Korean movie and game industries Brand image – Thai film Industry and aesthetic economy	Industrial promotion Brand image
Know How	Jin-Yong novels, Jimmy's illustrations, animations, etc.	Harry Potter, Le Petit Prince, etc	Patent Copyright Intellectual property rights Knowledge economy

Source: The author

Each value in the value-added 5W model above can be independent and produce one output. On the other hand, the values can also be mixed to produce multiple outputs, depending on the objective of the cultural creative industry. For example, the Ruhr Industrial Complex in Germany actually focused on the community improvement, but then it turned out to promote tourism and increase the job opportunity. Hence, it can be concluded that this form of creative industry has achieved multiple outputs. However, the ultimate objective is to establish culture as the core element and starting point, then to set the goal as the end point, and also select the appropriate operating strategy and P value. This relationship is intertwined and cannot be separated. If there were anything wrong, such as wrong elements, failed operation, ambiguous goal, and so on, the creative industry will be a failure. Hence, a relevant evaluation mechanism to decide the core elements of the culture and the ultimate objective is necessary to ascertain that the structure is complete.

3. The model of a culture-oriented creative industry

3-1 The structure table of three dimensions of culture-oriented creative industry

The three dimensions of the research structure are resource, operation, and output. Resource includes natural culture, socio-culture, artificial culture, and ideological culture. Operation includes people, place, product, produce, promotion, policy, presentation, participation, position, process, and paradigm. Output includes who (value-added people), where (value-added place), what (value-added matters), when (value-added time), which (value-added object), and know-how (value-added intellectual property).

Table 4: The structure table of three aspects of culture-oriented creative industry

Dimension	Research topic	Key elements
Resource	The core elements of culture-oriented industry	Natural culture/ Socio-culture/ Ideological culture/ Artificial culture
Operation	The operational dimension of P Value in the creative industry	People/Place/ Product/Produce/ Promotion/Policy/ Presentation/Participation/Position/ Process/Paradigm
Output	Mixed value-added 5W1H framework	who (value-added people)/ where (value-added place)/what (value-added matters)/when (value-added time)/which (value-added object)/know-how (value-added intellectual property)

3-2 The model structure of culture-oriented creative industry

According to the research results, the model structure of a culture-oriented creative industry (as illustrated in Figure 1) consists of the following dimensions: resource, operation, and output.
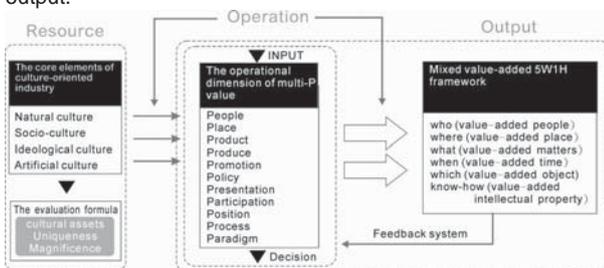

Figure 1: The model of a culture-oriented creative industry

As for the core elements of culture, there should be a culture evaluation to ensure that the elements are worth being developed. In the operation dimension, the P values should be se-

lected under the external competition and then different P values are selected to execute the strategy. The output eventually will consist of mixed values, which will be processed into the recall system to maintain the operational cycle or to revise the operational strategy in order to produce higher cultural and economic values as the ultimate goal. When the operational dimension is controlled horizontally, it will form a complex network structure that generates numerous key nodes which will affect the output.

3-3 The evaluation formula for the elements of cultural core

Cultural elements should be selected appropriately to find the most fitting core elements that can be a standard to measure the value of the elements of cultural core that are worth being developed and possess high level of competitiveness to enhance financial ability and increase job opportunities in order to improve the living environment.

This research defines the main three culture-oriented elements are the accumulated cultural assets, richness, and uniqueness. Hence, this research applies Porter's (1980) industrial competitiveness as the blueprint and the cultural uniqueness as reference.

Based on Ming-Chyuan Ho's (2004) Mind Design Formula (i.e., $V = M \div C$), which includes three main supporting elements, this research defines value as the multiplication between uniqueness and magnificence. While culture is defined as cultural cost, which can be measured by the investment cost divided by the cultural power. Based on the derivation of these formulas, the value of cultural industry is determined by four factors as follows: Uniqueness (U), Magnificence (M), Pc (Cultural Power), and Investment Cost (C).

$$V = \frac{U \times M \times Pc}{C}$$

Figure 2: The formula for calculating the value of cultural industry

In this context, the cultural power is the cultural cost, which includes the cultural cognition, penetration, contagion, influences, etc. The more dominant culture a nation or group or tribe has, the higher cultural power it will have. In simpler way, it can be said that the cultural power is the combination amongst authority, national power, manpower, financial power, and so on. Hence, the most significant measurement index of culture-oriented creative industry is the magnificence, uniqueness, and cultural power. When the investment cost is the same, selecting the appropriate stake (for the culture-oriented elements) in order to achieve the highest cultural value requires in-depth research. This formula assists to compare and analyze the advantage and disadvantage of each cultural element, of which eventually will enhance the industrial competitiveness.

4. Case analysis and field survey

The case analysis in this research is based on the cultural tourism, sightseeing, and other forms of creative industry. The selecting priority is cases with more diverse resources, opera-

tion, and output. The selected cases were investigated individually and then compared altogether. By establishing a complete framework, it will be easier to analyze and compare the development of other creative industries, such as Taiwan's five major cultural parks, community-based cultural industries, cultural management industry, personal art studio, and other similar cases.

The investigation methods are field surveys on the cultural industry parks and in-depth interviews with the key persons. The results of these investigations are applied to revise the research framework and operations. Field surveys are conducted both domestically and internationally, including natural landscapes, sacred temples, cultural landscapes, industrial culture, creativity development, and so on. The analysis of Mazu Ancestral Temple in Meizhou Island is as follows:

4-1 Cultural element - case analysis on Mazu Ancestral Temple in Meizhou Island

According to the researcher's personal observation and survey, it was found that the Mazu Ancestral Temple has its own representative elements and operational models on each of the cultural, social, artificial, and ideological dimensions. Hence, it is possible to analyze the tangible and intangible cultural assets, or the value-added operational model of a culture-oriented creative industry. Each dimension is intertwined and hence generates a complex development model.

1. Natural culture: Based on the geography, Meizhou Island is the birthplace and origin of Mazu, which has the irreplaceable natural culture position.

2. Socio-culture: Based on the religious attributes, analysis to understand the social dimension can be done through the perspectives of belief, rituals, activities, folklore, and culture.

3. Ideological culture: According to geography and human's space, ideological culture includes the temple, islanders, fishers, citizens, and even the deity, in order to understand the cultural connotations, such as its expansion, penetration, value-added, conversion, sublimation, and other circumstances.

4. Artificial culture: Based on its contents and forms, artificial culture can be services, utensils, arts, architecture, and industries that explain the development trajectories of both tangible and intangible creative industries.

The Mazu elements influence each other and thus generate a complex development model. According to the analyses on other cultural industries, Meizhou's Mazu Ancestral Temple possesses the richest and most various dimensions.

4-2 Research analysis – the five dimension value

It has always been difficult to obtain data regarding the operational methods. Hence, analysis on the operation is conducted to investigate the output value in order to acquire objective data.

Based on the marketing theory, product layers consist of core product, basic product, expected product, augmented product, and potential product. By applying the same theory on the cultural value dimensions, value layers consists of basic value, augmented value, expanded value, expected value, and potential value. According to the case analysis on the Mazu Ancestral

Temple in Meizhou Island, the value synthesis on the five opera-
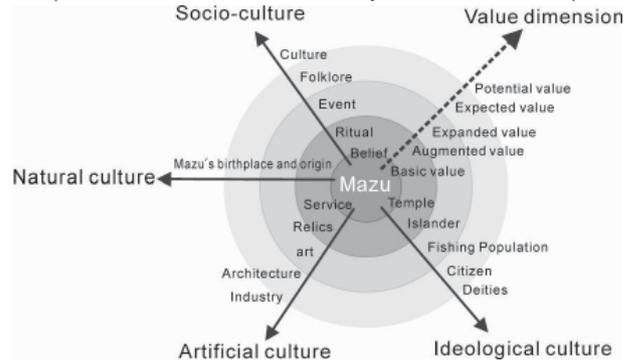
The core of Figure 3 is Mazu and the Ancestral Temple, of which is diverged to fit the concept of industrial value, to collect related data in order to analyze the development model of a culture-oriented creative industry. According to the investigations and field surveys, the development model of Mazu's cultural creative industry is illustrated in the Table 5 as follows:

Table 5: Analysis and operation of cultural elements of the Mazu religion in Meizhou

Cultural elements	Value dimension	Integrated operational method
Natural culture Meizhou Island: Mazu's birthplace and origin	Basic value: Locale (Mazu cultural park) Augmented value: Path (ocean) Expanded value: Value-added land	Event operation: Cruises (ritual for emotional transformation and praying for blessings) Object operation: Isolated areas, value-added land, monopolistic business, ferry
Socio-culture Belief Ritual Event Folklore Culture	Basic value: Establishment of religious service centers Enhanced value: Fixed rituals and activities Extended value: Peace lanterns, regular pilgrimage Expected value: Life purification, safety assurance	People operation: Lin Mo-Niang's good deed to save people in the sea based on the zhong xiao jie yi (loyalty, filial piety, integrity, fairness) has become a mythology Event operation: Holding the worship ceremony for protecting the coastal guards, close interaction between the deity statues and humans, taking photographs as memories, etc. Object operation: Establishment of deity statues and images, establishment of international religious centers, peace lamps, peace rice, and peace symbol, and so on.
Artificial culture Story Relics Architecture Service Industry	Basic value: The story of zhong, xiao, jie, yi (loyalty, filial piety, integrity, fairness) Augmented value: Statue, costumes, hairstyles, architecture, inscriptions, etc. Expanded value: Founding peripheral organizations, establishing sub-brand, service standardization	People operation: Numerical adoption of Mazu's birthday (i.e. 3/23), entrance and temple doors have 323 steps, and proportion applied on the architecture is also 323. Event operation: Ritualization of protection methods, pilgrimage in the main island, however the replicas in other islands also have worships and pilgrimages, and so on. Object operation: Passing traditions and information, such as preserving the temples, Lin Mo-Niang's hairstyle, costumes, books, literature compilation, etc.
Ideological culture Temple Islander Fishing Population Citizen Deities	Basic value: Slogans Augmented value: Blessing from famous religious figures Expanded value: Public participation for the dedication Expected value: Vision of golden Buddha statue	People operation: The previous emperors canonized the up to 64 noble titles for the queen, concubines, and the cabinet, these events were also documented in paintings Object operation: Building new temples with golden casts

The above-mentioned examples are the most distinguishable ones. In fact, there are many unmentioned minor examples. The concrete examples above can be applied as reference for question items in the questionnaire, in-depth interviews, and qualitative evaluation. The current analyses merely proposed the conceptual prototype. Furthermore, more case analyses will be conducted for comparisons in the future.

5. Conclusions

The framework proposed in this study is the result of individual research based on the literature review, field survey, and in-depth interview. This research investigates on the culture and how its dimensions relate to each other and build the cultural creative industry model. Thus, it is pos-

sible to review the qualities of the current cultural industry. Moreover, this research also contributes to the development of the cultural industry by providing references. Furthermore, further researches about the establishment of appraisal index and control mechanism for cultural creative industry are possible due to the fact that this research might not provide thorough results and there is space for improvement.

Conclusions of this research are as follows:

1. The main elements of culture-oriented creative industry:

This research proposes a definition of the cultural core elements of a creative industry. It defines the cultural core elements as the investment of resource dimension that consists of the following four core elements: natural culture, socio-culture, artificial culture, and ideological culture.

2. The model framework of a culture-oriented creative

industry:

Through the literature review, industrial investigation, case studies and expert interviews, three dimensions of the creative industry are established as follows: resource, operational, and output dimensions. The resource dimension includes the natural culture, socio-culture, artificial culture, and ideological culture. The operation dimension consists of the multi-P operational strategy. While the output dimension consists of the 5W1H's output framework. These three dimensions create a complex network structure and establish the model of a culture-oriented cultural industry.

3. Investigation on the interactions amongst each dimension:

This research not only establishes the model of a culture-oriented creative industry, but also investigates on the causal relationships amongst each dimension and each key factor to discover the key success and failure factors. The complete model of the new industry is aimed to investigate the current industrial value and provide a reference for industrial development, fusion, transformation and maintenance in the future. Hence, this research suggests that a holistic analysis of industrial value of current or prospective creative industry can be a worth researching topic in the future.

4. The value dimension of the culture-oriented creative industry:

This research proposes the five dimensions of cultural element, which consist of basic value, augmented value, expanded value, expected value, and potential value. These five dimensions range from the shallow to deep, and concrete to abstract. The dimension values of cultural elements will be applied to regularize, theorize, realize, and analyze each value and eventually evaluate the standard.

5. The evaluation index for culture-oriented context:

This research proposes the six dimensional analytic framework of cultural element in order to analyze the adaptability, optimizability, independence, and dependability, of which are divided into three static dimensions (i.e., cultural width, cultural depth, and cultural height) and three dynamic dimensions (i.e., direction, speed, and type). This six dimensional analytic framework can evaluate the potential of cultural elements of an industry and acquire the key elements for further industrial development.

6. The sustainability and management of cultural elements:

In the era of aesthetic economy, culture and industry have an intimate relationship. As for the industry, culture can value-add and thus create the core value of a product. In the same context, for culture, industry is the energy that promotes and develops the culture. Lin Rung-Tai stated that culture is the past, innovation is the future, and industry is the present. The cultural industry influences our daily life and thus forms a lifestyle, which also plays an important role in the industry itself. Hence, establishment of cultural value measurement index contributes to evaluate the values and predict the possible scope of development of a creative industry. This research aims to establish the model of a new industry, investigate the

current industrial values, as well as provide reference for further researches on the industrial development, fusion, transformation, and maintenance.

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Yu-Shan Tseng[1], Ming-Chyuan Ho[2],
Design for the Individual needs

Abstract

As social economics develops and science and technology progresses, manufacturing modes and people's living styles have changed tremendously. Designers of the 21st century no longer pursue large-quantity of products but products that meet customers' personal needs. In addition to the basic functions, products should meet customers' demands on showing their unique tastes, hobbies, personalities or differences from others. The design for customers' individual needs shows customer's diversity among the crowd and meanwhile expresses personality and style to others. This research discussed design principles, methods and strategies for the design of customer's personalized products in the existing market. Consumers are creating their images of who they are through their dressings, food, cars and entertainment styles. Individualized items are produced in response to this consumption trend. Therefore, it's very necessary to develop an efficient individualized design mode. As individualized design will be a consuming mode of new age, it may be a worth trying innovative mode that accommodates customers' individualized needs.

1. Individualized design era

With an increasing subjective consciousness, customers gradually turn from rational consumption to emotional consumption, and request products to be diversified, differentiated and individualized. The concept of individualized design is to make mass products with unique and different design. Individualized design develops from group design into individualized design, changes mass production mode of industry and evolves into a product design mode emphasizing on individual styles.

Modern consumers are pursuing products which can express customers' images rather than products just with functions or aesthetic perception. People create their images of who they are and unique peculiarities via their dressings, food, cars or entertainment styles, which are outside appearances reflecting people's image, personality and taste. Therefore, individualized products are produced because of this consumption trend. Synder and Fromkin (1980) state that persons vary in their need to feel distinct from others. That's because people want to be so different from others who are using general products. Business owners launch design strategies and systems of customized products to promote their commercial competitiveness, and produce customized products for specific consumers to meet their demands. Solomon (1983) also points that a product appearance helps shape the image of the users. Users' self awareness and styles are showed on product design that makes varieties from general products. The duties of designers are to find suitable images, signs and colors for customers through information provided by them so that the information can represent customers' taste. As a result, 21st century is the time for people to require unique individualized designs and individualized marketing.

2. Differences between customization and individualization

In the industrial revolution of late 18th century, hand-tool production was replaced machinery production, which made the way of production faster and more accurate. In the beginning of 20th century, this kind of production method could not satisfy huge marketing needs. The so-called "mass production" was developed in the production systems of industrial countries, mainly referred to the US. Mass production means lower cost and lower selling price, so the average customers are able to buy these products. With the change of economy and social environment, customers are changing their demands of products and services. Mass production is being challenged, for example, the gradual change of demands on "unified and large-quantity" products into demands on "diversified and small-quantity" products. Diversity and customization are playing key roles in the production

instead of unified and standard producing mode. Davis (1989) thinks that customization is using information technology as main production cost to produce individualized goods and to meet every customer's needs.

The core idea of mass customization is to provide a web-based user toolkit that allows the individual customer to design a product which suits her individual preferences and is then produced exclusively for her (Nikolaus Franke & Martin Schreier 2008). For instance: Dell provides modularized components for customized products and services, so customers can make orders of products or services which meeting their needs on the Internet. Then Dell sends these orders to manufactures via the Internet and customers will receive the customized computer later. Customized product design can meet all kind of consumer needs and likes. It is efficient to use existing modules to change shapes or colors of products and make a customized production. Different color combinations are able to design various products with different styles or images. The meaning of individualization is defined by Prahalad and Ramaswamy(2000) who claim individualization means the co-creation of the experience including real interaction, while customization means selecting from various existing features. Individualization requires knowing customer's needs even deeper under customization structure.

The basic concept of mass customization allows enterprises to produce in huge amount and generate products in terms of individual client's demands. Individualized design allows customers to become co-creators of products or services through their individual experiences. Although mass production is a major mode, some enterprises provide individualized and innovated services to meet customers' needs as market strategies to promote their competitive when enterprises understand customers' thoughts that customers don't want to have the same products as others. Individualized product is a way for customers to show their unique personality, as well as a kind of design service which psychologically meets customer's sense of self actualization. In 1970 Maslow presented the theory which divided needs into five hierarchies. It is a bottom-up hierarchy, which means only when the lower-level need is met will the next-level need show up.

It is like shopping when customers are satisfied the lower level productions from basic physiological needs, safety, social relationship, and esteem to self actualization. Customers have different life styles and consumption behaviors in different levels. An example of automobile making mode shows that mass production of cheaper cars meet customers basic needs and safety needs. When basic needs are met consumers will require a higher need such as social relationship or esteem. They will be chasing big brand, electronic equipments, petrol saver and environment friendly etc. Then customers go into even higher level of self actualization: top exclusive vehicles, limited offers, customized supplies, and individualized products. These needs are for customers' chasing higher individual differences besides esteem. Using Maslow's model of the optimization of human satisfaction through the hierarchy of needs and Hancock's hierarchy of ergonomics needs in production mode as cross reference we can know individualization belongs to self actualization needs in

Maslow's model (see Fig1). Customers chased cheaper products with good qualities during early mass production years. And now they are chasing individualized products for self actualiza-
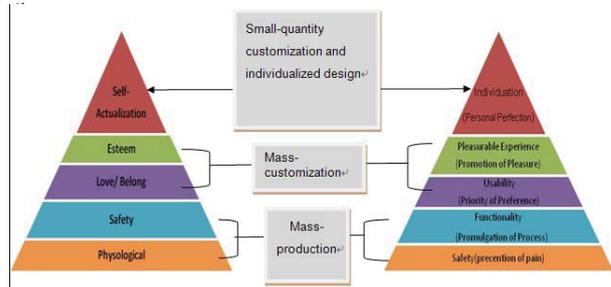
Fig. 1: Production mode corresponding to Maslow's Need-hierarchy theory and Hankcock's hierarchy of ergonomic needs.

Products do not only have functions but also have true value in meeting person's emotional needs. The most important thing is to establish self actualization and social position (Norman, 2005). The individualized shape design of products is based on customers' individual differences and thus generates novel products representing these differences. Individualized products not only deliver designers' concepts or ideas to consumers but also show consumers' personalities and connotations to public (Xu, Z.W., 2008). Just like watches which are in the name of social position and taste rather than the function of telling time to modern people. Therefore, the consumption concepts of 'I am what I wear', 'I am what I eat', 'the house I live', 'the vehicles I drive' and 'the culture I belong' are the ways for customers to show their personalities.

3. The method and strategy of Individualized design

As society advances, "mass" consumption pattern has changed into "de-massified" or "niche" pattern in current consumption market, and people's consumption is not just material consumption but has gradually transferred to imagery consumption. Therefore, symbolism of products design is getting more and more important, and human-oriented design idea has become an inevitable trend. As business strategy differentiation has become the key to success for enterprises or brands in this new economical time, customized product or service is a differentiated marketing strategy directed towards meeting consumers' needs. It changes traditional "one-to-many" marketing strategy into "one-to-one" strategy so as to satisfy different clients' individual needs.

On product design point of view, traditional design method pursues the commonness of design. Designers use self-experience and design method to achieve the uniformity and popularity of mass production. Individualized design is similar to the general product design, but consumer demand is centered design concept for it. Designers are forced to take consumer demands, such us consumption levels, specific forms, colors, flavors, brands, etc., into consideration. Understanding these factors can help designers look for inspirations so as to transform them

into individualized products based on consumer demands. Therefore, designers play a quite important role in products design. They endow products with individuality and communication ability, and make products have emotional connection with their users. In other words, modern product design should not be just a process of designing and developing early article shape but a design activity relevant with emotion. Modern designers should design with full consideration of influences of emotional factors and grasp emotional orientation, so as to generate products that can indeed communicate with human.

In current individualized design strategy, most of them are processed under the limited form with a restrictive design. For example, designers use the Internet as a communication platform for consumers to create an individual characteristic in shoes. Through interactive 3D software, consumers are able to choose types of shoes or colors in a limited selection to complete their own design. A consumer involved in the design is the most common type of individualized design strategy but are they entirely satisfied with the design results which under these design constraints? As we know, individualized design deals with personal information, perception and expectation. Designers use their understanding and aesthetic transformation of products to give products a new form life, so they must know customers' expectation and requirement through proper and sufficient communication to meet consumers' personal and diverse needs through different design channels such as a sense of touch or sight, materials, types, and so forth. We can see from the interactive communication mode between customers and designers that the more common consensus the more overlapping in between, as shown in Fig.2. As a result, in the individual design process, communication will play an important role as well as help designers make correct design decisions.
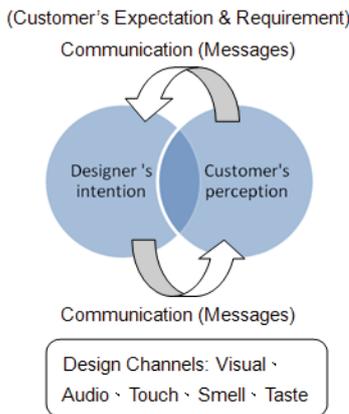
Fig. 2: Interactive communication mode of customer and designer
(sorted out by the author).

4. Cases of individualized designs

Consumers acquire and display material possessions for the purpose of feeling differentiated from other people (Tian et al. 2001), and product development is a process of transforming one's desire into a product that realizes this desire (Donald c. Gause 2007). For individualized design, the most important thing is to know consumers' needs.

Under the trend of consumer-oriented design, manufacturers provide customized service. On some websites, enterprises adopt marketing strategy that can generate individualized goods. For example, on the website, NikeiD (see Fig.3) provides an operation interface where consumers can participate in designing customized sports bag, change the colors of the bag, and print any character on the side of the bag as they want.
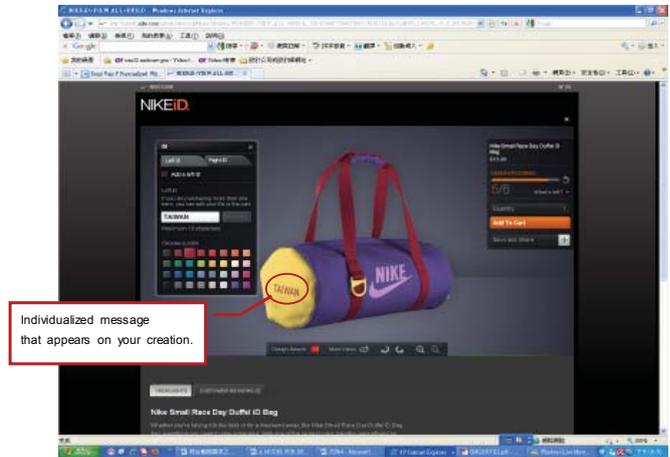
Fig. 3: NIKEiD offers consumers a platform to participate in design.

Another common customized design is uploading photos to websites. For example, Zazzle internet store in Fig.4, provides various kinds of customized design services. On this website, consumers can customize T-shirt, shoes, pets' clothes and even individualized stamps. Take customized mug design as example. Consumers can choose the mug sort they like, upload the photo, set the placement, as well as resize and preview the photo. After determining the design, they can send out relevant information so as to finish the customization. Such diversified and small-quantity customized service make consumers can choose to give out these products as gifts or use for themselves.

Fig. 4: Customized design of mugs.

Besides, there is also a kind of customized design for impersonal groups. For example, the website in Fig.5, customizes relevant peripheral products especially for bars,

such as wine glass, bottle opener, etc, and restricts the quantity of customization.

Fig.5: LogoBar Product Mass-customized bottle opener on the website.

Individualized design strategy is also applied in automobile industry,as shown in Fig.6. Ford motor company launches cars with individualized outward graphics design, hoping that consumer can have individualized graphics on the simple surface of the car to show their characters. During the customization process, consumers first choose the color of the car. After choosing the pattern or color they like in terms of the information on the website, they will see the code name and price of this pattern. Once they take this code name to the distributor, someone will stick the pattern on the car.

Fig.6: Ford custom Graphic. Consumers choose personalized stickers and stick them on the surface of the car.

From above design cases we know that enterprises are gradually realizing the importance of consumers' participation in design. Popularity of network makes this design form possible. Through network, consumers can involve in a half-real participative design. As network features timeliness and openness, consumers can easily design and modify products according to their individual aesthetic taste and preference on Internet at any place, and obtain expected personalized products as much as possible. However, the individualized designs provided on these websites are mainly restricted to pattern overprinting and changes in colors or some materials. The modifiable options are all predetermined and consumers can only operate under limited interfaces.

At present, the satisfying of individualized needs is mostly achieved with limited options of limited products that are

prescribed by designers or enterprises. Therefore, the product is not really designed according to consumers' individual personality and can only be called limited customized design. It is inevasible to get design identical with others'. What we pursue is individualized design directed towards consumers' needs, but the design methods and strategies in current market are not real individualized designs and can not completely meet consumers' individual needs. As Norman (2005) says, something that is personalized means that it expresses a sense of ownership and pride and possesses some individual emotions. He also says that as mass customized products are confined to choosing components, accessories and colors, and this kind of customization is a little distant from individualization.

Nowadays, people want to use products that can express their personalized pursuits and attitudes toward life. As every one's life background, experience and personal preference is different from others, his/her attitude toward individualized products is also not the same with others. Understanding consumers' latent desires for product form has become an important issue in the product design community (Chang H.C. 2006). For example, some people are naturally simple and like nature-style design; someone favors enthusiastic and colorful images to show individual characters; some prefer practical design. In a certain sense, the whole design process is a process of "making materials emotionalized" just as individualized design. When conducting individualized design, designers make proper decisions about the shape, material, color, voice, texture and interactive aspects, and then create a specific product that consumer can identify its special features Ruth Mugge 2007 .

5. Conclusion

Consumers are increasingly pursuing individualized and emotionalized goods and common mass merchandise can not satisfy them any more. Individualized design directed towards consumers' needs has become the design trend and new design service. The implementation of individualized design means that consumers and designers design their own individualized products together. Although it is said that consumers customize the shoes or bags of one brand and really make choice, they can only change the color, material or pattern with shapes being confined to some certain types. To meet current personalized needs, manufacturers and designers' common design strategy is to provide consumers some preset options. Such personalized design method is always based on common people's preferences, lacks communication and does not actually know consumers' needs, so it is not effective individualized design. Communication is the most important strategy for implementing individualized design.

Huber and Richard (1987) point out that "being face to face" is the most effective way of communication. However, face to face communication is hardly realized due to space and time limitations, so other manners are used. If designers or enterprises can know different consumers' personality characteristics, preferences and demands, they can achieve

individualized design effectively. Therefore, we can formulate a scale for measuring consumers' personality and communication meaning, i.e. a coded scale. Then, through code translation, this scale can be changed into important references for design process. During the process of designing and developing personalized products, knowing demands is an important task for designers to accomplish the design of personalized goods, because designers' time schedule of design procedures and consumers' identification with the goods make key impacts. Improper communication will lead to a waste of time and costs.

In recent years, consumers' personalized demands are not confined to a pursuit of fashionable appearance as their consumption ideas are more and more mature. It is a consumption trend to possess "complete-conformity" individualized products besides products with diversified and practical functions. At present, individualized design has become a Blue Ocean Strategy as it is for meeting consumers' needs. Consumers involve in design integrated with their personal emotions and preferences, and fully present the products with assistance from designers. For them, participating in design is a sense of self-realization. Designers must know consumers' needs, life styles and consuming behaviors. As consumers' demands on products and services are diversified, traditional production strategy should be changed, so as to provide competitive products and services and meet customers' diversified needs (Tu, J.C., 2004).

Modern designers should adjust the degree of their participations in design process, listen to consumers' internal voices and leave a space for consumers to participate in products design. In this way, products can better express consumers' individualized personality and emotion and become really individualized, as people hope to present their distinctive life attitude through these living goods and life styles. As more and more consumers desire to realize their own demands, knowing consumers' needs will be a necessary design strategy for generating individualized products in this consumer-centered age.

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Mary Maina
Social innovation through co-design:
selected cases from South Africa

Abstract

This paper looks at the integration of consumers and end-users at the conceptual level in diverse design settings in surface and interior design. Under the theme social-economics and design, the efficient use of physical, social and economic resources is crucial. A system that empowers creative communities in the organic cotton farming production areas in rural South Africa is the one of the desired outcomes. Additionally, this paper explores the integration of sustainable principles in the office workplace in Cape Town. To achieve these stated objectives a qualitative approach shall be adopted whereby instruments such as interviews; observations; audits and using the MEPSS toolkit are employed - these methods are intrinsically user-centred and move beyond the traditional product-focus to address services and systems-specific implications on surface and interior design praxis. The resultant design interventions are catalysts for social innovation. These catalysts would promote efficient use of natural resources with more convivial social interaction within organic cotton farming and the office workplace.

Key words

co-design (user-centred), design for sustainability, office workplace, organic cotton, social innovation.

Introduction

Social innovation refers to changes in the way individuals or communities act to solve a problem or to generate new opportunities (Manzini & Jégou, 2008:29). If then the community or society can be viewed as the 'client of the designer', co-design can then be used to link the various actors during the conceptual stage of designing (Chapman & Gant, 2007).

According to Fuad (2004), "artists and designers are called upon to consider the nature of the change, to respond creatively and investigate ways of reconciling evolving understandings with the expressions and artefacts of art and design". To be relevant to the existing culture, such explorations must be unencumbered by many of the conventions of the past. Chapman and Gant (2007) challenge the current binary designer-client ethical code to be more inclusive of the society at large. This paradigm shift

sees the occupant and consumer playing a more prominent role in the culmination of a design intervention.

According to Sholtz (2010), the City of Cape Town through initiatives like The Green Building Commission of South Africa (GBCSA) has initialised sustainability audits in office buildings within the Central Business District (CBD). Changing user behaviours is perhaps the most challenging aspect of project management. Pyke et al. (2010) observes a systematic attention to human experience and health outcomes as explicitly testable phenomena that lag behind in terms of empirical data collection in built environments, which focus instead on physical attributes and environmental performance such as energy and water consumption. Sustainability requires effective monitoring, internalising energy-saving behaviour that requires not only to educate and train but to induce changes as well-designed programs to sustain them.

In aspiring to efficiently use our natural resources and improve human well-being, organic cotton farming has been piloted in rural South Africa by Cotton South Africa. Organic cotton is defined by Gordon and Hsieh (2007:130) as "... cotton that is grown without the use of any synthetically compounded chemicals (i.e. pesticides, plant growth regulators, defoliants etc.) and fertilizers." Organic cotton does not merely contribute to the environmental principle, it also considers the socio-ethical and economic equity.

Therefore, it can be through these conscious behavioural changes in the network of organic cotton farming that sustainability can be promoted. These changes can be seen to be similarly advocated through collaborative networks in office design. By integrating the perspective of the occupant and the farmer as co-designers the networks created can be seen as catalysts for social innovation. Through these catalysts, sustainability can be used as a tool to promote human well-being and increase knowledge transfer within stakeholder engagement. In order to tap into the existing human resource and enable design to meet our needs for human well-being, "improved participation and communication should be envisaged" (Chapman & Gant, 2007:41). This would lead to a production of "information on feed-back on the end-user's consumption behaviour thus providing a platform for increased education and training of actors in the network. Moreover, it can be used to promote tools that bring about a conscious behaviour change" (Anon, 2007:32). Thus using sustainability as a link this paper will endeavour to bring to the fore human experiences and inter-relationships though the study of two cases; the office workplace and the organic cotton farming project.

The role of sustainability in design practice

Design for sustainability (DfS) in context to its social aspect is used as a lens to create healthy indoor environments for the occupant in an office setting. This is done by allowing the occupant to be a part of the design process from concept through to design implementation. Through the influence of the end users' needs and wants a designer can integrate features into the office design that would be mutually beneficial for the organisation and the occupant. This is because a healthy indoor environment perpetuates better productivity. Similarly, DfS can serve as a facilitating principle in restoring and humanising the disconnected link between the key actors in a value chain, especially with cotton farmers and the consumer. By engaging these actors as co-designers and implementing the co-designed interventions within the identified farming communities, it could contribute to more sustainable purchase behaviours and the support of small-scale organic cotton farmers in the rural communities.

"These emerging, interwoven networks of individual people, enterprises, non-profit organizations, local and global institutions that use their creativity and entrepreneurship to solve problems, to open new possibilities can be seen to be taking some concrete steps towards sustainability" (Manzini, 2007).

DfS can therefore be seen to play a larger role; firstly in the office workplace, to being more than just a tool when just choosing green materials. It also constitutes areas concerning saving energy; reducing management costs in terms of equipment and reducing the carbon footprint of an organisation through innovative sustainable initiatives, all which fall under interior environmental systems. These systems include: heating, ventilation and air conditioning; water supply and sanitary drainage; electrical power and lighting; room acoustics and noise control. Bluyseen (2010) states that, "the WHO concept of health became significant for identifying the concept of a "healthy building" in terms of building performances: i.e. indoor air quality, thermal comfort, lighting quality and acoustics". In integrating sustainability into the implementations of these systems, interior design can take up a new paradigm shift by integrating management, service design and product life cycle principles into the design process.

Secondly in organic cotton farming, DfS improves the ecological stability; the cultivation of organic cotton is conducted without using any synthetic fertilisers, pesticides and genetically modified seeds. This results in less environmental pollution of groundwater, rivers and the soil (NCPC, 2003) and less physical health risks for farmers and their community. At the same time the economic conditions are improved; the identified organic cotton farmers in South Africa earn approximately 40 percent more per kilogram cotton compared to conventional ones. According to Black (2008: 114) "…it will take a consumer and manufacturing revolution for organic cotton to become a mainstream product… as a significant portion of all clothing is made of cotton (around 60 percent), this is where one of the greatest environmental and ethical impacts for change can be made." By working towards the ecological stability and economic viability, DfS are already working towards social innovation (Vezzoli & Manzini, 2008).

By ensuring a healthy indoor environment, the economic and environmental aspects of sustainability are positively influenced. The reduction of energy use means low building maintenance for the organisation. This in turn would reflect on the environment by the building emitting lower carbon-dioxide (CO2) emissions. This cyclic cause and effect is initially begun by the occupant's willingness to take part in the installed systems and the organisation's investment on these said system. Similarly, the farmer's awareness of the function played by the actors in the value chain and the importance of their own role is important. By engaging all actors within the network, the efficacy and efficiency of these proposed networks can be improved.

Design WITH, FOR and BY society

Desig ners then have to recognize promising cases of social innovation, to make them more visible and to better understand them (that is: their strengths and qualities, on one side, and their weak points and difficulties, on the other). By working with the principle, 'Design in the designing networks', designers can participate in peer-to-peer with other involved actors in the generation of more efficient, accessible and promising initiatives. In this modality designers have to consider themselves as social actors endowed with specific design knowledge and skills to facilitate the convergence of different actors towards shared ideas and potential solutions. That is, to promote and enhance specific co-design processes (Manzini, 2007).

Bearing its roots in participatory design, co-design, which is according to Chapman and Gant (2007), a fruit of the labour movement in Scandinavia in the 1950s and it has gone through various evolutions. With its essence at being a design approach predicated on the concept that people who ultimately use a designed artefact are entitled to have a voice in determining how the artefact is designed. It also involves a mutual learning in a multi-stakeholder (actor) engagement. One of these evolutions is 'transformation design' done by the RED group at the UK Design Council (Burns et al., 2006).

Another parallel movement to that of co-design that sees its root at the heart of the African culture is Ubuntu. M'Rithaa (2009) asserts that participation enables a person to reaffirm their own personhood and humanness through interaction with, and contribution into other peoples' lives. This people-centred, inclusive and participative spirit of Ubuntu is what Africa shares with the rest of humanity (ibid). This means not merely acting individually towards one's own endeavours, but as a collective to bring about change that benefits the society as a whole. Ubuntu can be seen to work within similar principles of both co-design and transformation design. Therefore, in the culmination of co-design in design practice, in context to South Africa, Ubuntu can inform the quest for sustainable expressions of social equity and cohesion.

Social innovation in a developing context

With the evolution of co-design in the UK to transformation design, saw the design process being informed by the end-user and involving a multi-stakeholder (actor) engagement. This combination of 'products, services and the various actors' who necessitate the systems is a similar principle applied to PSS (Manzini, 2004; Burns et al., 2006). Within these systems the

involvement of the end-user and creation of collobrative communities where there can be an exchange of information is a basic foundation. In this light, 'the creation of innovative ways to solve problems and create cohesion and can be seen as a birth of social innovation' (Manzini, 2004; Chapman & Gant, 2007).

Therefore, as mentioned in the previous sections, with the involvement of the occupant not only as the person who uses the artefact, but inclusive of those who get affected by the presence of it, a designers' role becomes one of initiating change in society. The integration of ubuntu into the design process adds the cultural dynamic into the artefacts (M'Rithaa, 2009). Through this engagement of actors that are involved either directly or indirectly in the creation of the built environment, a holistic design can be achieved. These adaptations can be seen in the areas of 'work'. Creative communities of actors from various cultures, ethnic backgrounds, political and social backgrounds, present a system network involving an engagement at various levels.

One such community is the rural organic cotton farmers. Through the direct connections created between the consumer and cotton farmer, the relationship between these key actors can be humanised and the rural small-scale farmers' livelihood can be improved. By engaging these actors as co-designers and implementing the co-designed interventions within the identified farming communities, co-design can contribute to more sustainable purchase behaviour and the support of small-scale organic cotton farmers. Through co-design there can be an increase of transparency in the value chain that could bring the key actors in the value chain closer together. It therefore, has the potential to empower people to live more sustainably while at the same time supporting and interacting with rural small-scale organic cotton farming communities.

Another such community may be seen in the office workplace, which is designed as a functional space that reflects the image, culture and carries meaning for the organisation within. These principles of design are stated by Ching (2005) as a road map to good design. The forms that the artefacts may take are: lighting, furniture, material finishes, space allocations and amenities, is something the client (organisation) and the designer decides. The occupant of these offices often does not have a say as a participant in the design of the space they will eventually occupy. The creation of an indoor environment that looks at aforementioned values whilst including sustainability principles to the features and components, should ideally take into account the occupant's experience.

Entrepreneurship though the social and public domains

Social entrepreneurs are described by Dees as (2001:4) "change agents in the social sector who; adopt a mission to create and maintain social value, recognize and relentlessly pursue to serve that mission while engaging in process of continuous innovation, adaptation and learning. In addition to this they act boldly without being limited by the resources at currently in hand and exhibit heightened accountability to the constituencies served and for the outcomes created." While, according to Klein

et al. (2009) public entrepreneurship "identifies goals, establishes terms, and otherwise sets a framework for the pursuit of private interests and other public interests. Public entrepreneurship establishes rules of the game (for good or ill), and private entrepreneurship is the play of the game".

Social and public entrepreneurship can be used as vehicles to drive social innovation though interconnecting communities through awareness initiatives. This platform is one that the provincial government allies with as it enhances collaboration and promotes knowledge transfer, enabling actors within the network to empower themselves. Through these collaborations both public and private interests can be aligned with each other through the principles of ubuntu to ensure a gainful venture for involved actors (Anon 3, 2010).

Methodology

Design is about people and their surroundings, placing people first in every endeavour. To better understand how and why occupants of a space interact in a certain way with their environment, a research approach that is based on a subjective stance is used. As stated by Creswell et al. (2007:54)"The subjective view of the world derives from the assumption that while the social world is perceived as external to individual cognition, it is made up names, concepts and labels that are social and historical creations – human-constructed entities." Within this subjective view lies the qualitative research method. From an interpretivist-constructivist position a case study, in the Central Business District (CBD) offices of Basilieus Capital, was conducted. In this same light of approaching from a qualitative research approach, the case study of the organic cotton farming uses a participatory design approach from an ethnographic's position. Accroding to Jacko and Stephanidis (2003:89), such participatory approaches "seek to involve users more deeply in the process as co-designers by empowering them to propose and generate design alternatives themselves." An ethnographic method was employed to collect data from the identified farmers. This method studies the 'natives' point of view in a natural setting in order to understand farming community behavior, daily life and at the same time design systems that will support the communities activities.

Objective

The fundamental objective of design is to enhance the lives of the various actors in the network of the design process. This is important in both the production of raw materials as is the case in the organic cotton farming case study; or the consumption of these goods as is seen in the office workplace case study. Embedded in this is the concern arising from the integration of the worker/occupant in each of the cases. These actors have in the past been receivers of the end product of the design process, and not necessarily an active member of the process. It is therefore from this concern that the main objective arose; that is to engage the farmer/occupant while humanising this engagement through the adaptation of ubuntu principles.

Sequentially, sustainability of both the process and materials used to attain the final product/service should be guided by principles of DfS. The processes used to ensure that the workers at the organic cotton farms play a role can be implemented by using public entrepreneurship with government as the driving force. Additionally, the designer can play the role of being a social entrepreneur by integrating the occupant's experiences in the office workplace design. The designer in both these instances works together with the worker/occupant to enable them to engage actively within the system and add value to the design process.

Case study one: The role of the occupant in office workplace design

Overview of the case study

The organisation under consideration is a young equity company whose competencies are in investing in local entrepreneurs in industrial and natural resource ventures.

`An engagement with occupants in the design-process network

This involved the ascertaining of knowledge about indoor environmental systems. This was done through interviews, observations, physical artefacts and journaling. The basis of this was to perform an informal post-occupancy audit of the workplace after the installation of the energy saving lighting devices. Through these techniques the occupant's experience was noted. Figure 1 depicts the actors in the network who are seen to have direct influence on the occupants' expression of their experience in the office workplace.
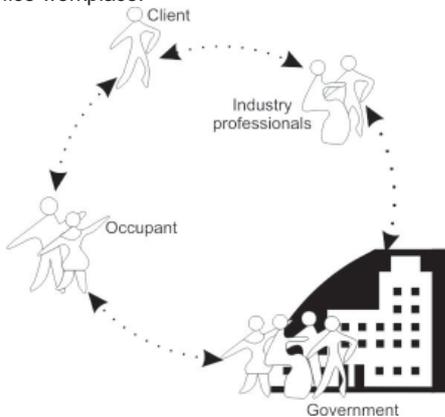

Figure 1: Interaction map: stakeholder engagement in the design process of the office workplace (Maina, 2010)

During the case study, Bluyssen's (2010:816) framework for health and comfort as shown below was adopted.

Figure 1: Framework for health and comfort (Bluyssen, 2010: 816)

Interviews

During the unstructured interviews and in-depth interviews an interview schedule was appropriated to guide the conversation. This included both level 1 and 2 questions which are used in reference to Yin's (2009) principles of questioning interviewees. The level 1 question is asked directly to the interviewee; verbal line of inquiry, while level 2 questions are asked of the individual case; mental line of inquiry. These interviews were performed to ascertain the technology used to ensure efficient use of energy; the technical detail passed on to the client and thereafter the occupant from the industry professional and to note the impact of the any, or lack thereof, of knowledge transfer. The main indicator in IEQ observed was; visual quality, as this was the aspect retro-fitted in the office workplace.

Observations

The observations included: shared offices, single cell offices and transitional spaces.

Figure 2: photographic observations of the case study (Maina, 2010)

Journaling

'Full descriptions of ones own experience which can be bracketed off from those of the interviewees' is one technique that can be used to ascertain 'construct validity by ensuring different sources are differentiated'. This self-examination permits the researcher to gain clarity from their own misconceptions, and 'is part of an ongoing process rather than a single fixed event' (Marshall & Rossman, 2006; Yin, 2009).

Case study two: participation of key actors in organic cotton design

Overview of the case study

The organic cotton project under study is the South African 'Organic Cotton Pilot Project' which was established in 2007, involving Organic Exchange, ComMark Trust, Cotton SA, Woolworths, and the Agricultural Research Council's Institute for Industrial Crops. According to ComMark (2008), the purpose of this pilot project on organic cotton farming in South Africa is to:

facilitate the development of commercial scale organic cotton farming in South Africa by 2010. A number of organic cotton growing trial sites have been established on both commercial and small-scale farms to assess the viability of commercially producing organic cotton in South Africa, create a learning experience for all partners involved in the project on how to grow organic cotton in a viable and sustainable way and establish a value chain for the production, marketing and retailing of organic cotton in South Africa.

The project is run on a number of commercial-scale and small-scale farms in the Limpopo, Mpumalanga and Eastern Cape provinces. Below in figure 3, are the small-scale farmers involved in the project from the Mpumalanga area.

Figure 3: Organic cotton small-scale farming community (Bergevoet, 2010)

Understanding the actors within the network in the organic cotton value chain

Through System Design for Sustainability (SDS), which can be viewed as a tool that can achieve deeper a relationship between key actors in the value chain of organic cotton. SDS according to Carlo Vezzoli (2009) is:

the design for eco-efficiency (and/or) social equity and cohesion of the system of products and services that are together able to fulfill a particular demand of (customer) "satisfaction", as well as the innovation of the interaction of the stakeholders directly or indirectly linked to this "satisfaction system".

In Context Immersion

A family home stay was planned in order to gain empathy and understanding of the traditional family dynamics, thus the researcher was able to probe deeper into the cultural and political aspects of the farming community. In addition, a 'work day' alongside the farmers to gain better understanding of their needs, barriers, and constraints was undertaken. The most significant issues though were those relating to their geopolitical and socio-cultural situation.

Focus group: interaction through projective techniques

During the week long in context immersion the farmers engaged more actively in discussions using The Value Chain Card exercise (see figure 3). It appeared to be a successful tool in gaining insight on the farmers' knowledge and opinion of the cotton value chain. Knowledge gaps were identified and will be addressed in the design interventions.

Figure 4: Farmers participating in the Value Chain Card exercise (Bergevoet, 2010)

Discussion

Social innovation in the context of groups within the network of the design process can be articulated further by engaging the groups in related discussions. Cohesion and problem solving techniques where "the occupant's role in the process of design is not clarified in a quantifiable manner" (Anon 1, 2010) can be addressed. In addition, the worker who seen is ignorant of the industry process in which they are involved can be enlightened, as seen through the projective technique: Value Chain Card exercise. These are an unfortunate lose of intuitive knowledge that could be garnered to provide efficient environments.

During the Value Chain Card exercise the commercial-scale farmer was able to identify all the key actors and put them in the correct order. Whereas knowledge gaps among the small-scale farmers was identified. These farmers could only identify the first two (the cotton farmer and the cotton gin) and last step (the consumer) in the value chain. As Schroder (2010) from Cotton SA confirmed, the small-scale farmers were committed and eager to learn more about the value chain as well as interacting with other key actors in person. The farmers also expressed a keen interest in seeing the whole process of the value chain and meeting the people behind these processes, specifically the retail stores where the end-product can be found.

Both the commercial-scale farmers as well as the small-scale farmers were positive about establishing connections with other key actors in the value chain, in particular with the consumers. The card game stimulated a discussion on the connection between the actors in the cotton value chain. Suggestions were made to organise field trips for the farmers to attain more knowledge on the other processes in the value chain. Additionally, there were suggestions that 'farmer days' for stakeholders who would like to experience 'a day in the life of...' could be arranged. The commercial scale farmer suggested involving primary school children in 'farmer day' initiatives in order for them to learn about the farming process and sustainability within agriculture.

The involvement of the end-user which has been used by Herman Miller (Kimes, 2009:18) 'when introducing an innovative flexible electric infrastructure to the office workplace', is one example of design influenced by an occupant's experience. By speaking to both the client and the end-user a series of challenges and opportunities can be uncovered. Through this discovered knowledge an efficient design can be realised where the use of natural resources can be assessed and the well-being of the occupant can be improved. Human well-being which can be viewed as the basis of the built environment, which stands as one of the

basic human rights: shelter, is an important value. This value can be augmented by co-design and the participatory ethos of ubuntu in the process of change. These principles which can sometimes be viewed to be part of Corporate Social Responsibility (CSR) need to be actualised in the office workplace.

Social and organisational inertia, which is evident in the collaborative networks, is a hinderance to sustainability. Through initiatives by the government there has been the creation of programes to facilitate implementation of sustainable processes in consumption. "Due to there being a gap between the initiators of sustainability programs and the target audience" (Anon 2, 2010), the initiatives to reduce energy use in buildings may be implemented freely by government but their potential impact may be lost to the occupants of the building. Public entrepreneurship can play the role of driving initiatives that cause iterative informal platforms that involve actor groups in knowledge sharing incubators. Similarly following on Scheffer's (2008:131) statement that, "…in a time of globalised production the values of consuming and production are often thousands of miles apart. The meaning of wearing is often disjoined from the meaning of making". A corresponding approach of integrating the values and perspectives of the consumer and local organic cotton farmers as co-designers through the Value Chain Exercise, the key actors can be seen as catalysts for social innovation and environmental stewardship. This sustainable connection is a tool to promote human well-being and mutual respect, increase knowledge transfer and raise awareness of the effect of each 'actor group' on the industry.

Implications for industry

With the growing concerns over increased energy use both locally and internationally the current problem takes on an added sense of urgency. Interior designers in their design-processes toward a design intervention should consider sustainable principles as viable alternatives. Collaborative networks in the built environment industry can provide an avenue to transfer knowledge amongst the various actors. These networks can act as a self-governance body with representatives from different sections of industry including those from local government, designer's guild, engineers' associations, and consumer watch groups among others.

In organic cotton farming, a need for 'direct' contact is advantageous to the rural small-scale farmers to facilitate the attainment of greater knowledge and insight, as well as to establish a relationship with other actors within the system. In order for the humanisation and re-connection of these key actors to succeed, the design interventions should focus on integrating the organic cotton farmers and other actors as co-designers in the process.

If then the designer can be viewed by society as a social entrepreneur whose interest is in facilitating change at a micro level. The interaction between the production and consumption of goods and services can be integrated through collaborative networks. An example could be addtitional actor groups in both the organic cotton farm and the office workplace. Firstly the de-

signer can be a part of the value chain so as to locally enhance the soft furnishings industry used in office designs by local manufacturers. Secondly, the design process can benefit from improving indoor environment by using organic products and in turn expand the farmers scope of distribution of their produce.

Conclusion and further research

Conviviality which is enhanced by social equity and cohesion in the community is evident in the recommended collaborative networks. Interaction within these networks can be further enhanced through incentives of community awards and recognition. This awareness of sections of industry in the built environment can be seen to be conforming and improving the environment for benefit of society, and can be platforms for innovation.

Co-design could be employed as an instrument to combat knowledge barriers observed in the small scale famers. By integrating the farmers as more active actors co-designers in the system, a deeper level of understanding, connectedness and cooperation can be established and contribute to a more sustainable value chain.

As this research is ongoing, the collaborative networks are to be assessed by key informants from the sections mentioned to ascertain viability.

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basic human rights: shelter, is an important value. This value

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Between User Driven and Design Driven Innovation

Abstract

In this paper we discuss the conceptual foundation of user-driven innovation (UDI) as well as design-driven innovation (DDI), based on the hypothesis that user needs are not revealed but created through a dynamic meaning making process among users, companies, designers, media and marketers.

The key points in the paper will be exemplified by results from a user-centered innovation project called "etrans". The project aims to turn electric vehicles and other forms of sustainable transportation into a market success in Denmark.

The objective of the paper is to propose a framework for analyzing the existing divide between user-driven and design-driven innovation – and to propose a new concept: interaction driven innovation.

Keywords

User needs; Consumption studies; opportunity creation; cultural signification; User driven innovation; design driven innovation, interaction driven innovation

2. Introduction

Over the past decade, the term 'user-driven innovation' has made its triumphant entry into both executive boardrooms and academia (Lettl, Herstatt and Gemunden, 2006). In academia, UDI has been inspired by the work of Von Hippel (1986 and 2005). The concept has since blossomed significantly as part of a strategic move in the business and policy communities who are fighting to survive and flourish in a steadily more competitive and saturated global market with a relentless demand for novelty and uniqueness, and in an environment where disruptive new technologies arise every minute (e.g. Nyholm and Langkilde, 2003; Inside Consulting and Oxford Research, 2004; DTI Global Watch Mission; 2004).

At this point, though, current definitions of the concept generally remain too simplistic and contain many inherent paradoxes (Basulto, Dominic, 2005; Simonsen & Kensing, 1997;

Spivey Overby, 2005), which need to be addressed in order to gain a more complex and operational understanding of the opportunities and limitations that UDI offers. UDI spans across several research fields, most notably including consumer and consumption studies, technology studies; anthropology, design research, and innovation management. Thus it breaks with the traditional trajectories of reasoning and working in academia, where research disciplines and fields are strictly divided. Gaining a more complex understanding of the concept calls for researchers with the courage to draw meaningful connections between otherwise divided research disciplines.

Naturally, it is not within our scope to address all perspectives and paradoxes entailed in the concept of UDI. Our contribution will focus on the following areas:

1. Promotion of a more complex understanding of the concept of the consumer as defined by his or her user 'needs' and how they arise. We subscribe to the latest paradigm shifts in consumer research; more specifically consumption studies (Belk, Ger & Askegaard, 2003; Østergaard & Jantzen, 2000) and consumer culture theory (Arnould & Thompson, 2005).

2. To discuss what that more complex understanding of the epistemology and rise of needs means to the role of designers and design in UDI (drawing on e.g. Verganti, 2008; Ehn, P.,1992; Sanoff, 2006)

3. Proposition of an optional 'third place' between user-driven innovation on one hand, and design-driven innovation on the other – which we suggest calling 'interaction-driven innovation'.

3. Method

The key points in the paper are illustrated by the results from a UDI project called "etrans", which aims to support the adoption of electric vehicles and other forms of sustainable transportation among Danish car consumers parallel with the technological development and gradual market launch.

The project focuses on research as well as art-based design work, acknowledging the fact that interesting and groundbreaking innovations emerge in the tension field between the two domains. The empirical research methods applied range from anthropological user studies to participatory design, in addition to other qualitative and quantitative methods of analysis.

The project is steered by a team of researchers and designers working closely together with partner enterprises from the business community as well as public stakeholders and NGOs. User insights form the platform for innovation and new design solutions in a carefully orchestrated design/innovation

process, which includes anthropologists, consumer and design researchers, designers, and a wide selection of business partners and NGOs.

3.1. About the Anthropological Field Study

In the early stage of the project, we realized that a successful launch and diffusion of the electric vehicle on the Danish automobile market was dependent on an in-depth understanding of how the car can be incorporated into the everyday lives of Danish car users. To this end, etrans conducted an anthropological field study among 50 car users in Denmark. The field work was conducted in the spring of 2009 and was followed by a first round of analysis and business application during a 6-day workshop in June 2009.

Each of the 50 field visits lasted at least five hours. They were conducted in the period April 7 to May 29, 2009 (for further reading, see Ulk, 2009). During the visits we tried to blend in with the normal everyday activities of the respondents, including time spent with them at work, at home, and during transportation.

A wide variety of methods and techniques were utilised in the study, including participant observation, semi-structured interviews, visual anthropology, guided tours, shadowing clips, user journals, prioritisation games, and pictorial card games.

3.2. About the Innovation Process

Our objective was to incorporate the insights from the anthropological study into an organic, multidisciplinary process in which different professional fields could enrich each other. Therefore, business people, designers, technicians, stakeholders from the political arena, and researchers were invited to participate on equal terms in a 6-day workshop aiming to develop business ideas and perform analyses of car users based on the anthropological insights (for further reading, see Jensen & Mikkelsen, 2009). These insights were coupled with studies regarding socio-cultural trends as well as market insights.

Our objective was for the design process and the individual designs to be research-based while having the design process drive the transformation from insight to concept. The process was divided into two phases, each lasting 3 days:

• During the first phase, the purpose was to introduce the participants, on equal terms, to the insights gained from the user study, and ensure that everyone became familiar with the findings. By forming groups of mixed competencies we thought we would obtain a wider and more nuanced understanding of the role the car plays in the everyday lives of different users; we also tried to assess the beliefs and values of different users towards transportation, energy, sustainability, and consumption in general.

• In the second phase of the workshop, we maintained the mixed competency groups for mutual enrichment and inspiration. Some groups concentrated on analysing the data material with the aim of categorising users into ideal types, while others worked with the data material seeking to develop design principles and business concepts.

During the research and concept development phase, researchers made systematic observations in order to gain experiences from working with UDI in multi-disciplinary teams. The objective of this paper is to share the experiences and results from these observations and to frame and discuss them in a wider theoretical context.

4. Results
4.1. THE ILLUSION OF UNCOVERING LATENT NEEDS

UDI has received increasing attention from business communities for the past decade, not least in Scandinavia where the notion of democratising the innovation process is consistent with existing cultural paradigms (Granlien, 2009; Rosted 2005).

Several different definitions of and approaches to UDI co-exist. Von Hippel (2005) focuses on user-innovators – a cornerstone of user-centered innovation where lead users design their own innovations and share them in communities with other lead users within the same field.

However, there seems to be a growing tendency among government agencies and research units (e.g. EBST/Fora, Nordic, OECD), to use the term UDI when innovation is more or less driven by the end-user or centered around insights into the so-called explicit (i.e. recognized and conscious) and latent (i.e. unrecognized and unconscious) needs of the consumer or user. Such a definition is, for instance, evident in this statement from the Nordic Council of Ministers in 2006:

"To sustain a competitive edge, more focus must be given to meeting users' needs…and not simply those explicitly stated in market research – but rather those latent user needs which can be revealed by alternative analytical methods, and by the users themselves. This is what user-driven innovation is all about – determining a more systematic way to understand and develop solutions that respond to user needs", (TemaNord, 2006).

Definitions like the one above tend to give the user an almost divine status as a direct and genuine mediator of cultural meaning. Implicitly they draw on models such as Sleeswijk, Visser et. al. (2005), who claim that different levels of knowledge about the informants can be uncovered by using different techniques. The needs may be explicit or latent; but the very presumption that 'needs' exist per se, is never questioned.
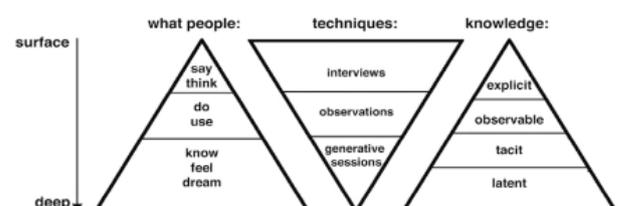

Figure 1: Different Levels of Knowledge about the Users are Accessed by Different Methods
Source: Sleeswijk Visser et al., 2005

We allege that there is something inherently wrong about these presumptions. Not because the attempt of 'meeting the needs of the users' is not noble or worthy of praise. But because such a statement takes it for granted that individuals are equipped with certain sets of needs – explicit or latent – which are just waiting to be revealed and 'unlocked' by a clever consumer researcher using the right tools. We suggest that this main-stream version of UDI is founded on the belief that needs are present in the market ex ante and simply have to be brought out into the open. Similar thought patterns are found in related fields of research (Shane and Verkanan, 2000).

4.2. FROM A UTILITARIAN LOGIC TO A LOGIC OF THE SIGN

In accordance with e.g. Belk, Ger & Askegaard (2003), we propose an alternative theoretical framework for understanding how the demand for certain objects and services arises, namely the theory that needs don't exist per se but are socially constructed – they are created not revealed. Furthermore, in line with e.g. Korsgaard et al. (2009), Sarasvathy (2007), and Verganti (2008) we propose that this construction of 'needs' is turned into innovation through experimental action and interaction in a confined social space consisting of different actors, who all subscribe to and participate in a social game of shared signification, and who all bring their expertise, interests, political agendas, and perspectives into that mutual game.

The criticism of the concept of 'needs' was introduced as early as 1969 by Baudrillard, with "The Ideological Genesis of Needs" (Baudrillard, in Schor and Holt, 2000), and has gained growing significance for the past 10 years within that particular field of consumer research called consumer culture theory (Arnould & Thompson, 2005) and consumption studies (Østergaard & Jantzen, 2000). Baudrillard claims that the idea of the absolute existence of consumer/user 'needs' is a myth. Instead he introduces 'the logic of sign value', claiming that it is a desire for signification that drives consumption – and hence the market – not a set of inherent needs.

In 'the missing streetcar named desire' (in Ratneshwar, Mick and Huffmann 2003), Belk, Ger and Askegaard advocate the notion of replacing the concept of 'needs' with the concept of 'desire'. The notion of 'needs', they state, derives from a utilitarian logic obsessed with control; a logic which has been in sync with a Western market discourse: "Needs are anticipated, controlled, denied, postponed, prioritized, planned for, addressed, satisfied, fulfilled, and gratified through logical instrumental processes" (op cit, p. 99), they claim. Desire, on the other hand, "awakens, seizes, teases, titillates, and arouses" (op cit, p. 99). While the concept of needs speaks to the causal reasoning, with its cause and effect logic, desire speaks to the affective reasoning (Sarasvathy, 2007) with its judgmental reasoning, action and experimentation.

In sync with this, we propose that needs and markets are cultural constructions, created through a dynamic, common meaning making process involving end-users, designers, media and marketers who are all players in the same game: The game of signification. In that game we play different roles. But we are all 'users', namely users of the game of signification. This opens up a whole new definition of what a 'user' is.

4.3. THE LACK OF NEEDS IN ETRANS

In the innovation processes that we have orchestrated at etrans, we have deliberately used this mutual game of signification as a platform for innovation. Insights developed from the user study have been used systematically as a common frame of reference – a platform from which to create shared meaning. But the aim has never been to translate insights in a linear fashion from 'subjects' (informants) into 'objects' (design solutions) using the concept of 'needs' as the binding glue. Rather, the aim has been to subscribe to the existing sign languages guiding the transportation habits and routines of different users, and use them as a stepping stone for creating new sign languages that have the potential to titillate and arouse desire.

One core issue is clear: We have to tap into a culturally saturated context in which notions of transport and energy are dominated by a well-established universe of signs. A well-functioning market and identification context has to be replaced by entirely new systems, habits, and socio-cultural meaning. The project has to CREATE a demand for electric vehicles among end-users in a market where it is obvious that none exists. In order to convince consumers to accept something as radical as a fundamental change of their existing transport and energy habits – and thus create a radical innovation - subscribing to the existing universe of signs is absolutely vital; in terms of signification, we have to balance carefully between novelty on the one hand, and redundancy on the other.

In contrast to Verganti (2008), we suggest that the systematic inclusion of insights from end-users in the innovation process remains crucial. What we need to reconsider is the interpretation of what user insights are – and what they can be used for. According to the logic of sign value, user studies cannot and should not be used for revealing and fulfilling needs. Yet, they can be used for gaining insight into the complex systems of meaning that make up different people's consumption habits. Such insights are absolutely vital if the aim is to change that cultural system of meaning – as are insights about socio-cultural trends, business strategies, and market and technological trends.

4.4. TOWARDS A NEW ROLE OF DESIGN AND DESIGNERS IN USER DRIVEN INNOVATION

The classical definition of UDI, based on the myth of the utilitarian logic of needs, infers a reductionist role of design. Here, design is often considered a competency which is only applied as an add-on when a solution needs to be materialised.

When applying that perspective the designer works within a well-defined framework and with well-known and tested methods. The most important role for the designer is to translate the needs of the subject into new objects by means of colours, materials and form.

According to this logic, the end-user is elevated to a

hegemonic being with an almost divine status – a being from whom all truth flows directly, while the designer (and everybody else) is reduced to a faithful servant, whose only purpose it is to fulfil the needs of the omnipotent consumer.

As a counterbalance to UDI, Verganti (2008) has introduced the concept of Design Driven Innovation (DDI); putting design at the absolute forefront as the driver of the innovation process. It is founded on the notion of Krippendorff (1989) stating that 'design is making sense (of things)', and thus closely connected to the logic of sign value presented earlier in this paper, and the notion within consumer culture theory (Arnould & Thompson, 2005) that all human beings are engaged in a game of cultural signification.

DDI does not start with user insight, but a vision of a radical change of meaning in the socio-cultural context. It is not a response to a user need, but rather a transformation of users' habitual interpretation of consumption embedded in the established socio-cultural order.

This new perspective cannot be understood by looking at the users, Verganti states, since it develops over time after the user understands the radically new approach and gives it meaning within the user's own socio-cultural context. Radical changes in meaning are linked to radical changes in socio-cultural systems and can only be experienced across a certain span of time.

Hence, Verganti considers user-driven innovation to be regressive, because the users represent an existing cultural meaning. Instead, he claims, the designer should be given a more central role as the one defining who in the surrounding society has a relevant perception about the meaning making of the future (Verganti. 2008. p. 445). From Verganti's point of view, the focus is moved from user needs to socio-cultural models. The ability to negotiate using tools and methods is replaced by knowledge sharing, and development is replaced by research.

Yet, although Verganti's own definition of design as 'making sense of things' is similar to the notions inherent in the 'logic of the sign' – meaning that consumers are driven by a desire to signify and that the design and innovation challenge is to tease, titillate and arouse desire, rather than fulfill 'needs' – Verganti's critique of UDI is to some extent based on the utilitarian 'logic of use value'; and thus on the assumption that the aim with conducting user studies is to unveil, identify and fulfill needs. That might be the way that some UDI projects work with user insights in practice. However, that doesn't make it less of a misconception. It is our distinct experience that user insights should be included for different reasons: Most notably because they are a vital part of the universe of signs that people subscribe to in order to 'make sense of things'. Radical innovations can be introduced, but they only become meaningful (also over time) if they partially subscribe to an existing universe of signs; thus flux elegantly between novelty and redundancy.

If we accept that 'needs' are social constructions, and thus nothing but 'desires that have become socially instituted as necessities' (op.cit.), as Belk, Ger and Askegaard suggest,

we also have to recognize from a methodological point of view that working with consumer insights is not a matter of a simple translation of 'needs' into form. If it were, working with user insights as the platform for innovation would indeed be regressive by nature, and would reduce designers, researchers, and marketers to mere translators and servants.

But according to Baudrillard's order of signs, the UDI process is transformed from being a simple translation process between subject (the consumer) and object (the offer) to being a complex game of signification that involves users as well as a wider community of stakeholders of key importance for turning new signs into sustainable opportunities. Creating consumer insights becomes an attempt to try to understand the complexity and order of codes and signs which make up different people's everyday lives. The innovation challenge becomes an attempt to invent, mix, and re-mix social codes or systems of meaning with new aesthetic, functional or ideological forms or wholes, thus striving to arouse the desires of a sufficient number of people at a certain point in time.

This assigns a very central role to design as well as the individual designer in the innovation process. In many respects, design is the very playground of signification – a playground where the unexpected and the new can meet the safe and the well-known and new paradigms can be formed that arouse people's desires. The logic of signs is the home ground of design; and arousing people's desires by mixing and merging existing and new signs and introducing them in different contexts is what designers do best.

4.5. INTERACTION DRIVEN INNOVATION AND DESIGN

The conventional view that design is problem solving has long been criticized for the simple reason that in practice design problems are not obvious. They depend on how stakeholders, users and the wider society interpret, articulate and respond to perceived problems. Schön (1983) introduced the notion that designers are problem setters. In other words, they not only solve the puzzle, but also generate it and visualise it in order to create a presence of the future.

In this creation process the parties involved in the innovation process must recognise their role and obligations to their respective organisations. Using cultural values, meanings, and signs on a general level as a point of reference creates a common base for negotiations – but also for excitement. In this process it is again possible, from a design standpoint, to refer to Baudrillard's positions and realise that throughout the ENTIRE innovation process it pays to navigate from a set of (company) cultural signs and meanings which are prerequisites for success. Representatives from a company, organisation or research position are not just negotiators in a given external context; they are also ambassadors for a culture where changes have to be implemented.

Following Sarasvathy (2007), who uses a metaphor from Kerala, India, where women traditionally bring together their bits and pieces of coloured cloth for quilt making, the shaping of new opportunities and visions is more like a crazy quilt

than a puzzle, in the sense that a puzzle is fixed and solved by deliberate search, while the crazy quilt is not deliberately designed, but created from the bits and pieces of cloth displayed by the women joining the quilt session. The quilt is thus the outcome of action and interaction and takes shape through small steps of trial and error and discussions and negotiations of how to combine the bits and pieces into a whole. It is a process of social and material exchange and mutual adaptation, where none of the stakeholders foresee the result, but rely on the value of the unexpected.

The quilt-making process can thus be seen as a metaphor for the practical innovation process in open innovation systems (Chesbroug, 2003), where a number of stakeholders with different positions, outlook and interests join forces, and where the whole becomes more than the single elements put together.

Stakeholders impose restrictions on each other along the process, which induces ambiguity in the process and forces actors to reconsider their pre-conceived perspectives and deliberate strategies and visions. These restrictions are out of the designer's control and thus force him or her to formulate problems. In turn this leads to a process – as noted by Gedenryd (1998) – of give and take; speak and listen; act and perceive. This mutuality of adaptation and influence breaks up causality and predictability no matter how deliberately the innovation process is planned and staged. Gedenryd characterizes this process as one of 'interactive cognition' – a process in which actors are forced to change perspectives on sustainable opportunities.

In the etrans project, we recognize the metaphor of the quilt and find that innovation arises as a result of the mutual interaction, negotiation and inspiration among different stakeholders with different perspectives. The notion of power, though, and most notably the power balance between the stakeholders, is also relevant, and calls for more research. Building on Krippendorf's (1989) assumption that 'design is making sense (of things)', user insights in this process are the basis of:

1. "Making shared sense of things". The anthropological data have been interpreted in a set-up where people with different cultural, age-related and professional backgrounds evaluate episodes from their daily lives and in a guided process project this insight into an analysis about the transport habits of the future.

2. "Making common sense of things". Ideation leads to the creation of business opportunities and innovation platforms which are not all viable.

One of our observations is that many of the insights from the user study are ignored because they have no perceived relevance or viability for the innovation parties. Obvious ideas are not promoted in the relevant organisations and nurtured internally, if for example they cannot be incorporated into already established business systems or strategies and thus be implemented in established organisations.

Meanings, signs, desires and needs are thus socially constructed in a complex collaboration or exchange between different stakeholders, and so are the opportunities linked to the creation of future needs.

In conclusion, the theoretical framework of UDI as well as that of DDI have a strong focus on the role of the individual actors (the user and the designer, respectively) and tend to disregard other stakeholders of key importance to the innovative dynamics; including e.g. business stakeholders, experts, and researchers. UDI and DDI in particular disregard the dynamics of exchange and the adaptation processes embedded in the interaction among the engaged stakeholders and thus also the critical role played by those resources built into and embedded within the network of stakeholders. Our suggestion is that there is an optional 'third place' between UDI, focusing on the user, and DDI, focusing on the designer; namely 'interaction driven innovation', focusing on the dynamics of the interaction itself.
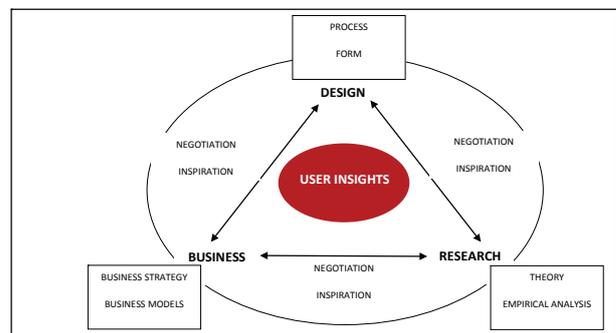
Figure 2: The design process as a mutual meaning making process

4.Discussion

In this paper we have tried to address and frame some of the many paradoxes inherent in UDI. Most notably, we have attempted to puncture the misconception that what takes place in UDI is a direct and linear translation of user needs into objects that act as a direct representation of those needs.

In line with new paradigms in consumer research, most notably consumer culture theory (Arnould & Thompson 2005), and design research (Verganti 2008), we have proposed that innovations occur in social interaction between different actors – including end-users, designers, researchers, and business strategists – who all participate in a complex and never-ending game of cultural signification. According to this logic, working with user insights or any other form of insights is not a linear act of translation, but becomes a platform for mutual meaning creation and transformation.

This has been very obvious in a project like etrans, where the need among end-users for the electric car is clearly non-existent – and the 'need' from a larger societal point of view of creating a demand, is equally clear. But we suggest that the challenge is the same even in fields where the lack of needs is not so immediately obvious: Namely to gain an understanding of the universe of signs or cultural meaning reflecting and forming a certain consumption field – in our case the field of transportation, energy and sustainability – and to subscribe to that universe of signs in order to expand it or transform it. In

our experience, insight into such universes of meaning implies working with user insights as well as socio-cultural trends, business plans, and market and technology insights. It is a synthesis of all of these insights that should work as a frame of reference for creating and implementing new intriguing design solutions in mutual interaction between different actors.

Defining the innovation platform as a platform for mutual meaning creation and transformation, and not a linear act of translation, means that the designer adopts a much more central role in the creation process. The designer is no longer reduced to being a translator of needs into objects; on the contrary, the designer is promoted to being an advanced orchestrator of signs. Thus we suggest working with user insights is not what reduces the designer and design to sexy ad-ons and need-providers. Rather, it is the myth that user 'needs' exist per se and can be identified, addressed and fulfilled in a linear and instrumental manner.

We suggest that the notion that the innovation process is driven by the user is nothing but a myth. The term 'user-driven innovation' puts a natural focus on a particular target group, namely the user, and supports the misconception that the end-user is a source of direct information that just needs to be translated into objects.

Although we agree with Verganti's definition of the innovation process as a common meaning making process between different parties subscribing to socio-cultural signs, we find that replacing the term user-driven innovation with the term design-driven innovation does nothing but shift the problem, since the focus is still on a particular group of people and a particular professional discipline.

Our experiences in etrans shows that innovations arise through exchange and adaptation processes among different actors. Unexpected insights into the interaction process arise, when actors work from a common platform of insights and inspiration in order to create cultural meaning. Based on these experiences we suggest a new concept: interaction-driven innovation. The focus of this concept is not on a particular type of actors driving the process, but on the interaction – exchange and adaptation – processes that take place among the different actors. According to Gedenryd this, in turn, forms the cognition process among the actors and eventually results in innovation.

In this paper, we have tried to paint the contours of a new innovation concept, that we call 'interaction driven innovation'. Yet, the scope of the paper did not allow for diving more deeply into an analysis of the specific nature and different elements of the cultural interaction process. Much more research is called for in order to gain a better understanding of the different roles that different stakeholders take, and what it takes to facilitate such an interaction process in order to eventually end up with an interesting and intriguing offer.

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Priscilla Chueng-Nainby

Where is the Conceptual Design Stage?

Describing concept negotiation in early design collaboration between Western-trained and China-trained designers

Abstract

This research explores differences in early design collaboration between Western-trained designers and China-trained designers. The phenomenon observed was that the cross-cultural team adopted a simplified design process to accommodate collaboration, while the extensive design process was left as a client-facing tool. In explaining the differences, we review the history of the process models of design. We argue that an isolated conceptual design stage (CDS) is a rationalist ideal set in the 1980s. Its essence is that ideas are dealt with in abstraction for concept formation. This prescriptive process assumes an abstract-to-concrete progression, which does not transfer to the cross-cultural context. Yet, crucially, most research on designers' practice has focused on the concept design stage. Instead of assuming that early designing is equivalent to the CDS, this paper argues for the importance of reconsidering the definition of the CDS.

Describing Western-Chinese early design collaboration

How we see designing determines how design collaboration is described and prescribed. Two contrasting epistemological positions are represented by Rationalist Problem Solving and Situationist Reflective Practice (Dorst, 1997). It was demonstrated that analysis outcomes depend on the epistemological position adopted (Valkenburg & Dorst, 1998). Our research aims to describe this cross-cultural experience during early design collaboration between Western-trained designers (WTDs) and China-trained designers (CTDs) in a collocated team setting. The cross-cultural phenomenon, ethnographically observed at a leading Chinese design practice in Shanghai, sheds new light on questions of design epistemology and on what we, as researchers, need to consider when describing designers in practice. This paper presents an argument for reconsidering the CDS when describing Western-Chinese early design collaboration.

The 1980s Conceptual Design Stage

Early design process is generally seen as an iterative process, with design problem as the input and design solution as the output of the procedure (Dubberly et al., 2004). Howard and Culley et al. (2008) mapped and compared models of engineering design processes and cognitive creative processes in an attempt to integrate them into a 'creative design process' model. Design processes generally consist of six stages: 'establishing needs, analysis of task, conceptual design, embodied design, detailed design and implementation'. The creative process includes the activity-based stages of 'analysis, generation, synthesis and implementation'. We investigate early design process through their table of engineering design processes. One apparent pattern is that CDS varies over the years (see Figure 1). Pre-1980s models are similar to the creative design process with an ideation-to-solution progression. An isolated CDS was only introduced in the 1980s at the peak of the popularity of the systematic approach, in which CDS comes after define stage and before embodiment design. However, the CDS has been disappearing since 2000, in favour of a simplified and iterative process similar to pre-1980s models. Despite that, the CDS is still practised and studied today and, crucially, most design research on early designing equates CDS and early design process. Work by Pahl and Beitz (2007) emphasized the importance of CDS to ensure design success. Through patterns observed at the ethnographical fieldwork of early design collaboration between WTDs and CTDs, this paper argues for the reconsideration of the CDS.
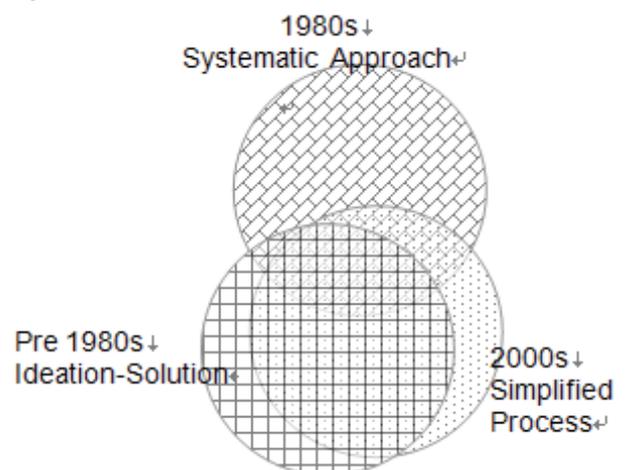

Figure 1. The history of design processes

Ethnographical Fieldwork at Sang Design

The research informing this paper is ethnographical fieldwork conducted in China in order to observe the early

new product design collaboration stage between WTDs and CTDs, working face-to-face in a team setting. We collected sketches, design processes and field notes of design discourse and interviewed relevant designers at Sang Design, a leading industrial design practice in China. WTDs speak languages such as English, French or German as their first language; CTDs speak Chinese as their first language. All designers in Sang Design are graduates from leading industrial design institutes in the US, France, Germany and Mainland China. All designers speak fluent or adequate English during design meetings.

Prior to the research, we carried out in-depth interviews in order to avoid preconceptions (Hofstede, 1991; Nisbett, 2003) from cross-cultural research not based on designers. Recent studies on the intercultural design student community share the problem of adapting the cultural dimensions in studying design practice (Schadewitz, 2009). Eight Chinese design students, who studied in both China and Europe, were interviewed. The analysis revealed two themes: 1) CTDs are uneasy with group discussion, as commonly practiced by WTDs; 2) CTDs are unfamiliar with the CDS in which WTDs are trained. These themes informed the fieldwork at Sang design, which set out to describe early concept negotiation between WTDs and CTDs in co-located team settings.

Figure 2 displays the research process. The data were inductively analysed and observations reflexively interpreted using grounded theory (Bryman, 2004; Glaser & Strauss, 1967; Guba & Lincoln, 2006; Rennie, 2000). The research journey is a hermeneutic circle, where each study was analysed repeatedly and influenced the focus of the later studies. In this, each study forms part of the whole research but the whole research is not just the sum of these parts. Due to space constraints, this paper covers only the key themes that emerged from the literature reviews and inductive analyses.
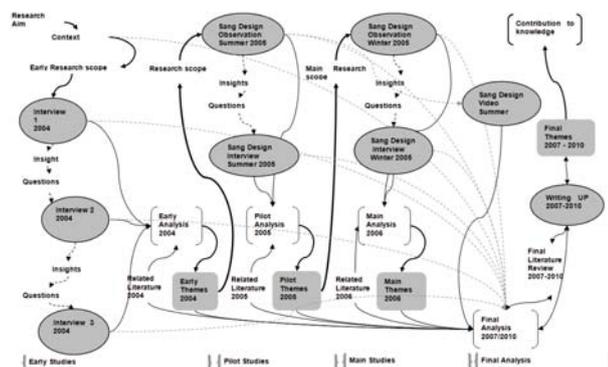

Figure 2. The research process

Concept Negotiation at Sang Design

According to the literature, design collaboration is a social process of negotiation (Bucciarelli, 1994). Accordingly, the fieldwork aims to describe concept negotiation. It is anticipated that designers will verbally negotiate viewpoints (Cross, Christiaans, & Dorst, 1996) in an argumentation process with other team members in order to reach consensus on a shared design concept (Détienne, Martin, & Lavigne,

2005). Fleming (1998) suggests that arguments during 'Crit' sessions are used to support and justify designers' ideas, as well as being an important reasoning tool. However, at the early stage of designing, this type of discussion can be elusive when collaborating with CTDs. The discussion in the design meetings I observed at Sang Design are largely dominated by WTDs, while CTDs prefers to stay silent. As Laura, one of the WTDs in Sang described her astonishment on the lack of team discussion with CTDs:

"it is not something explicit like "my idea is the best" here [China] which is different from what I [have been] used to before. I fought in San Francisco for four years. It was very vocal, very competitive…It was something like argumentation between my idea and your idea…We argued over why a design is better and more famous than the others. But here [in China]… no one would even question if one of us just summarised the ideas and combined them and take it as own idea. They would just let it go."

Although there is research that aims to explain these silent moments (Nisbett, 2003, p. 209), they were not studied within a design context. Even though language and social issues can be influential, these are apparently not the main problem. As the research progressed, we found evidence of differences in design process between WTDs and CTDs, which directs attention to the influence of design thinking on the study of design collaboration and the reasons for the lack of concept negotiation.

Chinese Designers' Visual Articulation

We observed that while WTDs prefer to articulate concepts verbally, CTDs use non-verbal cues such as sketching, gesture and objects (Nainby, Gong, Jie, & Krohn, 2006). CTDs tend to brain-sketch (Van Der Lugt, 2005) their idea very early on in the design process, while WTDs prefer research and planning before designing. While the Chinese creative process tends to internalise without definitive stages until the final design is finished, WTDs take an abstract-to-concrete progression. WTDs' creative process is in the form of analysis-synthesis and divergence-convergence (discussed further below). Tristan, a French designer from Sang Design, reflected on the reason why CTDs are less geared towards explanation and negotiation than WTDs:

"They (CTDs) are more visual…. Because I always find Westerns think which   [design will] express the real use. So everything can be understood….it is quite easy to say that, 'ok, this one is very good'… I think if you propose too many, without reason behind them, maybe you may have a lot of nice design, very good shapes, but it is very difficult to say 'ok this is better', 'this is not good', because it is just the matter of feeling."

When presenting their concepts, we observed that CTDs commonly construct a narrative after designing, as the following episode reveals:

"Members of Team D have been working on the design of the Beijing Olympic Torch for two weeks. Laura (American team leader) gathers her team members for a progress meeting.

CTD Siang was first to explain his design concept in a hand sketching pinned on the wall near his seat. Laura is excited about his concept, as she likes it. The team then moves to the desk of another CTD, Tao, to view the digital 3D model of Siang's design that Tao created. Tao describes the concept to the team with the help of the digital model on the monitor screen. Tao describes the forms and then the functionality of the design. He speaks firstly to me in Chinese to seek help with his English before he speaks to Laura and Svenja. Laura and I agree that the story is made up as he goes along. Words were invented to articulate the concept. I sought confirmation from Tao after the meeting. He was indeed making up the story after designing. "

Strictly speaking, this is n ot something new among design practitioners. However, it is interesting that CTDs tend to do it more at Sang Design while WTDs see it as unprofessional. We accept that the idea sometimes 'just comes', without a proper design process (Cross, 2004). Yet Laura expected that the words should be already there when designing, not something made up after designing. This verbal articulation is proof of designer's clear understanding of his concept, which "explicates and challenges the rationale behind the image, identifying hidden and potential problems and focusing on processes rather than their tangible outcomes." (Yair & Press, 2000, p. 466)

Western Designers' Verbal Articulation

The need to consciously know our mental process and to be able to report on what we are doing is a doubted view (Piaget, 1928). Designing through verbalising is a problem-solving view based on rational thinking. The difference between WTDs and CTDs in articulating concepts implies that the impact of verbalising concepts is far from simply a problem of making up narratives about the process. Rather it represents a mismatch of design thinking, which can potentially influence design epistemology. Nigel Cross (2006) explains the verbal and visual codes in the designerly way of knowing. While verbal codes facilitate analytic problem-solving, useful for innovative design where the problem is ill-defined, the manipulation of non-verbal codes can translate messages between concrete objects and abstract requirements to facilitate design solutions. We find this proposition to be problematic when attempting to describe CTDs' early brain sketches and the under-definition of their creative processes. CTDs at Sang Design are accepted by WTDs as being mysterious about their creative processes, yet not lacking in innovative designs. We argue that the problem lies in the necessity of an isolated CDS in a prescriptive design process.

Verbal-Visual Translation

We suggest that the duality of verbal-visual articulation of concepts represents the abstract-concrete duality of conceptualisation. WTDs' preference for verbalising concepts, with research to concept stages considered in the abstract, suggests that WTDs tend to view designing as rational problem-

solving. In contrary, the CTDs' preference for visualising concepts by dealing with the concretes suggests a situationist view of designing. This division is unfortunate for co-design studies, which require a combination of both verbal and visual material in design discourse (Lloyd, Lawson, & Scott, 1996).

Yet the capacity for association harboured by words and verbal phrases is blindly seen as equal to visual representation by designer and client (Press & Cooper, 2003). Without words, there is no justification of thought. This verbal articulation view only provides a partial explanation for collaborative design discourse where verbal-visual translation space is the concern. The space if coded by language imposes a restriction on creativity, as cognitive experience is suspended (Koestler, 1964). In this, Lawson (1997, p. 307) argues that the writing of designers can be misleading, impressing rather than explaining, and invoking a post hoc rationalisation that conceals the blind process.

The importance of verbal-visual translation is recognised; putting design concepts into words has consequences for how designing is carried out. Press and Cooper (2003, p. 147) insist that a mute display of a visual concept requires clients to articulate their interpretation of the concept in words. The mismatch between words and visuals is the mismatch between intention and interpretation. This is the space where the gap between abstract and concrete ideas is negotiated. This verbal-visual translation enriches design concept. Creativity is triggered in this space, especially in relation to 'feel' and 'mood', which may be excluded from a formal design brief. Similarly, Tomes et al. (1998) wrote of this verbal-visual translation space as a space for mutual understanding. It is a skill to be recognised as of importance in design practice, as the verbal work is integral to all phases of the design process. Even in the systematic approach, the possibility of working with concepts at the concrete level is acknowledged, but discouraged as a fixation that designers should avoid (Pahl, Beitz, Feldhusen, & Grote, 2007, p. 161).

Simplified Process at Sang Design

During my first visit to Sang Design, the design director, Mikael, presented to me on the screen the design process adopted from their German affiliate and explained it in detail. When he finished, I remarked, "It doesn't work, does it?" Mikael sighed in relief: "You are right, it doesn't work. This is for the benefit for the client. I have no idea what works!" We observed that the design process in practice at Sang Design changes and evolves constantly. Mikael has modified the process to less definitive stages, with milestones given to designers at the end of each meeting. This resembles a situationist approach. The hope is that the increased flexibility will reduce the differences of design practice between WTDs and CTDs.

The simplified design process has only four phases: research, concept, design and development, with the order varying by project. An unknown situation at the early stage of designing is simply termed as concept, which actually refers to the conceptualisation stage. The common practice in Sang

Design is that Mikael will comment on designers' concepts. He interprets the forms and combines the chosen ones into a final design concept. The setup of the team and the format of the design meeting, according to Mikael, evolved from his experience: "I tried to do discussion and brainstorming here. But it never works. So I divide them into teams…it is more effective."

Informed by the early studies in which CTDs reported a lack of understanding in design conceptualisation, while at Sang Design I also observed what CTDs did, and collected design sketches. CTDs use a kind of brain sketching extensively. This is not just visual but also spatial, and involves structuring and combining design ideas using associative formation. Some CTDs doodle while reading the user report and later, very quickly, go into prototyping. WTDs, however, use mind-mapping and brainstorming to gather information and then generate concept alternatives before choosing one to develop into a prototype. This pattern was also observed at previous study on design students at Wuxi-Zurich design exchange (Nainby, et al., 2006).

The Abstraction of Design Problem

The themes discussed above are far from dispersed patterns observed in the case studies observed in real life, naturalistic design practice. Rather they can be explained by examining the role of the CDS in the history of the design process. We argue that the fixated ideal is a consequence of the rationalist view of designing as problem-solving act. In the 1980s, the process entailed defining the design problem from a design situation at the analysis stage, and solving it by creating the design concept in synthesis before a separate embodiment stage. Pahl and Beitz (2007, p. 161) define the CDS as when a designer identifies the design problem through abstraction, establishes functions, structures and working principles, and integrates them into a working structure. Similarly, French (1999) views conceptualisation as the abstraction of problem statement which generates schemes of solution. Both are an activity of abstraction.

However, pre-1980s models and post-1980s models leave the CDS with only the ideation-to-solution stage. Also, creative process models in cognitive studies have yet to endorse conceptualisation fully. Work on design processes previously endorsed ideation, first in pre-1980s models and now again, in models dating to the last few years. The question is: do we see designing as a creative process or as an engineering process? Before we could answer this question, we had to examine two decomposing-recombination frameworks that are apparent in engineering design processes: analysis-synthesis and divergence-convergence. I discuss these two cognitive processes with the help of design process models summarised by Dubberly, et al. (2004).

Analysis-Synthesis

The analysis-synthesis process was introduced in the late 1960s (Archer, 1969; Asimow, 1962; Jones, 1970). The framework that influences engineering design processes has become apparent since. Generally, the process is one of analysing and decomposing a problem into sub-problems, followed by synthesis and recombining the ideas into a solution. The framework assumes that designing begins with analytical thinking, which presumes designing as a scientific activity rather than the creative activity of design (Lawson, 1997).

Yet how designers begin is debatable. The analysis of design problems and the generation of design solutions can be an integrative process, with constant regeneration of new goals and identification of constraints. The synthesis phase can be found at the very early stage of design process, while analysis is present throughout the design process (Akin, 1986; Eastman, 1968). One example is a fashion design process that includes two synthesis phases, with the first occurring before the analysis phase (Black, 1999).

Divergence-Convergence

The second characteristic of the 1980s design process is, confusingly, a divergence-convergence progression introduced by Jones (1970). Borrowing from work on the creative process, he suggests that designers need divergent thinking to be creative. The model identified three stages in the design process: divergence, transformation and convergence.

Divergence is a deliberate strategy to create alternative solutions. It is a stage when designers explore as many ideas as possible. The design problem, objectives and boundaries are tentative and changeable. Problem setting at this stage is to establish limits, consequences and paradoxes. Designers shift gears during the transformation stage when research is mostly done. Most aspects related to design problems, such as objectives, boundary and constraints, are now identified and fixed.

During convergence the designer re-establishes the final solution by narrowing down the choices to one. This is when these separate elements, such as sub-problems, variables and sub-solutions, come together as a single design. The best way to do it is to work in two directions: both inward-outward and outward-inward. Concrete details are now the emphasis of the models to the solution. Divergence occurs during the analysis phase, while convergence concerns synthesising ideas into a solution. During analysis, the design problem breaks into parts, yielding a new understanding. It is therefore a convergence. Synthesis reassembles ideas into the design solution. This is really done through divergence of the design into alternatives, before choosing the most promising one. Yet whether or not designers use divergent thinking or convergent thinking at the analysis stage of design process is debatable.

From Abstract to Concrete

One characteristic of design processes is the abstract-to-concrete progress of the creative concept (Asimow, 1962). A typical abstraction process involves generalisation, by only

retaining relevant information of a concept or a phenomenon for a particular purpose. A thought process through abstraction distances ideas from objects, using a simplification strategy in which concrete details are left ambiguous or undefined. This reduction of complexity results in simpler conceptualisation of a domain, allowing for many specific scenarios to be understood in a generic way. By ignoring the particulars and incidentals, abstraction is useful for problem-solving because it helps avoid fixation on conventional ideas by focusing on what is 'general and essential', which leads to 'the crux of task' (Pahl, et al., 2007).

Concluding Remark

Two outcomes can be identified from our investigation of the process models of designing: 1) an abstraction-to-concrete progression of concept formation; and 2) the 1980s CDS. Instead, Chinese conceptualisation begins at the 'define' stage and includes the embodied stage. CTDs' conceptual thinking involves an associative formation of design ideas while that of WTDs tends to be of a reductive, analysis-synthesis process in an abstraction-to-concrete progression. The design concept has no definitive form in Sang Design. Depending on the design projects, and at the time of meeting, the design concept can take the form of a hand sketch, a CAD sketch, a doodle, or even a prototype. The situationist approach is adopted rather than the supposedly reasoned, articulated, and externalised process of the 1980s CDS.

The outcomes bring us to question the legitimate role of an isolated CDS. The prescriptive process assumes an abstract-to-concrete progression that does not transfer to the cross-cultural context. Yet, crucially, most research on designers' practice has focused on the concept design stage. Instead of presuming early designing as conceptual design, this paper argues for the importance of reconsidering the validity of the CDS, with a view to introducing an inclusive design paradigm shift.

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John Wood
Co-designing Team Synergies within Metadesign
Design visions, proposals and tools

Abstract

In seeking solutions to the world's major problems this paper calls upon governments to support the development of a more comprehensive, 'joined-up' field of co-design that would facilitate the required behavioural changes within society. This will entail re-designing design as a form of 'metadesign'. Where, traditionally, 'design' delivers desired conditions in the future metadesign would also need to attend to conditions in the present. It would not only focus its attention onto objects, images, services or relations but it would also combine them in ways that produce synergy. Here, the term 'synergy' refers to an abundance of value that exceeds the sum of its ingredient parts. The ultimate indicator of success for metadesign would be an emergent 'synergy-of-synergies'. While metadesign offers enormous advantages by reducing our dependency upon finite resources, making it work is not straightforward. For example, broadening the repertoire of design would make it more complex and elusive, because metadesign methods tend to blur distinctions between design and designer, and between foreground and context. Teamwork within metadesign therefore becomes far more important than it is within design. The paper offers a theory of 'team-consciousness' and describes how collaborative team synergies can be mapped.

Background context

The underlying context of this paper is human survival – i.e. the growing possibility that, despite its extraordinary advances in science and technology, the human species may make itself virtually extinct within this century. Humanity has not yet learned how to harvest abundance safely. Worse, we are destroying the ability to create abundance faster than we are harvesting it. Current levels of carbon in the atmosphere have been the highest for a million years and species extinctions are at levels exceeding those of 63 million years ago. Populations need to change the way they feed, cloth and shelter themselves. Assembly, travel, communication, governance and work habits will all need to change. But major shifts in behaviour, are not only driven by technologies and government policies, but also by habits, expectations and beliefs. If the news media present the economic 'crisis' as more serious than the environmental 'crisis', for example, many citizens may see little need to change their behaviour. This kind of profound confusion must be addressed as part of the problem.

Increasing the effectiveness of designers

Many designers find it easy to reflect creatively upon future scenarios while reconciling many disparate interests and factors. This suggests that they would be able to make an important contribution to the work of scientists, planners, politicians or civil servants in addressing our ecological crisis. Unfortunately, while it may be true that individual designers have the potential and capacity to work at this much higher level, few have been trained to meet challenges on this level. The design professions evolved in order to service the needs of commerce in the 19th and 20th century. These still tend to survive as 'silos of practice' (industrial design, graphic design, landscape design, etc.) each with its own habits and mindset. Despite valiant attempts to challenge these disparate 'realities', very few educators have managed to coordinate and revise these traditions as a way to address the frightening realities of the 21st century.

Teaching Metadesign

The paper advocates an augmented mode of design practice that it calls 'metadesigning'. This is a co-design methodology that has grown out of our research and teaching at Goldsmiths, University of London, over the last two decades. When we launched our first BA (Hons) degree, in 1989, few universities seemed to challenge the assumed role of designers as catalysts to economic growth. Nor were there any professional bodies powerful enough to re-direct specialist design practices as a radical force for aiding the survival of the human species. The deeper ethical and environmental issues we raised proved attractive to increasing numbers of applicants. Many expressed a wish to work primarily for the common good, rather than the profits of shareholders. Instead of emphasizing specific 'design skills' we therefore encouraged our students to challenge accepted beliefs and to think about the 'big picture'. This soon became a non-specialist design degree that was far more speculative, cross-disciplinary and entrepreneurial than any we could find. Controversially, instead of training our students with the traditional skills allegedly required by industry, we employed philosophers, anthropologists, entrepreneurs, scientists, visionaries and inventors to help them to imagine what the world might need from them. It was a pleasant surprise to find that our graduates were at least as employable as their

strongest rivals from other top universities.

Defining Metadesigning

One aspect of our approach resembled what others (e.g. Maturana, 1997; Giaccardi, 2004) have called 'metadesign'. It is an emerging and shareable set of principles, practices, tools and benchmarking methods that draw upon a wide range of disciplines to facilitate human survival. Here is how we have defined it:

1. Metadesign is a superset of co-design methods adapted from anywhere.

2. Metadesign seeks survival strategies via a radical and pragmatic approach.

3. Metadesign resists entropy by emulating how living systems conserve energy.

4. Metadesign is eco-mimetic in that it is inspired by how ecosystems work.

5. Metadesign intervenes in many places at once – to seed new paradigms.

6. Metadesign steers itself by using words to 're-language' actions and meanings.

7. Metadesign seeks, brokers, cultivates and orchestrates a synergy-of-synergies.

8. Metadesign creates holarchies, in which their 'parts' maintain 'wholes'.

9. Metadesign synergises its own teamwork by orchestrating synergies within it.

10. Metadesign seeks 'ecologies-of-scale' by 'scaling-up' in an organic way.

Researching Metadesigning

The idea that designers, aided by other experts, might considerably expand their professional role is not new. Some (e.g. Manzini & Cullars, 1992; Marzano, 1999; Manzini, 2001) have developed new approaches, such as 'service design' and 'high design'. These remind educators that new design approaches must be profound enough to cope with the complexity of global markets. Others have called for 'comprehensive' (Fuller, 1969) or 'strategic' practices of design (Jones, 1980; Archer, 1985). Since 2002, our research into 'metadesign' has attracted major research grants (e.g. AHRC and EPSRC) and we are applying our findings to practical projects. We recently launched our 'Metadesign Open Network' that runs as a not-for-profit, limited-by-guarantee company. We will soon be in a position to make some of our metadesign tools freely available under a Creative Commons license. More recently we have wondered whether our findings might be applicable to governance. In the present scheme of things central governments struggle to coordinate the many specialists – e.g. civil servants, judges, politicians, urban planners, healthcare managers, scientific advisors, economists, journalists and bankers – who maintain the social order. However, few of these professions intervene directly people's daily lives. Many of their methods are bureaucratic; and it has been argued that the methods governments use (e.g. setting

targets, fiscal policies and laws) are probably the least effective for achieving effective changes (Meadows, 1995). Achieving a genuine paradigm shift is a huge task. As Albert Einstein noted, 'We can't solve problems by using the same kind of thinking we used when we created them'. Metadesign acknowledges this difficulty and therefore expects to have to challenge, and revise, its own discourse by introducing perspectives that are 'external' to itself.

Design and Metadesign

Since Aristotle, design has been widely understood as a predictive practice, in which outcomes are defined in advance of an agreed deadline. However, there are ethical and organizational reasons why human behaviours and lifestyles cannot be 'designed' in the same way that we might design a chair or a website. The idea of metadesign is appealing because it encompasses the benefits of design, whilst avoiding its predictive expectations. An effective mode of metadesign would therefore replace 'design as planning' with 'design as a seeding process' (Ascott, 1994 in Giaccardi, 2005). This might place the 'metadesigner' in the role of 'systems integrator' (Galloway and Rabinowitz, 1983, in Giaccardi, 1995), rather than autocrat, or master planner. The word 'meta' originally meant 'beside' or 'after'. In modern parlance it now implies a 'higher order', 'different order', or the 're-siting' of something. It can be seen as a shared, inclusive and continuous process of systemic cultivation and management, in which the design process occasionally re-defines it. At the political level, this resonates with what John Dewey (1939) and John Chris Jones (1998) have referred to as 'creative democracy', and with what is now emerging in the 'Creative Commons' movement. Jones believed that designers might work with, 'not individual products but whole systems or environments such as airports, transportation, hypermarkets, educational curricula, broadcasting schedules, welfare schemes, banking systems, computer networks' (Jones, 1991).

Synergizing the 'Law of Increasing Returns'

One important role for teams of metadesigners would be to find, cultivate and harness different types of synergy (c.f. Corning, 1983) at different levels. This means locating non-destructive synergies, both known and hidden, and to synergize them to create even more comprehensive, self-renewing synergies. Obviously, this is an ambitious aim. What does 'synergy' mean, in this context? Richard Buckminster Fuller's definition is as good as any we have found i.e. "...the behaviour of whole systems unpredicted by the behaviour of their parts taken separately" (Fuller, 1975). The problem is that synergies operate on many disparate levels. Few appear to be as simple and quantitative as those at the physical level. Stainless steel, for example, is up to 35% stronger than any of its ingredient materials. Other synergies are a little more qualitative. By combining chlorine and sodium it is possible to create table salt. Interestingly, although salt is a food, both chemicals are

poisons when ingested by themselves.

Synergy can deliver free abundance

Here, Fuller's term 'relative abundance' emphasises that 'abundance' is neither extrinsic to the system, nor is it intrinsic to the individual parts (c.f. Wood, 2007:2). It is a property of the combination of existing assets and means. At the biological level, 'synergy' is usually referred to as 'symbiosis' (Margulis, 1998). This endorses the 'Law of Increasing Returns' (Young, 1928; Romer, 1986; Arthur, 1996) that defies the belief that the world can sensibly be audited as a balance sheet of raw resources. For example, a competent chef de cuisine can create a dish that is more satisfying and nutritious than one from a bad chef, even though the quantity of ingredients is the same, or less. However, what this also illustrates is that synergies are seldom simple. It is normal for many different orders of synergy – e.g. physical, chemical, biological, social, economic, cultural, etc. – to become entangled in forms that may be indescribable or, even, unthinkable (Wood, 2007:1).

Co-creating knowledge is synergistic

Most designers are accustomed to working on 'wicked problems' (c.f. Rittel & Webber, 1984) that defy deductive analysis. This paper argues that metadesigners must integrate their best skills of intellectual reasoning and creative judgement to synergise many processes on many levels, simultaneously (Wood, 2008). One of the reasons why humanity is creating so much ecological damage is our tendency to disconnect everything so that specialists can improve each part in relative isolation. It is common in academia for specialists within a research team to send their individual contributions to an editor who will combine them in a single research document (Hollis, 2001; Newman, 2004). But this method is unlikely to enrich the working synergy within a cross-disciplinary team (Nieuwenhuijze & Wood, 2006). In his 1991 book Designing Designing, Jones spoke of 'designing without a product, as a process or way of living in itself', and he foresaw the emancipation of the non-specialist in a process that would augment the practice of design, as we know it.

Team consciousness

However, living in a world that is non-hierarchical would mean that it is also less predictable (Arthur, 1996). This means that responsible professionals will constantly need to challenge and refresh their assumptions, expectations and habits. They would therefore need to remain vigilant, adaptable and creative. This vision resonates with the organizational structure that Arthur Koestler (1967) called 'holarchy'. A holarchic organization is one in which the whole is governed by its parts. Functionally speaking, this means that each player, or agent, within a given 'whole' (or 'holon') must feel accountable, and act responsively and appropriately, in helping to maintain the status of the whole system. This is an ambitious quest that would be impossible without the emergence of what we call 'team consciousness' (Wood & Backwell, 2009). This is an important idea because

it is helpful to have a variety of cognitive and emotional types in the same team (Belbin, 1993), even though this may cause friction. This raises both political, and organizational challenges.

Mapping team consciousness

This qualitative notion of synergy cannot be confined to a specific domain, or category (Bussracumpakorn, 2006). If we are to achieve high levels of synergy within co-design the whole system will need to attain a high level of consciousness'. This may sound strange to some readers, because we are used to thinking of consciousness as an attribute of individuals, rather than groups. Marvin Minsky once remarked that consciousness is merely a "low-grade system for keeping records." (Minsky, in Horgan 1994). Using this assumption I realised that we might be able to map 'team consciousness' by mapping the team as a network of agents, and by evaluating the level of adjacency between each agent. It follows from this simple model that 'consciousness' (Minsky's term) is likely to diminish as the system's size increases. This can be illustrated by what Koestler (1967) called the 'paradox of the centipede'. This notes that most of the centipede's cognitive capacity is absorbed in the task of walking. This extreme example of an organism's ability to monitor its internal components illustrates Minsky's idea of consciousness, and how it implies a balance between the inward-facing and outward-facing aspects of awareness. How might one depict, and measure the team consciousness that is implicit in Minsky's simple model? Leonhard Euler (1707-1783) devised a famous schema for mapping 'agents' and their relations, by using dots (vertices) and lines (edges). These can be applied to create strings, fans, nets and polygons, etc. Figure 1 illustrates how it can represent simple relational criteria. More importantly, it identifies the implications of a team's size. This also helps us to visualise several basic configurations of interdependent 'players' and the way they might relate to one another.

Auspicious forms

It is possible to map relations using topographic forms. For example, the tetrahedron (see figure 3) offers uniquely auspicious properties (Wood, 2005). It is a Platonic solid with 4 faces, 4 vertices (corners) and 6 edges. Euler's famous theorem of 1751 showed that, out of all known polygons, it has the maximum edge-to-face ratio and the maximum edge-to-vertex ratio. Why is it useful for co-design purposes? For one reason, although it has the same number of nodes the tetrahedron is less 'hierarchical' than the square, because it enables every player to have an unmediated link to every other player in the cluster. Figure 2 shows how the number of relations rises in comparison with the number of players in a given instance. Notice that the rate of increase in relations as the number of players goes up. The biggest jump is from 3 agents to 4. In other words, the number of relations doubles from 3, to 6. Going from 3 to 4 players obviously doubles the advantage of clustering and, therefore, enhances the potential for 'consciousness'. But,

using the 3D model, as we add more players to our original 4, a hierarchy begins to emerge. Psychological studies have indicated that, although some people may be able to visualise and remember, up to nine, or so, interdependent factors, others can envisage only four or five (Miller, 1956). Our empirical studies show that, although four is a convenient and easy number to use, odd numbers (3 or 5) seem to work better for mapping, sharing and discussing specific issues in creative teams.

Some relational arithmetic

Synergies can only emerge from within relations. If we can count the possible relations, then it would be possible to identify some latent opportunities for creating synergistic outcomes. First, the arithmetic that calculates how many possible relations there are among a given number of agents is simple:

$$R = (n - 1) \times n$$

Players & their relationships	Features	Implications for Co-designers
	2 players have a maximum of 1 direct, internal relation	Theoretically, any non-synergistic relation may be transformed into a synergistic relation by ingenious re-design. When this happens, each player receives a maximum benefit of 1 synergy. There are no chains within this system.
	3 players have a maximum of 3 direct, team relations	When all of the relations are made synergistic, each player experiences a maximum benefit of 2 synergies. This represents two thirds of the total synergies shared. There are no chains within this system.
	4 players with the maximum possible number of direct, internal relations (6) within the team	The total number of possible synergies is 6. When this is attained, each player experiences 3 immediate synergies, i.e. half of the total number of synergies shared across the whole system. Topologically (i.e. mapped in 3D space), it represents the largest number of direct, peer-to-peer relations. Mnemonically (i.e. as a concept) its level of complexity is easily graspable and memorable by most people. There are no chains within this system.
	4 players connected so that there are only 4 direct relations 2D figure	Team misunderstandings may build up if some collaborators only deal indirectly with some others. 'Looping' a chain raises the average number of direct relationships. In this case, looping increased 'directness' significantly. In much longer chains the looping process this is less effective, relatively speaking.
	4 players connected so that there are 3 direct relations	As a chain emerges and get longer, player-relations become less direct. In the illustrated example, only 2 players (2 and 3) have relations with more than one other player. This means that, out of 6 possible relations, only 3 are operative; and some are secondary, tertiary, or even further down the scale of connectedness.
	5 players 4 direct relations	A 'fan' format implies a hierarchy. When we create long chains of command we risk introducing alienation. A hierarchical management system is therefore unlikely to be highly synergistic. To achieve synergy we may need to de-centralise.
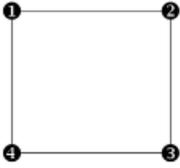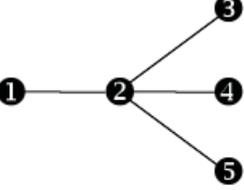
Figure 1. Examples of player-relations, mapped using Euler's notation

2

Where:

n = the number of fully mutually aware agents

R = the number of relations that exist among them

The jump from 3, to 4 fully interconnected agents reveals a doubling of relations. If we may assume that each relation is synergistic we may assume that synergies can be persuaded to synergise with other synergies. We call these 'second-order

The number of mutually aware agents	Some notes	The number of possible direct relations	The number of possible relations between the primary relations	The number of possible relations between the secondary relations
1	No potential for relations	0	0	0
2	A single relation, but no potential for secondary, or other relations	1	0	0
3	Mnemonically easy, but no potential for additional relations	3	3	3
4	Smallest number of agents required to produce an infinite number of subordinate relations (beyond column 5). Can be grasped either consciously, or intuitively	6	15	105
5	Practically useful as a cluster of agents, but cannot be modelled satisfactorily in 3D (without forming an indirect relation)	10	45	990
6	Would probably require 'chunking' of the factors involved	15	105	5460
7	Relies increasingly heavily on experience and/or intuitive skills and insights	21	210	21945
8	Probably beyond the average person's ability to have a conscious grasp of all primary relations	28	378	71253
9	After this point the exponential increase in the ratio of direct to indirect relations continues. Ultimately, this reduces the team's ability to achieve a high level of consciousness	36	630	198135
10	Ditto	45	990	489555
11	Ditto	55	1485	1101870
12	Ditto	66	2145	2299440

Fig. 2: Some notes concerning peer-to-peer relations

synergies'.

Practical Work

In seeking a suitable strategy for paradigm shift, our approach was to look for synergies that already exist at many levels within the system. This is not always easy because it calls for a sophisticated level of teamwork. In our empirical work we have conducted a number of metadesign workshops as a way to evaluate our theories of holarchy and how it might be usefully applied in a practical way. The most recent study took place on behalf of a Californian-based energy company. Previous experiments have taken place over several days. On this (one day) occasion, there was not enough time to use many of the 90, or so, tools we have devised. The underlying assumption behind this work is that our metadesign methods can enhance business thinking. We carefully selected a team of thirty experts that included distinguished innovators from design-related fields and we organized them into four, interdependent teams. Finding new synergies in the short time available to the workshop was a challenge, because many of the group did not know one another. It was therefore important to ensure that team members would bond quickly in order towork together synergistically. This calls for emotional intelligence as well as intellectual intelligence. The first session therefore emphasized shared experiences, rather than intellectual ideas. We asked each individual to take turns at initiating a drum rhythm in front of the group. We repeated the experiment and asked the whole group attempting to clap, in unison, to this rhythm.

Fig. 3: Participants quickly engage with one another via a drumming workshop.

This tool worked better than expected. It is easy to facilitate by a non-expert. It took less than fifteen minutes to run and it relaxed and 'bonded' the whole group.

Fig. 4: Four Teams interconnected by Six Relations

We set up four teams of experts, each placed at a table. The four tables were arranged in a square, with a fifth table at the centre. Each team consisted of three invited guests, one facilitator, one observer (note taker) and one video-camera operator, standing slightly away from the table. Although a 2D square does not quite make the teams equidistant from one another, conceptually, it signifies our avoidance of a hierarchy. Each team on the four (outer) tables had a particular theme – shelter, mobility, clothing and food. The broadening of the agenda, and the non-hierarchical nature of the group structure, were key aspects of our approach. We wanted to challenge received ideas of what an electric car, or energy utilities, company might be expected to do, or to be in future. We invited each of the teams to question the usefulness of their assigned category. The results confirmed that any product category could be stretched, shifted, or morphed into another one because of innovations from competitors in their own market, or even from other industries.

Fig. 5: Progress of the four teams was made visible to all via a mind-mapping display

The central (fifth) table was the 'base camp' for someone who monitored activity from all four tables (via post-it notes), and compiled an up-to-date mind-map that was projected onto a large screen and could be seen by each of the four groups. Much of the discussion was characterized by the simultaneous making of sketches, models and diagrams. This was not something that is required, but is behaviour that emerges from the type of participant that we invite (also because suitable art materials are made ready-to-hand). We concluded that synergy can be increased (Nieuwenhuijze & Wood, 2006) when the following four elements become enmeshed and, or integrated:

1. **Author-autonomy**

The individual viewpoints of the co-authors (and/or co-designers)

2. **Effective author-relations**

The relationship between/among the co-authors (and/or co-designers)

3. **Team-consciousness**

The inner/inter-active dynamics, of the group of which they are member

4. **Co-creative, purposive innovation**

The new meanings in their joint context of embedding, extending the context of their original meanings.

The components of collaborative synergy outlined above reflect the importance of changes that must take place within/across the co-authorship team. Viable solutions are likely, therefore, to orchestrate events at many levels – including, say, the organisational, cerebral, somatic and emotional faculties of each participant, in the context of the whole. They may

also be trans-disciplinary. A positive aspect of this process is that the boundaries of separation between our disciplines, and our cognitive modes are also the interfaces through which our differences can be bridged, creatively (Nieuwenhuijze & Wood, 2006).

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Designing with People:
Developing a digital platform for knowledge transfer and exchange of inclusive design methodology

Abstract

In this paper we report our experiences of asking how to educate designers to engage Inclusive Design (ID) thinking. Our experiences gained from organising and managing ID activities in each area are very promising and could serve as a precedent to demonstrate what we mean by employing reflexivity to make better participations. Through reviewing the process of constructing a web tool, www.designingwithpeople. org, we aim to show how both designers and participants can acquire design ability and knowledge through digital means and become more inclusive and creative in Participatory Design (PD) processes. In developing this webtool, our main question is 'how real exchanges between designers and participants happen in design processes', a logical question informed by our ideal of 'Designing with people'. We also reflect on this way of knowledge transfer and exchange to examine the feasibility of using websites for the purpose of social education. Based on our reflexive questions from ID experiences and explaining the ethos of developing the web tool, we suggest that practitioners in design community should be more reflexive about their own practices and put more effort on formulating different user involvement processes in order to improve the quality of participation.

Keywords

Design tools, design thinking, people-centred design, design education, inclusive design, participatory design

Introduction: From 'Users' to 'People'

In 2004, a research report issued by the UK Government Department of Trade and Industry (DTI) about user-centred design (UCD) suggested the replacement of the term 'users' with the term 'people'. The researchers visited top design consultants in the USA to track the transformative trajectory of the design field from user-centred design (UCD) to people-centred design (PCD) because '...UCD is often thought to be purely about 'usability' or making things 'easy to use...' Frequently, UCD becomes merely 'user testing' and is brought in at the end of the product development cycle. Users are often conceived in a task-centric way that fits into current technology-led business models' (DTI, 2004). It appeared that the term user-centred design has been challenged but this revealed a tendency in the design field to put more attention on the role of people in the process of design.

This is certainly a good social indicator showing a belated awareness of the necessity for people's participation in designing our world. As Sanders (2006) suggested that pioneers in design development from the developed world have been pushing the concept of people-centered design in order to replace the ethos of the market-driven era. In fact, a number of private enterprises have relegated part of the design tasks to their customers, e.g. Nike's trainers and Colnago's custom-built bikes. However, customers' involvement in commodity design remains at 'the end of the production cycle. There is insufficient attention put on the significant role of people through the process of design and production. Drawing from our effort in investigating the role of people in design, our experience may provide some ideas for those who are concerned with people's involvement in design.   We are sure that, in this new socio-economic ethos, which put 'people' at the centre of design world, designers should know more about the ways of working with people.

Inclusive Design: our platform for designing with people

Inclusive Design (ID) is a response to design exclusion. It took the form of the ID movement, influenced by the US's Universal Design and European's Design for All ideology, and started in the 1990s from the UK. Over the years, working with people who are socially excluded by design profession has proved to be an effective way of developing inclusive design for society at large (Cassim, 2007). A distinct practical approach has proved its contribution to inclusivity in society (Macdonald, 2006). In the light of this, through engaging people who are excluded by design, people are invited to participate in interactive design sessions. They are termed as 'user forum' which represents a form of interactions different from 'focus group' methods that used in market research: 'User forums are not simply discussions between users but regular meetings between designers and users. Their advantages are that the two groups get to know one another and become comfortable with one another over time. One disadvantage is that the users may develop some design awareness and so perhaps become

less useful as research 'subjects' (Coleman,1999).

However, in order to make 'user forums' more participatory in nature, the first step should not regard participants as 'research subjects' but as 'active design partners' (Lee, et.al, 2009). This aligned with Sanders and Stappers' (2008) distinction between user-centered design and participatory design: the former approach refers to 'users are subjects' while the latter to 'users are partners'.

Engaging people who are excluded by design, ID aims to generate mainstream designs for al. But treating people as partners people are able to show their innate 'designerly ways of doing'. Thus, People-centred Design (PCD) has also re-oriented to treating 'users as partners', which is aligned with PD's concept and becomes a new level of UCD (Fig.1). From our view, ID is an ideology, which is supported by different forms of methodologies and methods in the process of people involvement in design. User-centred Design (UCD) and Participatory Design (PD) are two of them.
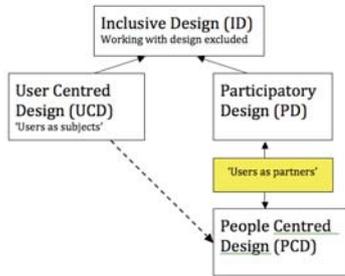
Figure 1.
Terminologies table

New web tool for new learning in inclusive design

Cross (2006) has argued that '[w]e often overlooked the fact that people are naturally very good at design. What designers should do is to help bred the core features of design ability that are said to be latent in everyone.' To us, the idea of design as an educational means has been put to test through constructing the web tool, www.designingwithpeople.org (fig.2). In fact, this idea has its conceptual link to the Inclusive Design endeavour from the UK.

Since its emergence in the UK in the 1990s, ID has been promoted as an important element of business strategy (Coleman et al., 2003) and recently there has been more focus on discussion of the subject in design education (Dong et al., 2009). One of the core developments of ID in the UK has been the i~design project, a ten-year collaboration between key players in the field, with other UK collaborators from different sectors. It started in 2000 and has centred on three successive research collaborations, funded by the UK's research council.

Table 1 shows the evolution of this major UK academic collaboration regarding ID to date. This has led the way in developing the concept and influenced policy makers by issuing white papers and formulating tools for both business and design communities. Here our web tool is also informed by the general tenets of the ID to educate designers by asking specific question of practice, i.e. question of 'how to be inclusive'.

Project	Research question	Deliverables
i~design 1: 2000-2004	What is inclusive design?	A knowledge base for inclusive design through the identification, development and testing of models, tools and theories, e.g. BSI definition of inclusive design
i~design 2: 2003-2007	How to enable industry to carry out inclusive design?	Develop mechanisms and approaches for inclusive design; resulted in a series of business case studies that highlight inclusive design processes and professional models, www.inclusive-designtoolkit.com
i~design 3: 2006-2010	How to enable designers to design with people more effectively?	(Expecting) Exclusion calculator, www. designingwithpeople.org, etc…

Table 1. The development of i~design projects

Our website www.designingwithpeople.org (fig.2) aims to act as an education tool to encourage designers to develop their own ways to make connections, not only within their subject area but also beyond it, to be able to generalise and transfer the principles of inclusive design into their own practices.

The construction of this web tool is based on the answers to five questions as to 'how' to indicate that the ID movement is moving towards a new era of rigorous redefining of terminology and attitude, methodology and collaborative practice. The five questions are:
1. How to shift from the term 'user' to 'people'?
2. How to move from designing for to designing with?
3. How to balance the user-centred and people-centred approaches?
4. How to identify and apply different inclusive design methodologies (e.g. grounded theory versus action research theory)?
5. How to transfer knowledge from academic research and practice to the real world for the benefit of people?

Five principles for using the web tool are presented in the following subsections, along with some our reflections of

practicing and researching ID.

Figure 2. Screen shot of the content
page of the www.designingwithpeople.org

1) How to shift from the term 'user' to 'people'?

Deciding on the correct term to describe those who use the results of design has been a long-term argument (Lee, 2007). Designers, architects, planners and policy makers create products, services, systems, or environments through design processes. 'Users' is the general term used to describe those whose lives are directly affected by the material outputs of design processes. What does the term 'users' mean and how does it relate to other terms that are used to objectify different people? Within many design disciplines, 'user' is the common term to describe the unknown person who is going to use the objects and systems, such as those in the 'user manual' for computer software.

Forty (2000) quoted from Swain's publication that many designers now prefer to use the term 'people' rather than 'users'. 'People' denotes the population as a whole and is a more general term than 'user'. On the one hand, using the term 'people' can show a bigger vision of design. On the other hand, using such a general term responds to Forty's criticisms by suppressing all the differences which exist between specific labels such as 'customers', 'clients' or 'inhabitants'.

One recent argument suggested that the missing information that would enable designers to practice Inclusive Design is the anthropometric data on potential and specific users (Dong et.al 2007). It further urged development of supports to help designers to address existing anthropometric data through the three categories of Usefulness, Usability and Desirability of the user data set (Nickpour et.al, 2009). The approach of www.designingwithpeople.org has been derived from conversations with designers who have been practicing inclusive design or working on humanitarian projects. They said:

'tools like anthropometric data and persona can only give general impressions of users; they cannot replace interactions with real people[3]' .

Furthermore, most of the interviewed designers added:

'it is more difficult to know how and where to find the 'users'[4]

Therefore, this web tool is designed as an inspirational tool rather than a substitute for interactions with real people during design processes. It aims to act as the first step and one-stop learning tool for designers to explore and find their own ways to design with people. All these comments by designers were key to developing the tool. This web tool encourages designers to go out to meet people for their design process. One important element of meeting people face-to-face, especially older and people with disabilities, is the change of attitude from sympathy to empathy, which is crucial to the interactions. All people are people, but each has a different character.

2) How to move from designing for to designing with?

After terminology and, one hopes, attitude have changed, it is important to align these changes with actual practice. The shift of preposition from 'designing for' to 'designing with' is essential. The web tool will show how the change can be made.

The web tool contains four parts: METHODS, PEOPLE, ACTIVITIES and ETHICS. Among them, the METHODS section is the structure of the tool. The consideration of the people who are going to benefit from design processes is not a new concept; many humanitarian designers have emphasised this relationship. The best examples include design classics like Designing for People (1955) by industrial designer Henry Dreyfuss and Designing for the Disabled (1976) by architect Selwyn Goldsmith. However, these relationships between designers and design users have in the past been mainly restricted to a quantitative approach based on measuring people's bodies and analysing the usability of designs in relationship to people's abilities or disabilities. Gradually, this 'designing for' approach has been challenged.

Our web tool carries the ideal of 'Designing with people' which is believed to serve as the common platform of design participations projects, i.e. it is more about the actual interactions rather than those between 'products' and users. This conception also informs our rationale behind the construction of the website which offers the 'midway' between the traditional mode of designers-users relationship, i.e. design for people, and the future mode, i.e. design by people. Our aim is to link both sides, i.e. 'for' and 'by' approaches, and collates all of them into a comprehensive tool to let newcomers to understand the practice and develop their own appropriate approach.

This rationale is in line with the ideas suggested by pioneer designers/design researchers who seek to position design profession in social frontier. Mau's (2005) has made a provoking statement, 'It's not about the world of design'. It's about the design of the world'; and Sanders' (2006) suggested a highly critical distinction between traditional design disciplines that focus on the designing 'products' and the emerging design disciplines of design for a purpose. These kinds of attempts in re-defining the nature of design are definitely pointing to the changing landscape of design practice. Jane Fulton Suri (2005) from IDEO has presented the model of 'for>with>by' as a new democratic design development that encourages designing 'with' people and even 'by' them. This argument is supported by a quotation from an older adult, who was involved in the Presence Project:

'We don't need your patronising help, you designers. If

you've come here to help us, you're wasting your time; we don't want to be helped, thanks just the same. Yet we do have some interesting observations to make about our daily lives, about our lifestyles, about our communication, and about all of their attendant dysfunctions. If you could kindly change your attitude and help us explore how we will live, then perhaps we can do something together.'

This was a research project looking at and for new media for researchers to urge designers and design researchers to reposition themselves at equal footing in their relationship with 'users'. Thackara (1995) suggested that the practice of design should actualize an essential shift from designing 'for' to designing 'with'.

In light of this, we advocate here that designers should change their attitude accordingly and most important is to help the people to 'explore how we should live'. Here we need to do more knowledge transfer. In other words, we expect to know how to educate designers to educate. Drawing from our experiences in designing and managing ID projects, we have designed three tasks of ID development activities, namely: educating designers to design, encouraging social focus of collaboration in design and enabling civic education through ID processes. In this paper, we focused on the design education by developing this web tool to transfer design knowledge to the people as well as providing resources for designers to reflect on their practice.

METHODS – Designing with, not designing for

In the METHODS section, using the 'for>with>by' as the framework to classify user research methods in design. Unlike the Helen Hamlyn Centre (HHC)'s Methods Lab (1999), IDEO's Methods Card (2000) and Engineering Design Centre (EDD)'s Cluster analysis of design methods (2004), we offer a new way to look at methods by classifying methods with their methodologies. It shows at table 2 that other classification approaches are based on 'what' and 'how' we used the methods.

	HHC's Methods Lab (1999)	IDEO (2000)	EDC (2004)	www.designingwithpeople.org (2010)
WHAT	1. Matrix (the Methods Map): • visual qualities Vs functional qualities • designer centred Vs user centred 2. Typology quotations and definitions by practitioners		6 clusters (2 about user involvement)	
HOW	Output Input: Expertise, time, staff, cost, setting Used in conjunction with: Further reading Links	4 types (LEARN,LOOK,ASK, TRY)> How to use > Why we choose this method		Methods (based on real situation and resources) •Expertise •Time•Staff •Costs •Stages: Need > Understanding >Requirement > Concepts > Solutions Based on explanation of 'Design Process' by John Clarkson at www.inclusivedesigntoolkit.com
WHY				Methodologies (based on user interactions): three types •Design for people •Design with people •Design by people

Table 2: Classifications of user research methods for design

In our METHODS section, we aim to show how reflexive design events can enable responsive participations. These activities were informed by the general concept framework of the nature of inclusive design, which focus on the relationships between designers and the users, and on the relationship between designers and people who would be affected by the adoption of the new design. The framework is three-tier of 'why' we include people:

1. Design for People (Current practice)
Designers control the whole process while people are treated as passive subjects

2. Design with People (Emerging practice)
Designers share the process with people who are act as active participants

3. Design by People (Future practice)
Under each tier, there are examples identified with name, description, aim, methodology (research approach), input requirement and background. More important, there are examples about each method which users could 'click' the web links to related website in order to consult the documents of the related workshops for learning how to design with people (fig.3).

Fig.3 METHODS at
www.designingwithpeople.org

3) How to balance user-centred and people-centred approach?

The other two sections at the web tool are: ACTIVITIES and CHARACTERS (Fig.4). The combination of them provides different ways for our 'users' to meet their future users virtually before meeting 'real people'. Over the decade of inclusive design development, different ways to design inclusively have emerged. This ACTIVITIES and PEOPLE approach represents

Fig.4. ACTIVITIES and PEOPLE Pages at www.designingwithpeople.org

the two poles of the practice, suitable for different situations.

ACTIVITIES – Starting from everyday lives

The ACTIVITIES part is based on the user-centered model, which is driven by the Activities of Daily Living (ADL). The need for information regarding people comes later in the process. The first set of insights is from our ten-year track record of ID projects. All the user interaction records from a wide range of design issues are distilled into ACTIVITIES. The first set of activities is from the Helen Hamlyn Centre's rich track record of people-centred and inclusive design projects, over ten years. All the user interactions from a wide range of projects are distilled from the design issues and include four themes of Personal Care, Household, Work & Money and Communication.

PEOPLE – They are people, not users

The PEOPLE section is based on a different model where people's contributions come first. This is the essence of PD design. CHARACTERS contains a series of character profiles that loosely represent the spectrum of abilities and disabilities within the UK population, based on design exclusion data from the Engineering Design Centre (EDC), University of Cambridge. These are our examples of 'active design partners', i.e. individuals with special situations such as disability or ageing. The characters represent a diverse range of individuals with a spectrum of capabilities related to: Vision, Hearing, Dexterity, Mobility and Cognition. Both the data of capability and the lifestyles of these characters are mapped. They are different from conventional virtual personas in that they are drawn from the actual design cases that inspired them, and users of the web tool can contact the 'real' people afterwards.

Its main aim is to encourage a holistic way to engage & understand people. Each character links to 4 supplementary elements:
- Basic information: (Photo, First name, Data entry year, City, Age, Approximate height, Gender, Ethnicity
- Capability data with population data
- Design Lifestyle data
- Inspired design projects

4) How to identify and apply different inclusive design methodologies?

Another clear distinction between the different practices in the inclusive design movement is the academic research methodology with which they are associated. The user–centred approach is linked to the Grounded Theory, which is a social science systematic qualitative research methodology emphasising collecting data to generate theory during the process of conducting research. The people-centred approach is closer to Kurt Lewin's Action Research model, as outlined in his 1946 paper 'Action Research and Minority Problems.' In this he described action research as 'a comparative research on the conditions and effects of various forms of social action and research leading to social action;' this uses 'a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action'. Both of them are

qualitative research methodologies but the main difference is the relationship between the researchers and the researched. Balancing the agenda of researchers and participants is one of the essential elements in the new development of inclusive design.

ETHICS - Two-way exchange

Finally, the ETHICS section aims to imply a simple structure of three 'Cs' of user research to design community: Consent, Confidentiality and research Conduct (Higgins, 1992). There contains step-by-step procedure on the interactive web pages to suit designers from different levels to understand the principles of ethics of user involvement. The three Cs become the three levels of questions for design researchers to address during the process:

- C1: Consent – the essential procedure for all researches
- C2: Confidentiality – data and information protection on collaboration
- C3: Conduct – wider responsibility for researchers

Each 'C' contains guidance of good practice to suit designers and design researchers from different levels to understand the principles of ethics in user involvement. There are three levels of practice depending on who the researchers are working with:

- Friends or family members
- Collaborators
- Vulnerable groups

5) How to transfer knowledge from academic research and practice to the real world and benefit people?

Since the term 'Inclusive Design' was introduced in the mid 1990s, the definition of the word 'design' is changing. There are a lot of different interpretations; for example, Sanders's differentiation of the traditional design disciplines focuses on the designing of 'products,' while the emerging design disciplines focus on designing for 'purpose(s)'. Similarly, Participatory Design, Emotional Design, Inclusive Design or Design for Social Inclusion can be classified as the emerging design practices which focus on designing for a purpose and centre around people's needs or societal needs, with a different approach for longer investigation into larger scopes of inquiry (Sanders et al., 2008).

G K VanPatter, co-founder of the NextDesign Leadership Institute in New York presented another new classification of design at the EXPOSED 09 Conference, Arizona State University School of Design. He described four types of 'design,' from 1.0 to 4.0. The concept of 'Design 4.0, Social Transformation Design' is the latest development, which is focused on design thinking and the application of creativity to contribute to social development.

Expanded from this new understanding of 'design', we propose another way to look at 'design' (Lee et al, 2009):

- 'Design as a noun' is the traditional way of defining design in different disciplines.
- 'Design as an adjective' is about making better design

through different processes such as inclusive design.
- 'Design as a verb' is based on Ray and Charles Eames' famous quotation, 'Design as a course of action,' which can make transformations in society and focus on design thinking as an approach to designing.

All these new definitions of 'design' align with the fundamental philosophy of inclusive design, which is to 'encourage designers to design inclusively and design for social inclusion and for those being excluded by design' (Coleman, 1994). The more specific question after more than ten years of development might be: how to transform our societies through design? There are many ongoing discourses on this subject and it is not within the realm of this paper to discuss them, but the ETHICS section of the web tool contains information on related organisations and projects for designers to refer to. A common code of ethics is also part of the section. Most importantly, it is registered as .org rather than .com, with the aim of suggesting a community or organisation of active design partners in the design research process.

Discussion and Conclusion

After the final process of transferring our knowledge of inclusive design to the webtool, it will go public for the start of exchange process in the beginning of 2011. The process of creation and design should be understood as a process of conscious and unconscious deliberation between the designers and the 'active design partners'. As Bourdieu (1984) has pointed out, the existence of habitus would provide spontaneity without consciousness or will to inform our choices and practices in constructing our daily life. Both designers and 'active design partners' would embrace some burgeoning ideas arising from our desire to actualize our selves, which would be fragile and vulnerable in face of the domination of experts and professions. However, we found that their relationship should not be interpreted as social struggle, rather to a certain extent designers should turn their power into authorities that is the power granted by social institutions. If we regard ID is of social education in nature, the designers have the rights to 'educate' the people, and sometimes education needs to request the 'learners' to do something against one's own free will. This is needed by education, not out of any self-interested strategic action on the side of the designers. From our ID experiences, the 'active design partners' who are used to being design excluded, have shown their anticipation for more freedom and self-actualization. Not only that emancipatory politics is not enough to foster this pursuit, the people also need more design ability to help write their own biography and construct their own lifestyles.

We clearly need a holistic view to address Designing Participation, which focuses on design education, but also need to search for the right and effective ways of knowledge transfer and knowledge exchange. By doing so, we could carry out civic education through design as a counter balance to the processes of social exclusion in design. As this ideal is reached, we do believe that we could actualize the ideal of

inclusive design in our current socio-economic context where the role of the people is enshrined.

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Notation

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The DensityDesign lab :
communication design experiments
among complexity and sustainability

Abstract

Social complexity requires new processes fundamentally attuned to the social and conversational nature of decision making and design work; they should tend to enable a more and more valuable interaction and dialogue among the actors of a social system.

Heeding the perspective of Design discipline dealing with languages, the Communication Design could afford the creation of visual and interactive languages relevant to the representations of Complex systems, creating shared visions within multi-actor contexts. In this sense it can facilitate dialogues within participatory actions and verify the potential of communication artifacts in supporting and externalizing sustainable and self-adaptive learning processes.

Assuming this contribution of design in the multidisciplinary framework of sustainability, a didactic and research initiatives has been established since 2004 at the Master Degree in Communication Design at the Milan Polytechnic. Using complexity as a keyword to understand reality, combining it with a continuous research for information aesthetics and representation, the The DensityDesign lab explores the emergent relationships among communication design, information visualization and complex systems. The paper will discuss the relevance of this approach in dealing with the social issues and the data dimension, and the impact of this practice in the master students' comprehensive background.

1. Introduction

Among the different approaches for sustainability and sustainable development, a common belief arises: the economic, environmental and social dimensions are strongly interlinked and it is necessary to deal with them as a whole. This observation, endorsed by the major institutions committed in sustainability development policies, finds a more general correspondence in the assumption that the world could be seen as networked and as a complex system (Capra 1996; Castells 1996). Over the past forty years complexity theory has become

a broad field of study; the increasing regard in system thinking and science of complexity showed by economic, environmental and social disciplines and, more germane to our field of study, by planning in social systems and decision-making, seem to reinforce the link between sustainability and Complexity.

The disclosure of systemic approaches lies in the coherent integration of the action and the understanding of phenomena, transcending the limits of analytical traditional modeling techniques. Even if a well-defined "toolbox" for sustainable changes based on the findings of system thinking and complexity science has not yet been found, there is enough convergence on two pillars that can be used to shape new tools:

• the need for trans-disciplinary sustainable development approach based on a systemic perspective. This statement is supported by the relation established between trans-disciplinary and complexity;

• the interpretation of sustainable development as a learning process. Discussing the integration of the science of complexity, knowledge management and organizational learning disciplines, McElroy (2000) states that "complex systems are, by any other definition, learning organizations", and adds, on the other side, that "knowledge is the product of natural innovation schemes inherent to all living systems". If sustainable development means to drive change and to make it happening in complex systems, it has to take part to the learning processes underpinning complex systems behaviors.

It can be argued that sustainable changes need methodologies and tools able to support a learning process in a complex system with a trans-disciplinary approach. Moreover, this learning process should be collective; Holman says (2007):

"Effective, sustainable change are sessions in which people collectively explore each other's assumptions, seek and expand common ground, shape a desired future, and jointly take ownership of the solutions to the issues at hand".

In the next pages will be discussed why and how design should be a discipline integrated in the changing process, in planning and decision-making.

2. The role of Communication Design within Complexity Framework

One of the most important challenges of complexity science researchers is to facilitate connections among knowledge domains apparently distinct and separated towards themselves, approaching system to be known in a systemic way. This basic idea is confirmed by Gell-Mann [19], he describes a way about carrying on this approach:

"[...] some efforts just getting under way to carry out such a crude study of world problems, including all the relevant

aspects, [...]. The object of the study is [...] to identify among the multiple possible future paths for the human race and the rest of the biosphere any reasonably probable ones that could lead to greater sustainability".

This, which seems to be more a challenge than an actual reality, has to recall disciplines by their own nature situated at the edge of different competences domains. Design discipline is one them. There is a need for integrating competencies, labelled by Gell-Mann as "a crude look at the whole". In this sense, the hypothesis that design may join those disciplines of "looking at whole" outlining a designer profile whose task is to select results from heterogeneous disciplinary fields activating a trans-disciplinary circulation of concepts [30], is made. This means adopting and developing a new attitude based on a theoretical framework that overlaps systems science and complexity theory [17].

Designers should use their skills to facilitate the emergence of the system; they should no longer focus on finding solutions to specific problems but on the ability to develop tools that can be self-adaptive, continuously modifiable and improvable. Acting within complexity requires considering the impossibility to reach an exhaustive knowledge of the system in which one operates. It could be passed by developing a strategic stance that allows facing the system changes and evolution. Development models often relate expert knowledge to social needs with a top-down approach, thus being not able to cope with the issues of a complex world. Effective changes in social systems arise from iterative and dialogic processes in which information and knowledge are exchanged between heterogeneous actors, to build-up a common background that enables shared hypothesis.

Social complexity requires new processes fundamentally attuned to the social and conversational nature of decision making and design work; they should tend to enable a more and more valuable interaction level and dialogue among the actors of a social system. Heeding the perspective of Design discipline dealing with languages, the Communication Design could afford the creation of visual and interactive languages relevant to the representations of Complex systems, creating shared visions within multi-actor contexts. The design approach outlines the ability to select results from heterogeneous disciplinary fields activating a trans-disciplinary circulation of concepts. Designers should use their skills to facilitate the emergence of the system; they should no longer focus on finding solutions to specific and well identified problems but on the ability to develop tools that can be self-adaptive, continuously modifiable and improvable by the ongoing process of wicked problems transformation.

In this sense it can facilitate dialogues within participatory actions and verify the potential of communication artifacts in supporting and externalizing sustainable and self-adaptive learning processes. Therefore the possibility to consciously face social issues and orient the behavior of complex social systems could benefit from the use of communicative tools and methodologies, in order to support collective learning processes and build-up a common vision, shared by different stakeholders.

The centrality of communication and learning processes when dealing with complex systems -especially social ones - has been explored and criticized in several domains by different disciplines: from the theory of social systems (Luhmann 1984) to knowledge management (McElroy 2000). How these processes should be handled and shaped in order to be effectively and collectively able to drive and orient the evolution of a complex social systems seems to be less explored and clear. We believe that the communication design capabilities go beyond the necessary and general approach of taking into account complexity, developing a systemic perspective, consider its limits and opportunities; the communication design, as we are exploiting, has the necessary skills to concretely and actively insert in each kind of process that aim to dialogue with complexity to intervene and enable a system change.

The design discipline create innovation by pursuing relationship and newly twining elements that are not new at all. If we can summarize [38] the design capabilities in see (understand the context), show (visualize the information) and foresee (critically predictions), the communication design surely is able to engage the capability of make complexity visible, understandable as much as possible, accessible at least, and more easily practicable; it has the capabilities of give visibility to the shape of what is complex, and in some way to give it a shape, making it cognitively handled.

The importance of the concept of shape grounds the systemic thought, that permanently moves the focus from single parts to the whole, and sustain, as a cultural reference to the Gestalt, in order to understand a complex system, the need of understand the specific configuration of relationships, that is technically called pattern: to understand a system means understand and reveal the pattern, and to reveal a pattern is necessary to design it. Understanding and intervening in a complex system requires to perceive it as an integrated structure, to get those properties that characterize the system and that don't belong to any component; these properties emerge from relationships and interactions between the single elements.

To make a system visible by it complexity, means make visible what is latent, that is the early step to conceive access and intervention to the system itself. Design discipline and complexity theory both refers to the domain of possibility and hypothetic, and this ability to make a phenomenon visible, a problem, a pattern, is considered in the theories of RED a feature that really based the user centered approach, together with the ability to assume the point of view of users and that one of build prototypes as cognitive tools, fort testing and reflective learning.

So the communication design discipline is able to concretely contribute to the complexity of contemporary problems thanks to skills of visual manipulation of the shape, and to capabilities to a better problem setting.

These are the hypothesis that ground the experience that we are presenting in the paper, the The DensityDesign Lab. In our researches and students activities we assume the idea that the distinctive pattern of complex system belong to the

visual domain of networks, as Capra suggested [8]; the network is a concept that involve every discipline, from biology to management, and currently represent the basic pattern of all the discipline that consider the systemic thoughts and it is firstly the common organizational structure that belong to all living being.

These are not just some kind of formal inspirations; the teaching and research program that we want to propose and discuss critically explores and develops the visual power to display networks and its features; complexity is a keyword to understand reality, and it is combined with a continuous research for information aesthetics and representation, that nurture and inspire emergent relationships among communication design, information visualization and complex systems. So, the didactical framework has been defined with the aim of educating designers in the exploitation of visual languages to deal with social complexity. The didactical initiative has been experimentally launched to answer the following question: How visualization and communication design can be applied to support collective learning processes and decision making in complex systems? After five years of continuous improvements and the development of specific conceptual and operative tools, a didactical framework has been defined with the aim of educating designers in the exploitation of visual languages to deal with social complexity. The paper describes the framework theory and outcomes.

3. The DensityDesign Laboratory: complexity, density and communication design

The DensityDesign lab has born in 2004 as didactic initiative with the aim texperiment visual representation languages able to facilitate the sharing and the development of knowledge within groups of heterogeneous actors that are engaged in the same complex system, that is considered as subject to change and further change. In other words, let's imagine an hypothetical decision making or negotiating table around which different stakeholders of the system gather together; students experience the concept and the design of communication artifacts that would be able to visualize the system as a complex whole, creating by the artifacts a shared knowledge base between the different involved actors; the target and the goal of these artifacts is primarily to be mean of dialogue between interlocutors, enabling more conscious and relevant perspective in decision making strategies.

The complex system that we observe and we are dip into, by the evidence of its uncertainty and unbalance, are dynamic and adaptive systems, that express creativity and innovation by the feature of self learning and self adaptive behavior in the context.

Then the communication artifacts that we intend to design cannot be considered as the solution to a ongoing wicked problem; mostly they are cognitive tools, that help to better (or thicker) understanding in order to better acting, taking into account both by conserving than visualizing, also uncertainty and unpredictability. In the most of the case is a process of pattern recognition, the process of understanding the schema of relations between elements, that usually is unbalance in complex systems, but unpredictably emerge mostly without any centralized concept. This is the field of comprehensive representation, of the systemic vision, that tend to connect and join also in order to underline unexpected relations, that avoid atomic separation of discrete levels and look for continuous and mutable settings.

3.1 - The DensityDesign lab tools: the diagram as a cooperation visual device

In our perspective, the communication artifacts that the students are called to design during the laboratory are conceived as negotiational tools and decision making tools, dedicated to defined interlocutors and improper for a general audience. The communication design build through a visual language the mediation and dialogical tools that allow to depict common and shared understanding and the emergence of common interest and goals in multi-actor contexts. Since the beginning, we called these artifacts with the generic term of maps, that evolved, by the support of doctoral researches and progressively has been redefined in the concept of diagrams, open to the widest visual opportunities, and include those communication artifacts that has a reveling ability as maps, scenarios, schemas, storyboards, etc. and represent visions behind visualizations .

In our meaning, diagrams shall provide to the complexity of the system (or in a wider sense to a complex problem) an understandable and sharable shape, that could be able to overcome constraints related to the technical and disciplinary languages. It's widely recognized that the traditional models of development based on the direct relation between expert knowledge and social need, and managed by a top down approach are increasingly less relevant in efficiently dialogue with the problems of complex reality. Diagrams can and should visualize not just quantitative data, but also ideas, concepts, point of views and perspective and qualitative and value assets of complex systems observers.

The interest in diagrams is less in the result itself but mainly in the visual/discursive tool, the generator of dialogical actions; not a definitive solution, but an instrument for a better framing of the issue. An apparatus in the hands of the visual designer, that enhance not only his ability to see but, primarily the one of the others; it creates a collective vision of the form that keeps together the elements of the issue or the complex system. A precious skill - even essential - when facing phenomena and shifts of the contemporary society. Problems that, to be solved, needs a participative and collaborative approach:

To speak of a problem and to engage with solving it is to engage in a conversation among stakeholders (people who care about the outcome). In my thinking about wicked problems, I like to introduce the notion of 'social complexity' as inseparable from problem wickedness. There are no single stakeholder wicked problems. [13]

To make visible the relational structure of the complex system, and to describe the dynamics that animate this structure, combining various tools and visual patterns, is the skill that the communication design can add, facilitating the

exchange between the stakeholders, enabling negotiations and mediation and to underline common visions and intents. The communication design can develop the capacity of the diagram in turning it into the mediator between discipline experts and users, clients, administrators; the importance in building collaborative and dialogic interventions in social issues, brought us to develop visual artifacts as tools for decision making, aimed to a heterogeneous audience, interested and/or expert, capable and motivated to face the necessary complexity of the visual representation of a complex system.

These tools by nature are not easily accessible and still they require additional discussions, far from being univocal and reductive. The design and production of diagrams, and a diagrammatic approach, are primarily useful for the design itself, especially when facing complexity: applying a design process, oriented to sustainability, open to social and political affairs, benefits from the communication design in developing diagrammatic tools.

4. The structure of DensityDesign framework

Since 2004, we defined and improved the process of build and structure the visual languages. The method and procedures of visual analysis and representation of systems has slightly changed, and after five years of continuous improvements and the development of specific conceptual and operative tools, the initiative reached in the last editions its ripeness (2009). In the following section we will briefly describes the process approached during the laboratory activities, and some artifact will be presented and described as samples of the progressive results.

The potentialities of visualization are experimented in two complementary domains: 1) the visualization of Data, Information and Knowledge (DIK); 2) the visualization of the structure of complex social phenomenon (structural visualization).

In the first domain, students work to improve the cognitive processes that bring from data to information and from information to knowledge. Within these processes, any visualization acts as a translator: it identifies and visually represents relations between data and information in order to communicate it and leverage knowledge. In the second domain, the focus is on the form of the social phenomenon, assuming that understanding a system means understanding its form, and understanding the form means to see and to visualize a pattern. In this domain, visualization aims to amplify the pattern finding human capability (Ware, 2004), connecting the actors and/or the forces that drive the complex system or the social phenomenon dynamics.

By this features, any actor within complex systems is continuously involved in data production, information gathering, knowledge exploitation, in order to support and nurture its own position and interest within this collective undertaking. Data, information and knowledge are structural and basic elements of representation theories, and in a general way, of communication and cognitive disciplines. The connection among these elements and visualizations is a key issue in communication

design field.

4.1 – The DensityDesign lab experiments and outcomes

During the years, the number and the typology of the didactical modules have been refined, together with the range of disciplines involved and integrated. The choices have been made according to the outcomes produced by students and the evaluation of the projects in real contexts.

The first draft of the Density framework involved the students in locate a social system of interest, in data gathering and description; then students defined the diagrams, providing a visual representation of the systems that basically intended to provide a comprehensive description of the system able to better single out its current configuration and dynamics. These kind of maps supported the further design action: starting from the maps students would articulate a communication design strategy relevant and useful to the system dynamics, and then use the diagrams again to depict the impact and the new configuration of the system after interventions. At that stage, the basic intentions was to reflect about the selective process that give the shape to a map, and to refine the visual language and empower the ability of represent these different views by the exploitation of details.

A more reflective capability has been explored in the next years, and the framework evolved towards a more articulated definition of the representation modules of the density of data. We interested more and more in analysis by visual and in visualization techniques and process, and we finally arrived at the current structure of four visualization modules. We progressively avoid the idea of a necessary design interventions in the systems, and stop conceiving the maps just as a preliminary cognitive artifacts. In the initial perspective diagrams could provide the description of current, possible, foreseen configurations and by this could support interventions. The framework developed refining the theory and practice of visualization and clarify the diagrammatic capability, by pointing out diagrams that are differently connected and configured according to communication goals.

The current structure of the framework is composed by four modules: two modules – information visualization and motion graphics - belong to the first visualization domain previously mentioned (DIK visualization); the others - causal diagrams and system maps - are expression of the structural visualization domain, according to the need of understanding the social system/phenomenon as a whole.

We are going to briefly described these modules by displaying and describing some sample outcomes; this distinction between the diagrammatic modules and the infovis modules refers to different intentions of the visualization process: diagrams more exploit the system analysis and display, as well as infovis more explore narrative techniques and the conversation between the form and the meaning.

4.1.1 Information visualization

The challenge of information visualization module is to nurture and clarify the process of translation from data to information to knowledge. In this modules complex data sets

are explored and transformed in visual representations that aim to clarify the meaning of data and make them usable to further knowledge.

Our last experiments explore socio-economic phenomena that present both representational and visual problems. Economic statistic concerns the understanding complex, multidimensional, ambiguous and dynamic phenomena building formal representations (models) based on statistical data. Communication Design addresses complex phenomena to interact with them building multidimensional visual representations based on statistical data. The goal is to contribute to the construction of representation and visualization model respecting and preserving the inner structure of the analyzed phenomena, allowing users to know (see) them as a whole.

We started from 2007 official data (provided by the ISTAT) about poverty and social exclusion conditions in Italy, and the students have been individually called to provide visualizations about the poverty in Italy, using data as primary even not comprehensive reference.
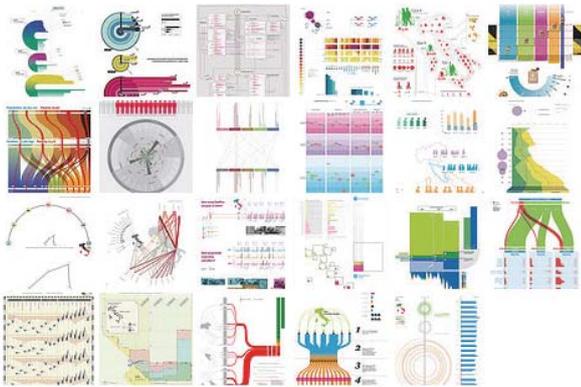
Figure 1 –from data to information: an overview of the different maps designed with the ISTAT italian national report about poverty

Exclusion is a socio-economic status where people are placed on the margins of society, because of their economic, psychological, physical, cultural conditions. To evaluate its forms and intensity requires models that consider a multitude of dimensions: the determination of poverty status cannot be reduced to simple and single indicator. The representation of socio-economic problem is not reducible to a problem or purely algorithmic technology, but not because of the quantity of data: complexity, multi-dimensionality and ambiguity are difficulty reduce into algorithmic computations. This module requires developing new visual grammars and communication tools that do not superimpose artistic or vaguely appealing elements over the representation of the phenomena, but should be able to build narratives deeply consistent with its inner structure. Visualization artifacts, diagram and maps, have to respect the robustness of scientific approach on phenomena while remaining consistent with the structure of cognitive and logic capability of the observer.

4.1.2 Motion graphics

The module of motion graphics mostly explore the narrative power of information visualization. In this case data become information, and then knowledge, and the visual languages are made devoted to define a relevant narrative. Motion graphics techniques are used not to the systemic representation of complexity, but represents thick descriptive tool that are able to reduce the distance between the data, the pattern and the meaning in a narrow perspective of the system.

The information visualization in this case serve the purpose to thick describe a single perspective, and to visually clarify the way the specific point of view is related and interconnected with the wider configuration.

Fig 2 – from information to knowledge: screenshot from the video Choice, motion graphics about the Poverty System and Food, http://www.vimeo.com/4002528

4.1.3 Causal diagrams

The module of casual diagrams is a structural tool of visualization that aim to fully describe the actors and the variables of the system, and to exploit their influence and directions. It is a kind of representation that better describe the structural part of the system, pointing out the elements as single and detailed, and the main structure and influences. Casual maps is necessary to fix the mechanism of the system, and it's the primary schema of the understanding of its behavior.
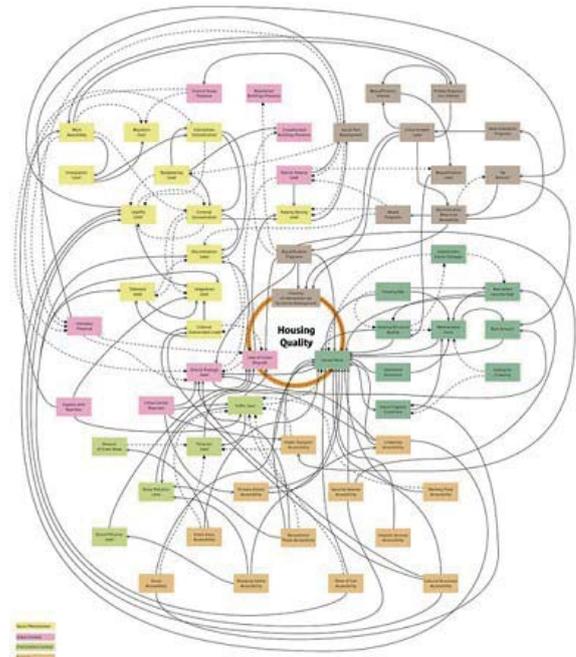
Fig. 3 –a casual diagram about the system poverty

A causal loop model has been developed in order to help understand the complex systemic structure of poverty in all its dimension. System diagramming is here a loose term used to describe the activity of conceptually representing and visualizing a system in its constitutive elements: the elements, the relationships and the system boundary distinguishing what does and does not belong to the set. The system has been visualized in the particular format of a causal loop model: the system's elements (factors, variables) are represented by boxes, and the causal relationships between two variables are represented by arrows. The variable at the tail of the arrow has a causal effect on the variable at the point.

4.1.4 System maps

The final artifact provided is the system map, that can be consider an overall perspective of the system, some kind of bigger picture that describe the components, the dynamics and the contextual characteristics. The system maps emerge from an hybridization from the previous diagrammatic artifacts and a deep visual description of all the contents; it aims to suggest the form of the system, by the visualization of the found pattern. System maps doesn't emerge just from data analysis. They necessary are connected to some previous knowledge that is itself depicted within the maps; it composes with raw data and structured information and is finally able to provide a wide scale representation.

Maps exploit the knowledge layer related to experience, and should be able to activate dialogues and discourses about the system itself. Map represent the final step of the cycle between data and knowledge, and transform and elaborate previous contents in order to rich a collaborative and shared knowledge layers.
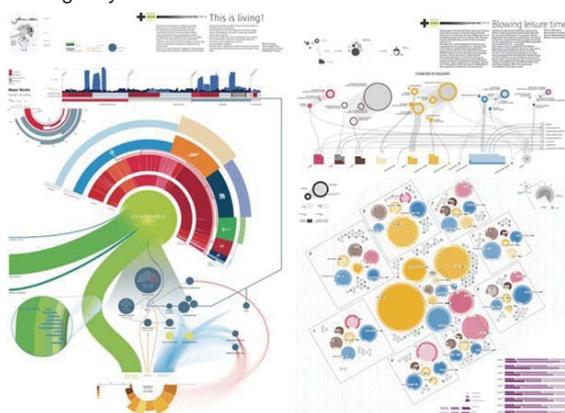
Fig. 4a,b –the system map, Poverty&Housing, Poverty&Leisure

In this module the possibility to evaluate the projects in the real contexts is more coherent and relevant, and is the occasion to display the effectiveness of the contribution of communication design in the understanding and practice of complex systems. To find an evaluation contexts for the projects always mean to face with institutions, organizations, identity structures, and represents itself a concrete example of negotiation and decision making that is supported by the visual languages. In some case the process has been success full, and the students as first could verify the effectiveness of their

design, and to better improve it.

Fig. 5a, b, c: discussion of scenarios that emerge from the Energy system maps, with the interlocutors at ENEA consortium.

5. Conclusion

In these pages we try to systematize both the theoretical than the artifacts outcomes that we experiences in the development of The DensityDesign Lab. The theory and the results are ongoing tensions that we continuously consider in research and teaching practices, and that we mainly try to get across at concrete evaluation stages by prototyping (in case of interactive artifacts) as well as the participation to decision making tables. In fact, the more important perspective in future works ask for a further extension in the practice of evaluation in real context and, and the more recent activities suggest fertile horizon in this direction. The challenges that the global changes provide to us require a collective disciplinary engagement, and the design is called and strongly aspire to participate to the solutions and the critique toward the changes.

The research and the teaching activities are synergic: didactic naturally suffers of school limitation in time and space, even if it offers a plenty of cases, themes and design occasions; the researches evolve towards a more and more theoretical ripeness and allow a constant reflective thought about the different cases collected. Through the The DensityDesign lab approach we intend to contribute to any actors involves in undergoing global changes with a cognitive and practical visual tool, a generative machine that allows a discourse about the system that changes, and facilitate a more conscious approach to its complexity. These visual tools aim to origin from common objectives, and from there develop shared perspectives.

This requires to continuously refine the nature of the team, and open interesting perspective for future works: the didactical framework proposed here is intended as multidisciplinary platform, where visual design is the core and leading discipline, successfully complemented in the year by the integration of semiotics, statistics and network science.

The more refined become the process of visualization, the more articulates become the strategy of data gathering. These are the basic tensions that we tie to the concept of visual languages as a multidisciplinary cognitive device.

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Angélica García

CONSTRUCTION OF CREATIVE COMMUNITIES IN BOGOTA-COLOMBIA EXPERIENCE

Summary

Forced displacement is a phenomenon of coerced movement of population caused by particular threats against both the personal security and integrity. United Nations defines displaced population as group of people that run away of their places of residence, leaving their lifestyle behind.

Colombia has dealt with this phenomenon during the last century due to the armed conflict that is taking place since 1940's until now. This phenomenon usually occurs in the interior of Colombia especially in the largest cities, such as Bogota and Medellin.

Displaced people live in a constant lack of sense of belonging in many social, economic and cultural aspects. When relocated by force, they have to make their lives in a new and unknown environment with different conditions, worsening their situation. This environment, usually an urban environment, lets them to develop their own abilities, generating new "ways to do things". It has become a mechanism for group cohesion that let them be together, and to get over the trauma caused by displacement.

One of the consequences of force displacement is that it becomes in a way for people to empower their own abilities in collective and productive activities. It lets them be creators of their new environment, where cooperative relationships foment the social resilience.

The phenomenon of displacement has been approached from the causes and consequences of leaving. Nowadays, this problem emphasizes the high complex psychological and social issues and their different modalities related to the severe trauma created. In Colombia the most common modality of displacement is the exodus of groups, families and entire small towns.

So the displacement...

When a plant or a flower is transfer from one place to another, first the soil where the plant is going to be placed is prepared, next it is convenient to leave some earth around; then the transplant is done matching the lunar faces, etc.

But isn't just a transplant...

This transplant could be compared to an emigrant, who is prepared for the eventual situation of leaving his country and his familiar environment. Sometimes by chance, he or she knows the language and the culture of the country that has been chosen. Also, sometimes, the emigrant head of the family prepares the place where his/her children and his/her wife or husband are going to stay. This transplant in another nation entails, without any doubt, problems due to the new environment, language and culture. Some people don't resist the impact of emigration and returns to their land.

The displacement is a lack of sense of belonging...

Continuing with the example of a plant, the action against is a violent action, it is a lot of sense of belonging.

Displace people is forced to leave their house, their animals, their land, and to be forced to be placed in anywhere in a country that don't really know. The lost of their place of residence is not only the lost of properties, it is also the lost of all the elements that are related to their traditions that are part of their individuality. (Pécaut, 1999)

According to Beristain (1997) the trauma caused by the displacement phenomenon could be classified:

Psychological: It is about the particular damaged to a person for an exceptional or difficult circumstance.

Social: It is about the mark of some history processes that could affect an entire population.

Psychosocial: produced socially and reinforced by the relation between the individual and the society.

The impact of displacement covers the personal, familiar and social characteristics of the individual. It is related of the deepest aspects of the people until it is reflected in the relationships with others and the environment.

Nonetheless, the human being is naturally creative, active and participant of the history. From this vision emerges the concept a human being as the truly administrator of all creation, that cannot take a passive position, an essential component of this reality; the human being as solicitor of history and all that exists.

Keywords

Creative communities, displacement, group cohesion and empowerment abilities.

Topic: Socio - economics & design.

Introduction

Construction of creative communities in Bogotá

Commonly, the word to denote creativity is genius. Other synonymous words have been used, such as originality and inventiveness. In other fields different from Psychology it is related with fantasy and imagination. Goñi (2000) indicates that the expression "creative process" could be a sequence of stages or steps used to solved a problem that could represent a fast perceptual change or the transformation that takes place when a new idea or solution of a problem is produced. Nevertheless, it also could refer to the techniques or strategies a creative person uses, consciously or unconsciously to produce a new idea or combination, relation, meaning, perception or transformation. So, a creative product is a useful effort that is accepted for a group in any moment.

The creative processes in displaced population could be understood as therapeutics alliances of collective ideas where the "illness" in the relationships is transformed by original forms to affront the daily circumstances in the new environment. Hence, the creativity is measured by the practical challenge assumption and resolution.

Method

1. Participants

Suba is the 11th locality area of the capital city, Bogotá. It is located on the north part of the city. Nowadays, this locality admits the majority of the Colombian African-descendant[1] displaced population.

Suba receives a big mass of African-descendant from the Atlantic and Pacific coast, affecting the daily life of the neighborhoods that welcome them, because these neighborhoods must have constant processes of admission an adaption to the community of new members.

They are people from different places and from different cultures. It makes more difficult the process of integration because the mechanisms used for it must allow the creation of a common point of view to build a new way of life, new values, new believes and shared knowledge.

This group of displaced people constitutes a clear example of innovation in daily practices that lets them react positively to the consequences of displacement.

Image 1. Office of Black Communities "Black is beautiful and the world is big enough for all, without act of discrimination and segregation"

Image 2. Nubia Gallo. Manager to Office of Black Communities (OANAC), Suba.

2. New ways to do things

OANAC (Organización Ancestrica Afrocolombiana) is the name that identifies the Afrocolombian – Group.

One of their initiatives is the communitarian self-arrangement that operates with $15.000 Colombian pesos payment per adult. This joint fund invests this money in cultural activities organized with the initiative of the community to support new ideas of the community members that has been developed productive process of any kind.

The voice-to-voice channel is the medium to assemble the community. House per house the people are invited to work together in the productive initiatives. This call is hosted in the OANAC's head office or in some member's house, with a cup of coffee.

There are many ways to enhance these initiatives, because the members have different resources, such as handcraft techniques, typical dances, and gastronomy, which could be used as capital to the construction of the community in favor to the self-arrangement initiatives.

These activities, principally creative, favored the integration of the community members, creating common interest that let them generate bonds of union between the different cultures that belong to this community, and generate belonging feelings to the new environment where they live and coexist.

Because of it is necessary to understand why the creative manifestations had important implications to the community integration. Even though it is true that the culture includes all the human products, that is, his artifacts and everything that has been produced for any purpose, like the immaterial patrimony that includes all the knowledge accumulated through generations and that makes part of the life style of the people and their way to see the world. The reason why the material and immaterial products of the culture are so important to the relationships in society is that they are significant symbols of human behavior; any culture could be interpreted from the patrimony that this culture consider valuable and that identifies it.

This patrimony is a vehicle of culture, because it implies a big part of the physical and spiritual social functions. This is the instrument that people uses to act their ways to behavior, just like to respond to the social requirements.

Fichter (1982) says that something is "valuable" when useful, desirable o is admirable for a person or a group. Therefore, the values could be defined as the criterion of the

society to judge the importance of the people, the guidelines, the objects and other socio-cultural objects. And those values are precisely the base for the construction of a new identity as members of the community.

The education and the culture constitute the principal axis to the transformation of a society. The community is the active agent of its own education and it learns from the experience that accumulates, valuing, comprehending and explaining its own reality.

But the citizen participation doesn't happen if there is not a strong social weave, and this refers to the creation of solid social resources that lets the citizens feel that their participation is coherent with the guidelines established for the society. Therefore, the OMANAC constitutes a community that get over the consequences of displacement with intuitive tools for self-arrangement, but overall, tools that let the OANAC's members create deep bonds and sense of community and belonging to the new surrounding to the Afro-descendent population.

3. Abilities as cohesion and co-creation

In the traditional societies, as the Colombian society case, not everybody modifies in the same way the reality, and whatever it's been used to modify (utensil in the past) this reality, its modified. This means that the human being or Colombian modifies his reality to makes it more pleasant, then when the human starts to act over the reality tries to makes it peasant too, decorates it, makes it beautiful.

What makes the reality somehow pleasant, relies on the activities that reduce the marks of displacement. These alternatives emerge from cooperation and reciprocity feelings.

3.1. An economic and therapeutic alliance "for Claudia"

Claudia is an Afro-descendent, forty years old woman, born in Colombian Pacific Coast. She lives with her two children in Bogotá (in the locality of Suba) eight years ago. Living in Bogotá Claudia has the chance to develop different productive activities. The most important activities for her is shoe tailoring, activity that today is boost by the creative initiatives of the OANAC's members.

Through a supplier in the city of Buenaventura, in the Colombian Pacific Coast, Claudia gets the fish leather necessary to produce twenty pairs of shoes soles in one month. The raw materials that Claudia uses to produce shoes soles it is free because it is a residue from the material that was not commercialized in Buenaventura.

To build her shoe tailoring business, Claudia needed one sew-machine especial for leather that costs between seven and nine millions of Colombian pesos. Claudia has been a member of the OANAC since five years ago and has been an active member of the organization contributing with her natural skills to get economic benefits to develop the productive activities for her fellows in the OANAC, and after long time these economic benefits finally were aimed for her.

In august of 2009 the OANAC organized a event promoted "voice to voice" with the name "pro Claudia". The event was a Colombian Afro-descendent festival in Suba were all the participants could expose their talent and abilities in tailoring and all de benefits were to a fund to boost Claudia's productive initiative.

Image 3. Festival of the Afro Colombian, Suba locality, Bogota, Colombia.

The place for this event was host by the priest of the Parish of Lisboa (one of the Suba's neighborhood). One juice factory in Suba donated 5000 juices to collect more resources. The Afro-descendent women cooked some typical food like Pacific cakes, puff pastry and meatballs. The schoolteachers of one school in Suba collaborated by giving graphic art workshops to children, and young Afro-descendent people gave theatrical presentations and dances.

At the end of the day the self-arrangement fund collected $13.000.000 of Colombian pesos that were used to buy the specialized sew-machine that Claudia needed to her productive project of shoes with fish leather soles and the remaining money stayed in other self-arrangement fund to boost another cooperation initiative. Nowadays, Claudia produces her shoes and 30% of her benefits go to the self-arrangement fund of the OANAC. The Claudia's case it's just one of the cases that has been benefit by the creative initiatives of this group of displaced people.

According to Dabuta Hübner (2009), the creativity could be considered as the maxim font of innovation, above all when the creative ideas are translated in products or services. In this sense, when the innovation gets economic results it's always for the creativity course.

Results

The most representative results to the OANAC is the natural develop of a young group of people devoting to develop Psychodrama proposes that are exposed in the cultural events, to boost the self- arrangement fund.

This initiative consists in reproduce scenes, active moments that have been occurred in one Afro-descendent person's life or one Afro-descendent family's life. After the presentation the group shared impressions, feelings in the "here and now" between the main characters and the public, directed by one coordinator.

This sharing is fundamental part of a "social therapy" because it lets the exchange of point of view that could help to liberate feelings stuck in the actors or in the public.

Through the spontaneity, the actors expose their intimate problem, then, the catharsis is mutual between the actors and the audience. The game or the "acting out" in the Psychodrama are seen as a therapeutic praxis and as a playful and spectacular moment to express their own speech or their own personal condition.As a creativity manifestation, the young people of the OANAC use Psychodrama forms as Ethno-drama (relative to racial and cultural conflict) and the Psycho-dance (combination between improvised drama and dance).

Another relevant result is the construction of self-help chains between the 144 neighborhoods in Suba locality. These chains operate in a reciprocal way, exchanging places to perform events, infrastructure like tables, household appliances, and any machine that could be required, as well information of everybody interest.

Like this, could be evident that the growing of this chain in terms of reduction in expenses, OANAC would be in the 1 level in the creative groups support.

OANAC
(Suba)

1. Support creative groups
2. Support local institutions
3. Support generations companys

Image 4. Way to growth of networks according to the reduction in expenditure of resources. Ezio Manzini. Conference in Andes University 2009

In this way, the OANAC members operate as a horizontal system of people where the beneficiaries of the initiatives are, at the same time, the active actors in the construction of their daily reality.

Another remarkable result of this organization in the integration of a community, consolidated from the construction of points of view that support the generation of new values, beliefs and behaviors that are the same to all the community members. It allows to create sense of identification and belonging, avoiding the isolation and the violence strong characteristic in groups where live persons that don't share lifestyles or ways to relate each other.

So, the empowerment in the displaced people is the result of how communitarian organizations assume their own roles. The empowerment is a process that makes easier for a person or a group to discover their own capabilities, power and value as changes subjects, never as objects of help.

Like this, it is evident how the OANAC's people have developed different qualities: they assume the responsibilities with their own, with their families, their environment and their fellows; having their independence without the government institutions that are responsible for the displaced people[2], answer their duties and rights as citizens, and transform their selves and their reality in Suba, in Bogotá.

Conclusions

Recognize the creativity from the sense of community, reaching high level of self-esteem that lets them have an autonomous management of their life in the new context where they live. Part of this management is represented in the use of their constitutional rights and the citizen participation with the scope of this in a social and communitarian level.

It's important to recognize that the creativity and innovation couldn't lead to a sustainable economy without respect for the cultural diversity that is itself a source of creativity and innovation.Resilience is understand as "the person's or group's capability to do the things right, despite the adverse circumstances". The resilience implies resistance facing the destruction and the ability to positive construction; it is a product of a process that characterizes the combination of person's attributes, with factors of their environment, family, social and cultural". Like this it is remarkable how the community members of the OANAC have exceeded the adversity of traumatic experiences.

According to the psychiatrist Posada Villa, the factors that increase the potential of resilience in Colombia are: the spirituality of the people, the unity of family, the respect for the transition of cultural values, respect for the environment. The creativity as the most important factor to boost new economic projects, political projects, familiar projects and affective projects, such as the self-arrange fund boost by the natural creativity of the OANAC's community.

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Notation

1.The Colombian African-descendant or ethnic African identity is the group of material and spiritual contributions, developed by the African population and Colombian African-descendant population in the construction and development process of the nation and the different parts of the Colombian society. Is the group of realities, values and feelings integrated in the daily lives of all the Colombian people, individual and collective. The Colombian African-descendant is a patrimony of every person in this country.

2 Some Colombian government institutions manager of the matters relative with the displaced people are: Red de Solidaridad Social, Defensoría del pueblo, Procuraduría, and Comité Municipal o Departamental para los desplazados.

Özlem Er

How Would Education Engage with the Local Territorial Context? :

An Example from a Newly Industrialized Country

Abstract

By its very nature, industrial design education tries to be in close contact with the industry. Design academics try to foresee the future needs of the industry and revise the existing education programs accordingly. As industrial design education is traditionally structured to address the general needs of mainly large manufacturing companies, its sphere of interest does not commonly cover the economic and social problems pertaining to certain contexts and localities. This has been especially the experience of industrial design education in countries like Turkey as its establishment accompanied the modernization process of those countries. In these countries, the design education's links with the local context have been weak and the conditions existing on the ground have usually been ignored by design academics as they were expected to change as a consequence of the industrial and cultural development process that they would go through in time (Er and Kaya, 2008; Er and Er, 2006).

This situation started to change mainly due to the enormity of the challenges ahead of the countries resulting from socio-economic and environmental problems. These problems force design education to re-interpret its mission and broaden its scope of interest as to contribute to the achievement of sustainable development. On the other hand, the specific nature of the problems to the local contexts requires the development of specific solutions to those contexts. This paper reports an example of design education's engagement with the problems and challenges pertaining to a specific locality. The particular engagement consists of a diagnosis study to identify the nature of a productive network in a district of historical significance in Istanbul. The study constitutes a part of a series of activities to increase the visibility of the positive qualities of the district and to explore how design and design thinking can help in generating viable proposals for their survival and upgrading.

Introduction

Today, Istanbul is a mega city facing many challenging problems both as a result of its own geographical positioning and as a consequence of its particular evolution in the development process of the Turkish Republic. Its historical districts have gone through various cycles of demographic and functional changes during this evolution. The residential centers have turned into productive districts or productive centers have been turned into tourism development areas due to various dynamics. These dynamics are still very much in action in many of these districts.

Şişhane which is situated in the Beyoğlu-Galata district of İstanbul has been one such location that has been and is still effected by pressures resulting from the transformation process of the whole area. The location known as Şişhane has been an old commercial centre starting from the Genoese and Ottoman times. During the 19th Century, Galata Port had been the main customs gate of the Ottoman Empire. Modern goods and inventions from the Western world entered into the Empire through this gate (Belge, 2007). In 1857, Beyoğlu became the first municipality of the Ottoman Empire (Akın, 1998; Batur, n.d.) and the first street lights appeared in this area (Akın, 2002). At the beginning of the 20th Century, technology based companies and shops became more important than other sectors in the district. With the need for more electrification and lighting products in Istanbul and Turkey, from the 1920s, Şişhane started to be known nationally with lighting products manufacturing and retailing (Ingin, 2006).

Fig 1. Şişhane District in the past (Retrieved from http://istanbulresimleri.net/data/media/20/galatakulesi1900.jpg)

Fig 2. Şişhane District today (photograph by a graduate student, Cem Büyükpilavcı)

Today, Şişhane is still known as a center for lighting manufacturers and retailers including electrical equipments. Different types of components are produced within the location. Most of the manufacturing units specialize in a certain part of a lighting product and the entire neighborhood constitutes a production network. Each actor in Şişhane district has an important role in its active and "live" system of connections. Among these actors, there are wholesalers of raw materials, electrical equipments, components, small sized manufacturers either specializing on component manufacturing for lighting products or producing many of the components themselves with minimum dependency to the other actors, retailers, bookkeepers, designer-makers, design offices, service providers such as tea makers, restaurants etc.
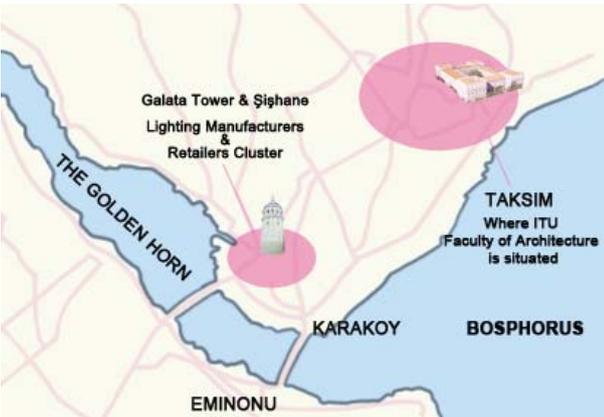
Fig 3. Şişhane District and Taksim where ITU Faculty of Architecture is also situated.

As Ingin (2006) mentions, most of the manufacturing units in Şişhane are small in size and therefore they have a flexible system both in the sense that they can customize products to the required features and that they can quickly increase the volume of production by dividing the work between different

workshops. Characteristically, they use simple tools and technologies and have lower overhead costs compared to big manufacturers (Ingin, 2006).

Fig 4. A view from a street in Şişhane where retail shops and small manufacturing units are co-located (photograph by Cem Büyükpilavcı)

Fig 5 and 6. Components of different lighting units manufactured in Şişhane (photograph Cem Büyükpilavcı).

Despite these rather positive qualities, the area has started facing some threats to its specific structuring. These continuing threats are the pressures of cheap imports, mainly from China, the Municipality's top-down approach to transform the area as a production free tourist destination, the rising property prices and land speculation (Ingin, 2006; Çetinkaya and Velasco, 2009). In addition to these threats, the environmental problems caused by low technology manufacturing in the areas and traffic problems caused by intense commercial activities in a historical settlement should also be mentioned as issues to be dealt with.

On the face of these threats, as it has also been experienced in several other districts in İstanbul, a civil initiative started to deal with this location trying to pinpoint the existing qualities of it and explore alternative paths of development on the basis of these qualities for its long term and sustainable survival. Thus, a project has been started with the tag "Made in Şişhane" in 2006 by the architect Aslı Kıyak Ingin.

The first activities of this initiative took place between 12-17 September in 2006, at the old Galata Bridge-Balat, within the context of Istanbul Design Week and included an exhibition and a series of panel discussions (Past Events, n.d.).

Fig 7. A view from the "Made in Şişhane" Exhibition in Istanbul
Design Week 2006.

In 2007 Dutch management training center De Baak came with a group of young Dutch executive managers to Şishane in order to give their view on possible ways to develop the district. Also an art project about the light shops by Teike Asselbergs was shown during the 2008 Galata Visibility Days (Past Events, n.d.).

In 2008, ITU Department of Industrial Product Design has been involved in the project with the specific aim of generating in-depth knowledge about the actors of the production network in Şişhane. Below, we will explain the specific nature of this involvement and its outcomes.

The Process of Engaging with the Made in Şişhane Project

The principal author of this paper has been teaching two consecutive courses in the graduate program of the Istanbul Technical University, Department of Industrial Product Design. Both of these courses deal with various aspects of design management. In both of the courses, the major assignments are writing term papers. In the master's level course, Management of Industrial Design, the students are given the task of undertaking a design audit with a selected company. The course at the PhD program titled as, Advanced Topics in Design Management on the other hand, requires the students to analyze a selected company both at firm and sectoral levels to identify its particular way of doing business and how design makes an impact on it and draw its activity map (Porter, 1996).

Departing from their usually applied conducts, the lecturer of these two courses decided to engage her students with actors of the Şişhane production network in the fall and spring semesters of 2008-2009 academic year. The main motivation for this decision was the urge to engage academic research capacity in the field of design with the problems of the local context and provide a useful contribution to the search for viable paths of development for an area that presents many challenging issues to be dealt with. Besides, the master's and PhD level students of these courses provided a qualified pool for undertaking a research on an issue relevant and immediate to local concerns.

As their term paper assignments, the students were required to select a manufacturing company or designer-makers based in the district, to analyze the particular ways they organize their work and identify the network in which they operate. They were particularly asked to answer the following questions:

1. How do they operate? What do they produce? What is it that they specialize in the production of lighting products?

2. How is the work organized?

3. How dependent they are to the other actors in their network?

4. What is the role of peripheral actors in the network (like beverage and meal providers, accountants, designers, patent lawyers, etc.)

5. Who plays the role of a coordinator of the work? (or who manages the network?)

As a facilitating method, they were advised to focus on the development of a specific product and trace the steps of its development process (see Figure 8).

Fig 8. A product by designer-maker Aylin Gümüşoğlu produced in
Şişhane and its production network.

Their term assignments were also required to include a firm level analysis to cover the following aspects: the history of the company, its development pattern, its corporate and organizational structure and product range, its market, marketing activities (its pricing, distribution and promotion policies and channels), production capability and technology profile.

As the first step of their term projects, the graduate students of the courses made field trips to the district together with their lecturer in the guidance Aslı Kıyak İngin and Teike Asselbergs who undertook different activities in the context of the "Made in Şişhane" project which aims to make the district's design and production potentials visible.

During the field trips, the students visited various

manufacturing units specializing on different lighting products such as glass, plastics/fabric and metal lamp shade manufacturers and retail shops. They also visited a designer shop. The main purpose of these field trips was to familiarize the students with the neighborhood and to enable them to have an insight about the particular way of functioning of the production network existing in the area. It is also expected that these site visits could create awareness not only about the positive aspects but also the deficits and possible solutions for the area.

Following the field trips, lists of possible units of study were made. The main consideration in making these lists was that they contain companies specializing on manufacturing different components/materials. The students made their choice of them depending on their own areas of interests and also the willingness of the companies.

As a result of this study, fourteen cases were studied and the students presented their studies both in paper and PP formats. Their presentations were turned into a one day event open to a wider audience. The fourteen cases studied by the students consisted of the following categories: Retail shops of designer-makers (2), technical lighting manufacturers (3), metal casting ateliers (2), acrylic lamp shade manufacturer (1), glass manufacturer (1), mixed-material chandelier manufacturers (3) and plastics/fabric/paper lamp-shade ateliers (2).

These cases can be further classified as the ones that:
• Manufacture and sell in the district
• Manufacture in the district, sell in a different place
• Sell in the district, manufacture in a different place
• Manufacture in the district for different brands
• Designing, making their products by using the ateliers in the district for production or for sourcing materials and also selling them in the district

Among these cases, it was found that the companies which produce high technology products such as the technical lighting equipment and a glass lampshade producer chose to move production out of the district. The reason for these companies to locate their production units elsewhere was the limitations of the district in terms of the available size of space and the inefficient quality of the existing production facilities. It can be said that the spatial properties of the location is most suitable for the production of lighting products which require high craftsmanship that can be carried out in relatively smaller production units also in limited quantities or upon order. Indeed, the production units in Şişhane comply with these features and therefore fulfill some of the criteria of "flexible specialization" (Piore and Sabel, 1984; Hirst and Zeitlin, 1989) such as the existence of mostly small companies specializing on the production of specific products or components. The companies in Şişhane operate in a loosely structured division of labour and are dependent on each other to a certain extent to make a whole lighting unit. However, they are neither technologically or operationally efficient and they produce low design quality products despite their high craftsmanship value. These factors constitute the main challenges to the long term survival of the productive nature of the district. At this point, it should

be mentioned that there are also problematic aspects of the existing network identified by the case studies that need to be taken into consideration in analyzing the qualities of the district. The environmental problems posed by the production methods used by the ateliers and the working conditions of their employees constitute some of these aspects.

The data obtained through the case studies carried out by the graduate students helps in the formation of a body of knowledge on the existing state of the Şişhane productive network, thus, in the generation of valid proposals for the survival of the district. The case studies have provided detailed information on the particular strengths and weaknesses of the companies, their particular ways of operating as well as their dependences into each other.

Discussion and Conclusions

The role of design in urban regeneration projects has become more and more important. As Drake (2003) mentions, particular districts in cities, such as Şişhane in İstanbul, present opportunities and sources for creative relations. But as also Bell and Jayne (2003) emphasize, such creative interactions should consist of actions resulting in cultural, social and economic improvements for the district. Designers are attributed with qualities suitable for creating such actions by using design skills and methods such as "generating ideas on possible solutions, visualizing them through, placing them in wide, many faceted scenarios presented in concise, visual and potentially participatory forms" (Manzini, 2007).

The study showed that there are already some signs that designers started to play a role in creating new business models, which rely on the production and skills capacity of the existing production network in Şişhane (Çetinkaya, 2008; Çetinkaya and Velasco, 2009). Due to the vicinity of the ateliers with different skills in the region, the designer-makers in the area are content with their ability to monitor and control the production. They also call attention to the ease of prototyping by using the production capabilities which exist in the district and the opportunity to gain new skills for designers. The existence of designer-makers operating in the district show that the designers who are informed about the capabilities of the manufacturing units in the district gain a competitive advantage in terms of experimenting with new product ideas and manufacturing them in the area. The fact that these designers also sell their products in the Şişhane and neighbouring districts also create a positive impact in terms of upgrading the quality of products produced in the area. Although being situated within the historical site of the Galata Tower, the Şişhane district has become a production and retail center for low value-added lighting products. The potential of the tourists as buyers of the production output of the district is high and provides motivation for other designers to operate in the area.

The literature on global value chains offers some concepts that may be useful in analyzing the Şişhane network. Among five different GVC governance patterns, the relational value chains which is explained to work "with mutual dependence

regulated through reputation, social and spatial proximity, family and ethnic ties, where trust plays a central role – such as in industrial districts" may be a suiting one to explain the Şişhane district. It is mentioned that the relationships in this type of value chain "tend to be idiosyncratic and thus difficult and time consuming to re-establish with new value chain partners" (Gereffi et al., 2005). The qualities of relational value chains as to be dependent on a locality and a relational network embedded in that locality support the argument that the existing network in Şişhane district constitutes a territorial capital which needs to be nurtured in its place and design has a pivotal role in this process as the main tool of increasing value added.

In addition to hosting a network which may be identified as a "relational value chain", Şişhane district also provides a territorial context of informal learning and a community of practice where actors in the network learn from each other by interacting on an ongoing basis (Wenger, 1998). This kind of interactive and social learning environment which is an outcome of being situated in a location of historical significance through a long period of time can be identified as social capital (Field, 2004). By introducing a different type of practice to the district which is based on creative input rather than product modification or copying, design can also play a role in altering the existing nature of the district's social capital. This kind of change would help on the one hand, to increase the value added of the output of the district while on the other hand to transform its existing working model to a sustainable one in the long term.

To be able to assess to which theoretical framework (e.g. industrial districts, flexible specialization, relational value chain, localized learning) that the nature of the existing network of relations in Şişhane fits best and following that to propose a pathway for its future development requires an interdisciplinary study with the involvement of disciplines such as urban planning, design and economics and the representatives of the local actors. The study that this paper presented is a step to fill the knowledge void on the area with the aim of giving way to better informed design intervention.

This paper attempted to explain both the rationale in giving a research assignment to explore the qualities of a production network in a historical part of İstanbul within the context of graduate design education and also some partial results of it. Such an attempt is especially significant in a country like Turkey where design education typically lacks a concern for the local needs (Er and Kaya, 2008). It is hoped that the paper will provide an example of engaging with the specific challenges of the local context as in the case of Şişhane district and to extend the interest of design education towards securing sustainable territorial development.

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Zhu Xiaocun   Pius Leuba dit Galland
Environment designer – Quo Vadis?[1]
on the current and future situation of a still emerging design discipline

Abstract

Environment design emerged as a new design discipline in China about 20 years ago. By now, it creates a large number of young graduates every year. Nevertheless, the present situation is dire in that environment design is still undefined as a design field and not a distinct profession in practice. The overall goal of this essay is to assess the current situation of the discipline in China, both in its education and in practice, and to offer various possibilities on how to develop it into the future. The essay starts by analyzing the problems of definition of environment design. Then it looks at today's situation from the points of view of the environment design graduates and the hiring design firms respectively. It investigates the current environment design education and the universities' role in it. The text then goes on to discuss possible types and paths of solutions on how to turn environment design into a relevant and innovative profession with high socio-economic qualities. Finally, the paper proposes a somewhat daring approach that would require a complete repositioning and upgrading of the current profession of environment design. It suggests that the environment designer be reshaped to take on an innovative and leading role in designing environments that are more human-related and offer high quality of life.

Keywords

environment design, environment art and design, environment designer, environment facilitator, design education, design consultant, design innovation

Introduction of environment design

Environment design, as understood in China[2], seems to be a predominantly Chinese phenomenon. Numerous schools in China offer environment design programs, whereas comparatively few others in the world do[4]. Its reason of being is still somehow unclear and has not been sufficiently researched yet[5].

According to current curricula in most Chinese design schools, an environment designer is capable to design interior and/or exterior spaces[6]. That is a rather big and blurred scope, because that includes just about any built environment. Professions tend to become ever more complex because of improved living standards, research outcomes, emerging technologies, etc. In order to reduce the growing complexity while maintaining the work quality, most disciplines increasingly generate specialized areas within themselves over time. Newly emerging professions absorb parts of their former working scope, e.g. interior design, retail design, display design, etc. within architecture. Environment design on the contrary, appears to float somewhere between urban planning and furniture design, mastering and designing every possible combination within these two extremes. That seems like a 'mission impossible'.

If we define the working scope, as traditionally done, via tangible objects - then other established design professionals seem to cover already most human environments. These respective professions are better suited to design the specific items, as they are focusing only on them. The actual, physical objects or spaces that remain between these other professions and may be designed only by environment designers are modest in number, insignificant, scattered and indistinct - compared to a category such as "buildings" for architects. Thus, the major substantial and distinct scope of work that would validate the young profession remains unidentified yet[7].

Practice of environment design

According to our experience, entering practice remains a difficult issue for many environment design graduates in China. The primary reason being, that there are only extremely few firms that call themselves environment design firms or regard environment design as their work focus. The small number of environment design offices that exist are executing mostly landscape or interior design projects and so forth. As a typical example, upon graduation at TongJi University[8], environment designers often express feelings of 'not belonging to' and 'being unprepared for' any of the various design fields available to them. Their other office options include major fields

such as architecture, interior design, landscape architecture, urban design, etc. but also specialized design areas, such as exhibition design, retail design, stage design, signage design, etc. (Note how we readily seem to understand the design scope of all these professions). This rich choice would be wonderful, if their studies prepared them accurately for each one of these fields. An interior designer, of course, can also choose any of the options listed above, but the most obvious and straightforward choice is interior design, because he/she focused his/her whole education on it. The above formulation "… design fields available to them…" expresses already that there is not one evident, typical and easy career choice that they have been prepared for. It is thus difficult trying to understand environment designers' situation in their practice, as most work in other professions. Of course, the distribution depends on the student's professional interests and career intentions, the school training, and the numbers of open positions in different design practices at their time of graduation[9].

Meanwhile, classic design firms seem reluctant to hire environment designers. An architect colleague of us recently brought it to the point, when he stated:

"When looking through their resume, first one is unable to find a certificate in any of the established design disciplines. On closer inspection, one uncovers the cautious word 'environment design' a few times, but without explanation on what that means or what skills that entails. In that case I just rather hire an architecture graduate[10]."

This decision is very much understandable, as the environment design graduate is being compared to an architecture graduate hired for the same purpose. As the young environment designer did not enjoy specific, full-time and in-depth architectural training, he cannot withstand this comparison. It is pointless to compete with a professional that focused his 4/5-year education on a specific field, if one attempted to study several such fields in the same period. Design firms want their new employees to be as productive as possible from the very first day on, not train them in basic aspects of their profession. Judged against each respective professional, the depth of knowledge of an environment designer in any established design discipline is limited, neither specialized nor thorough enough.

The situation of environment design graduates described above, their spreading pattern after graduation, and the sentiments expressed on both sides of the job interview table, render it obvious that environment design, at least as taught in most schools in China, is not a distinct and clear-cut design discipline yet. The curricula for environment design schools have to be redefined if we want our students to find a place in the design world.

Teaching of environment design

How are the schools currently supporting the students and what are they undertaking in order to meet this desolate situation and improve the image and the relevance of environment design?

The D&I of TongJi University, again as an example, currently offers a four-year environment design program that is as broad but also as professional and practice-oriented as possible. Students get a few semesters of basic education in design, then several semesters of design studios tackling one of the principal human environment design professions plus related courses, and finally they carry out a combo studio project in the 7th and the thesis project in the 8th semester. Hence, students encounter basic aspects of environment design, for instance scale, proportion, material, surface, volumetry, etc., topics like architectural/design history, function, circulation, structure, building statics, traffic, etc., as well as more focused issues such as lighting, ergonomics, thermal comfort, and the like. Furthermore, historical, economical, social, political issues as well as contemporary questions relating to sustainability, branding, innovation, etc. are addressed. Obviously, the amount of study and training time in each single topic is unfairly short, but similar program content is rather popular in Chinese schools[11]. Meanwhile, the terms 'environment' and 'design' are rather broad and seem to become more complex and ambiguous by the day. Thus, this kind of curriculum results in one major drawback as described earlier; the students lack depth within the respective discipline when entering a classic design firm upon graduation.

At home and abroad, there exists a lack of agreement on the nature of environment design. The schools offering such programs create names, definitions and curricula on their own while lacking references and unison. Neither students nor teachers truly understand the nature of environment design, as the goal of study is missing or unclear. To make matters worse, there are institutions that call their programs environment design, but then appear to teach merely interior design or another established design profession. Then why not straightforwardly call the program as what it is? Furthermore, environment design programs often do not stand for the most important design course of a school. An architecture school may offer such vaguely defined courses for more artistically oriented students, whereas vice-versa, an art college may offer that kind of curriculum for students with an inclination towards space design.

Therefore, every school trains its environment design students somewhat differently, releasing graduates with very different skills, knowledge, backgrounds and expectations into the job market. Such a variety is not necessarily bad and is possibly quite enriching for the job market. However, it is a challenge for environment designers to appear as a strikingly cohesive and sizeable group and to portray a strong, confident and clearly defined discipline. The schools so far were unable to define collectively what type of professionals they are producing, which explains the reluctance of firms to hire them because they are uncertain what sort of professionals they will obtain.

Neither the schools that are training environment designers, nor the firms that employ environment designers, nor the greater design and construction industry supposed to collaborate with environment designers, nor the environment

designers themselves currently seem to understand, recognize and value environment design as a relevant profession. Apparently, the young environment designer does not have his/her own place to go after graduation. After a while of personal struggle and one or more employments in other design practices, a large number of environment designers usually convert into interior designers or architects or landscape architects or whatever professional's work they ended up doing[12] . In a way, their university education only offered them a start into another profession that they had to learn by themselves.

The largest responsibility in this dire situation indeed seems to rest on the shoulders of us educators of environment designers – especially here in China, where so many schools produce an enormous amount[13] of environment design graduates every year. We provide neither a characteristic education nor a viable career path.

Prospect of environment design

The most pressing issue seems to be that environment design has to stop competing with other design disciplines for the same work scope. It is too vague to define the design scope as interior and/or exterior environment. An environment designer is neither an interior designer nor a landscape designer – and even less both. Instead, environment design must find its own valid field of work and an expertise that

a) has a clear, comprehensible and unmistakable definition

b) is specific as well as substantial enough in scope to represent a profession,

c) does not interfere with established design professions but possibly complements them

d) is desired or, even better, required by the design market

How to reach these goals? There are several different paths for environment design to develop.

The first possibility is to continue 'business as usual' until a new visible cluster of design targets emerges from another profession or from between several of them. Examples of such emerged disciplines might be 'exhibition design' or 'stage design', which could be regarded as extensions or sub-branches of architecture/interior design. These professions still require specific experience, skills and knowledge (e.g. theater science), which are directed at a distinct type of identifiable design objects. By its name, people also readily understand what the scope of such a profession is. As long as the designed objects represents a need in the market, that niche will automatically be established and endure.

This scenario has at least two drawbacks. First, environment design would not be in control of shaping its future and ultimate work scope. It will depend on what opportunities arise over time, if any. Second, looking at the history of emerging design professions, this new cluster of distinctive objects most likely would be rather narrow in range. The early architect took care of everything from urban planning to candlestick holders. The first ones to encroach on his territory (urban planners, landscape architects, etc.) were already smaller but still rather sizeable. The disciplines that surfaced more recently, such as lighting designer, retail designer, etc. are clearly narrowly focused professions that cover only specific slots. It seems unlikely that the currently expansive environment design would be willing to limit itself to a mere tiny fraction of its current dimension, such as in 'atria design' or 'urban park design'.

A similar path is that environment design first actively chooses and defines a field of work, and then promotes and implements this direction. As its scope, environment design could claim new urban agricultural environments, innovative circulation spaces, a new form of urban community design, ambient media and social interaction facilities, etc. The definition of the design objects as well as the boundaries to the other professions would have to be established. Thus, environment design could plan and manage its future and the working scope of environment designers could become quite innovative, outstanding and socio-economically relevant.

The challenge of this path is that it will take an extraordinary collective effort or a few truly outstanding schools with significant long-term commitment to establish and implement such a scope.

Another type of solution is the immaterial definition of environment design that is revealed in 环境设计 (Environment Design) (Lou, 2007) – a definition not through designed objects but via intangible aspects. This approach is a more valuable one, as we think that the definition of design disciplines through tangible design objects belongs to the 20th century. Future design disciplines are less likely to focus on 'things' than on holistic and interdisciplinary thinking. Therefore, the physical objects become less important, whereas the design process and strategy become crucial.

There are also at least two possible solutions in this immaterial type. The first one is to define still the design objective, but to choose a non-physical one. For example, the task of environment design could be to design events, people's experiences, personal encounters or emotions via creation of environments. Design of 'lifestyle' (Lou, 2007) may represent the crown of this category. This way of definition actually somewhat exists for other disciplines already, such as in brand or corporate identity design, which are also socio-psychological objectives.

The second immaterial path is to not target any objectives at all, but to specify the way environment designers perceive and carry out design. It is about their way of thinking in relation to a project and its circumstances as well as their design philosophy, not the resulting product. E.g., human-centered design does not only focus on the physical environments it designs, but rather on whether they improve our quality of life. Clients would then hire environment designers for the way they design things, not for what they design. This compares to the notion of clients hiring a designer for the fact that he/she is LEED[14] accredited in order to obtain a more environmentally sustainable design. Both these immaterial-type definitions seem

to elevate environment design to a higher level. It would still include, but not be limited to, the currently established design fields of architecture, interior design, urban design, etc. It would contain all of these disciplines, but on a conceptual and cross-disciplinary level, rather than as a competitor.

One challenge for this type of solution is that this specific, non-physical objective or design philosophy still needs to be generated successfully. One could advocate a holistic design process based on emerging notions such as 'human centered', 'meta-design', 'design for design', 'strategy design', 'slow design', etc. However, most of these aspects will soon appear in all design disciplines and will not belong to environment design only. It is also questionable whether the public would understand and accept this immaterial mode of definition, as we would still be designing other professionals' physical objects. Besides, as the design task moves from a tangible to an intangible objective, the main work of the designer shifts from his hand into his mind. E.g., corporate identity design usually does not necessitate much actual drawing, but a lot of thinking. Environment design would become more complex and difficult. This would require profound changes and upgrades in school curricula. An environment design graduate currently is probably not able to execute such a demanding task. Moreover, the current difficulty of being able to actually design all of the design objects within our broad scope actually still remains. Even if a client hires the environment designer to create a certain 'experience environment' because of his design attitude, he/she may still not be able to design the project correctly for lack of depth in his design education in that respective field (e.g. architecture). So will the environment designer be forced to ask for support from these professions?

Rethinking of environment design

This paper would like to put forward a third type of solution, one that turns the environment designer indeed into a more indirect designer. First, though, let us contemplate a few circumstances:

The currently unfocused environment design education as taught in many Chinese schools possesses a few advantages. The primary benefit is the cross-disciplinary training. An environment designer gets a broad and holistic view over several design professions and is able to recognize and appreciate interdependence, relationships, similarities and interactions between design fields. He/she may be better able to grasp the opportunities, limitations and strengths of each discipline and how decisions in one profession are affecting decisions in another. He/she may thus also be able to transfer solutions among them and apply his expertise to different scales and design problems. The environment designer is mainly a design generalist. In a sea of specialized professions, this may be an opportunity.

As all other design disciplines seem to become gradually more specialized, the communication among them becomes increasingly difficult and rare, but actually ever more important. Built environments often display discrepancies among different scales, and many of these problems seem to stem from lack of understanding and exchange among disciplines. Mistakes at one scale or in one profession may inhibit ideal solutions in another. Communication among designers involved in creating human environments is crucial to guarantee a satisfying outcome. That current lack of communication is an opportunity, because it is a gap waiting to be filled.

An even bigger gap frequently seems to exist between the client and the designers, especially in China. Because development is a speedy business, developers disregard or miss out on well-intentioned advice from the designers due to time and budget considerations. Uninformed, unqualified, or downright wrong decisions are made in alarming amounts. Designers are regularly regarded as 'assistants' to implement subjective or political strategies, and lack authority towards decision makers while their expertise does not receive due respect.

In addition, projects become increasingly larger and more complex and thus a client needs an array of design professions in each project, from urban planners to graphic designers. Unfortunately, many clients do not have adequate knowledge about the requirements of a project nor can they make time to properly deal with all the necessary issues and professions. Further public education about the value and relevance of design seems necessary. Client guidance in decision-making and in applying the correct design process for specific goals seems crucial. That is a further opportunity.

Another emerging profession starts claiming this job already all over the world: design consultancy. This discipline is in the exact opposite situation of environment design. Design consultants exist in real practice, but hardly any university programs directly supply this profession. Joining these two 'orphans' might be an additional opportunity, because management disciplines seem to be on the raise and are likely be required in the future.

Repositioning of environment design

By gearing the environment design education towards consultancy in design of built environments, we would adequately answer many of the issues and opportunities mentioned above. This would emphasize the move towards the professional that creates and supports design of human environments as a design thinker instead of a "draftsperson", ensuring socio-economic values.

We propose that the environment designer take on the role of a mediator, communicator, translator, negotiator and integrator among the stakeholders of environment design projects. His/her task and focus would simply be to conceive the most appropriate, holistic environment for the given circumstances. He/she would be in immediate contact with all the contributors to an environment design project to facilitate exchange among them and facilitate the design process. The mature environment designer would be responsible for the basic but all-embracing design issues, such as objective, purpose, extent, coherence, etc., which the clients and individual design

disciplines right now often have a hard time to enforce. The work of the environment designer may be compared to that of a project manager, but instead of being employed primarily in the later, physical execution of a project, he would contribute his assets early in the conception and programming of a project.

The environment designer's role would become threefold: consulting clients about environment designs, facilitating exchange among stakeholders of environment designs and conceiving/programming environment designs.

A client tackling an environment project would hire an environment designer as a consultant. Environment design offices would join a client body from the very beginning of a new development and even stay over the course of several projects, thus being intimately familiar with the needs and goals of the client. Alternatively, environment designers may be hired on a project-by-project basis, taking many decisions and workload off the client's shoulders. In any case, the client would hire the environment designer to discuss his ideas and requirements long before any other designer appears. The environment designer would ensure that the client is aware of and formulates his desires clearly and appropriately. He would carry out feasibility studies, strategic planning and concepts, would propose and consider alternatives, possibilities and opportunities, would survey and consult potential users, would talk to marketing consultants and government agencies and carry out many other up-front tasks. The environment designer would try to give design and economics an equal weight, but would also consider environmental, social and other aspects. Together with him, the client would then finalize his ideas, formulate the design programs and supervise the following design process. The environment designer would make sure that the client's intentions not only are implemented, but that they are implemented in a high professional quality. (Figure 1)
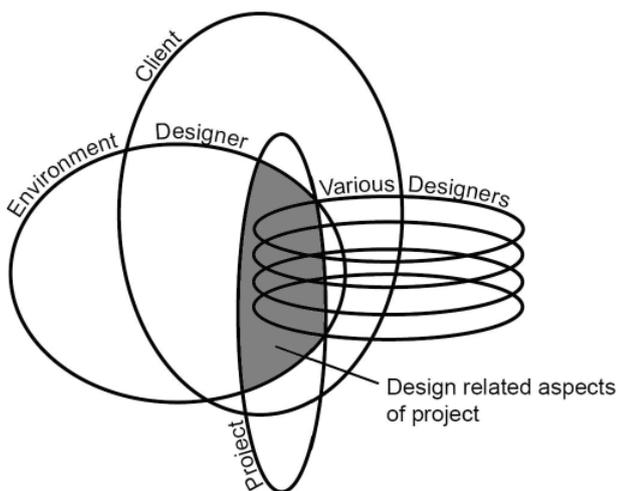

Figure 1: Collaboration among agents of a built environment project. Sizes of shapes do not necessarily reflect real-world power and are chosen solely to allow appropriate overlapping

The other design disciplines could better concentrate on their own task, while the overall quality of the project was being taken care of. The environment designer would ascertain

that the different professions involved in the project would communicate with and value each other. These other involved design disciplines may welcome him/her as an ally in order to convince the client in issues relating to design problems, as the environment designer would speak their language. He/she would also be able to judge the proposed designs from the client's point of view, but with the knowledge and words of a designer. Instead of adding to the number of designers that handle a project one after another, he/she would contribute to the project from the very beginning to the very end. He/she would make sure a concept is coherently integrated at all levels and scales of the design, that applicable environmental standards are met across the full project, that earlier achievements, conclusions and decisions do not get subsequently overturned by mistake, etc. The environment designer would make the design process more effective in terms of life-cycle cost and overall duration. He/she would reduce the total design fees, as the number of later corrections and re-contracting to improve or modify the design in the long run should drastically shrink.

The environment designer could still claim to be able to create any environment, but he would no longer need to claim to be competent enough to execute the design down to every detail. The environment designer would mostly participate in complex projects that range over several disciplines and require a lot of strategic thinking, design organization and information exchange. His main tasks would be to clarify goals, formulate programs, generate concepts and then facilitate the cross-disciplinary design. He could finally be what he truly is – a design generalist. Most importantly, he would not compete with related design disciplines anymore but gain an own identity.

The education of the new environment designer obviously would have to support and promote this line of work. Besides the current basic studies in design practice and theory, we would now also train the students in communication, exchange and negotiation, as well as creative thinking and innovation, in addition to issues of socio-economics and life quality. Such a consultation and facilitation job requires a certain level of education. Master's studies would therefore almost impose themselves. The schools would have to provide continuing and pertinent education, such as in a 4+2 bachelor/master structure. Students enrolling into an environment design program with a clear goal and a likely place to go after graduation might enjoy studying until the master's diploma.

Besides establishing own practices or working in design consultancies, the environment designer would be an ideal candidate for jobs in government, public agencies, media, large companies, NGOs, and other institutions that develop and implement design policies, laws, regulations, guidelines, quality assurance, standards, permitting, rating systems, assessments, criticism, etc. pertaining to design of human environments. Here too, he could represent the bridge between the design world and other professions as well as the greater public, with his assets of multidisciplinary design knowledge, cooperation skills and communication capability.

The environment designer would stand for value, coherence and continuity in design projects. He would be

an ambassador for environments and would practice quality management with the mind of a designer. Such a harmonizing profession is eventually necessary, as the 20th century has broken down our thinking and working into too many specialized design professions that are often not concerned about aspects beyond their immediate subject. The recent appearance and unmistakable rise of design consultancies, the environmental movement and increased human-centered design thinking for environments seem to support that claim. Change and improvement are necessary for the sake of the environment design profession, the design market and a more sustainable society in general.

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Notation

1 The Merriam-Webster Online Dictionary defines 'quo vadis' as a Latin phrase meaning: "Whither are you going?" (Where are you going?) http://www.merriam-webster.com/dictionary/quo%20vadis.

2 The two most popular terms in Chinese are 环境设计 or 环境艺术设计 . In the current Chinese context, both names refer to the same field within the discipline of art and design (艺术设计). According to the category of standard undergraduate programs, defined by the Department of Higher Education of the Ministry of Education of the People's Republic of China, the discipline of art and design is at the same level and parallel to the discipline of architecture, http://www.moe.gov.cn/edoas/website18/84/info1212562471366584.htm. The above two terms literally translate as 'environment art and design' or 'decoration of environs or surrounding space'. However, in the English language, the simpler 'environment design' or 'environmental design' seem to be prevalent. Nevertheless, these terms come in many variations, in various combinations with other terms and with very diverse definitions and contents. Since the rise of the environmental (sustainability, green) movement, the term 'environmental' also represents these topics. For reason of clarity and distinction from sustainability issues, this text will employ the term 'environment design'.

3 Since 1998, environment design (环境设计 or 环境艺术设计) is part of the field of art and design (艺术设计) alongside textile art design, ceramic art design, graphic design, decoration art design, as well as certain programs in interior, fashion and furniture design. According to the open information platform of the Ministry of Education, the enrollment plan for art and design discipline in 2010 is more than 100,000 freshmen. http://gaokao.chsi.com.cn/gkxx/yszy/dt/200912/20091214/53942748.html. In this official list of undergraduate disciplines there is no separate statistics available specifying the number of students or schools specialized in environment design. http://www.moe.edu.cn/edoas/website18/84/info1212562471366584.htm. However, the authors' guess is that the student and school numbers in environment design are definitely not less than the ones in architecture. In 2010, 688 higher education institutions in China offered art and design programs, while only 213 universities offered architecture programs http://gaokao.chsi.com.cn/sch/zyk/query.jsp#.Environment design education has been growing faster than architecture or similar programs over recent years, because its teacher-student ratio, the tuition fees and other aspects have been less strictly defined by the Chinese government. Thus schools can obtain high benefits in relation to investment. As an example, the national high education professional advisory committee on architecture (全国高等学校建筑学学科专业指导委员会), who is nationally in charge of evaluation and accreditation of the professional programs, suggests the overall ratio between tutors and students in architecture discipline be 1:8 on average as a teaching condition. For studio the ration should be 1:10~15. The suggested scale of recruiting students per year is 60-90. 全国高等学校建筑学专业教育评估文件 http://www.mochr.com/renshi/gaodeng/pinggu-file/jianzhuxue.asp?page=12. No such guidelines seem to exist for environment design education.

Accreditation is another issue: According to the Department of Education and Human Resource under Ministry of Housing and Urban-Rural Development (MOHURD), till June 2004, numbers of schools passed professional education evaluation are (numbers in parenthesis showing total schools who offer

the discipline): architecture 28(125), urban planning 11(100) http://www.chinabeee.com/2009/0803/4.html. Accreditation is a huge asset but seems very difficult to reach. Running an un-accredited program is difficult in the fierce competition. No professional accreditation exists for environment design, and therefore all schools that offer it are equally competitive in this regard.

4 Results of a Google search for environment design, environmental design, environmental design degree, and environmental design program in English, indicate that the program of environmental design does exist in the western world, but not as a main stream with a clear definition. There are a combined total of 10 programs containing "environmental design" in their titles, in the top 20 results from each search.

The term 'environmental' is interpreted as follows:

A) The built environment, including architecture, landscape studies, urban planning and studies, and/or interior design.

E.g., three colleges named College of Environmental Design, or College of Environment and Design, actually do not provide any programs literally named as environmental design. They are classic schools offering programs in architecture, landscape architecture and (urban) planning.

Two schools offer four-year bachelor programs as pre-professional courses with a concentration in architecture, landscape studies or urban studies, or interior design. The word environmental here refers to the built-environment in general.

B) Alternatively the term can refer to one of the above fields specifically, i.e. urban environment (one program), architecture (two programs), interior (three programs)

C) The term emphasizing on sustainable issues (two programs)

5 According to online publications from the School of Architecture at the China Central Academy of Fine Arts (http://www.cafa.edu.cn) and the Department of Environmental Arts & Design in the Academy of Art and Design at TsingHua University (http://ad.tsinghua.edu.cn), Professor Zhang YiMan is regarded as the founder of environment design in China. Upon returning from Tokyo University of the Arts in 1986, she initiated the setup of this new direction with the China Ministry of Education and got approval in 1988. Her Department of Interior Design in the Academy of Art and Design at TsingHua University (Central Academy of Art and Design, at the time) was converted into the Department of Environmental Art Design. It is currently the oldest such department in China and offers courses in two directions, namely interior design and landscape design. In 2000, Prof. Zhang left TsingHua and moved to China Central Academy of Fine Arts. Currently, she leads interior design courses in the School of Architecture, studio #2.

6 E.g. Southeast University, http://arch.seu.edu.cn/jxky/index.asp?info_id=67; or China Central Academy of Fine Arts http://www.cafa.edu.cn/channel.asp?id=2&aid=26&c=6&f=1

7 Several western schools offer well-defined and targeted programs. E.g., see Art Center College of Design http://www.artcenter.edu/accd/programs/undergraduate/environmental_design.jsp or University of Dundee http://www.dundee.ac.uk/design/bdes-interior-design.php.

8 The authors are trained architects and have been teaching

design of built human environment at the College of Architecture and Urban Planning (CAUP) and the School of Design and Innovation (D&I) in TongJi University, Shanghai, since 2003. Through continuous tutoring of and interaction with environment design students, they are rather aware of their circumstances.

9 These claims were verified repeatedly through personal conversations with several students up to a few years after they graduated from our department and by inviting several of them to review this paper in the draft stage. A more precise survey on the professional development of our students after graduation was conducted in August 2010. The object of study was both undergraduates and postgraduates from the Art and Design Department, Tongji University, of the last 6 years. A total of 60 feedbacks were received. The ranking of types of firms where our graduates worked in their first job (more than one choice possible) is:

Architecture design firms (40%), interior design firms (40%), landscape design firms (18%), other types (including insurance company, etc) (12%), urban planning firms (10%), exhibition and event design firms 8%, urban design firms (7%), environment (art and) design firms 5%, graphic design firms (including advertisement companies, etc) (0%)...

In short, both architectural and interior design firms predominate, while environment (art and) design firms are marginal.

A few students added more personal comments saying that they feel very difficult to describe the program they had at school to the potential employers, to the question of "How do you describe your earned educational focus?"

10 As remembered from personal conversation on July 02, 2008, between Pius Leuba and Raefer K. Wallis, co-founder and chief architect of A00 Architecture in Canada/Shanghai.

11 We would like to emphasize that all we described so far applies to Tongji students who underwent an education that is inclined towards professional practice rather than art and decoration. This is unlike some other schools (e.g. art academies), where the latter seems to be common practice and often the tutors possess a fine arts background. We are unsure how graduates that have not been trained in conception of space, functions, places and the like, but merely in artistically embellishing surfaces and objects of existing environments, enter the job market.

12 According to the survey mentioned previously, the ranking of roles in their first job (more than one choice possible) is: Interior designers (47%), architecture designer (25%), landscape architecture designer (23%), graphic designer (15%), environment (art) and designer (10%), design management (8%), and others…

The role as an environment (art) and designer is obviously not relevant; neither are environment (art and) design firms.

13 According to nationwide Chinese statistics on the employment rates of university graduates in relation to disciplines, published by the Ministry of Education, graduates from architecture amount to about 5000-10000 in 2008 and 9000-10000 in 2009. The employment rates in both years were≥85%. Graduates from art and design amount to about 50000-100000 in 2008 and 70000-80000 in 2009. The employment rates were both≥80%. http://gaokao.chsi.com.cn/z/jylfb/#

14 LEED stands for Leadership in Energy and Environmental Design. LEED is a sustainability rating system for built environments, created, owned and operated by the United States Green Building Council (USGBC) and arguably the most successful and internationally utilized green building standard today. http://www.usgbc.org

Astrid Skjerven
The concept of Scandinavian Design

A potential for the development of a culturally sustainable China

Abstract

China is undergoing rapid changes in the form of industrialisation, thereby making a break with traditional ways of production and living, and the qualities of everyday objects. The question at stake is how local traditions can be revitalised and utilised as an innovative force, thereby securing the development of culturally sustainable and yet modern China. For Norwegian participants in the process the concept of Scandinavian Design (SD) might be a suitable approach.

The research project is at an early stage. The findings so far are that the concept is still known and used, that its contents is suitable for getting aware of local traditions and that its values are in accordance with cultural sustainability. It might be a useful methodological tool.

China in transition

The pace of development and transition of the human environment in China is breath-taking. Huge areas are rapidly being transformed from rural landscapes to urban areas with skyscrapers containing one family flats filled with technological appliances. This is being executed by ways of Western industrial methods. Consequently, the country's production units as well as higher education have become geared towards this approach. On the one hand this has created a growing technological and industrial competence within China itself, and a thriving market for foreign investors. This has improved the material standard of living. A growing middle class is buying appliances according to their desires, and represents a huge consumer market. On the other hand, it has created a "missing link" to the vernacular traditions of production and living, which are based on crafts, the use of natural materials, and ancient philosophical views. This has led to a beginning loss of certain kinds of skill, knowledge and ways of thinking. For people in general it has caused an abrupt break with habitual ways of living. The situation concerns all aspects of human existence. The objects of our close surroundings and the way we are treating them are of great emotional and symbolic value. They play a significant role in the creation of meaning. To live high above the ground with no outdoor facilities makes it difficult to practice own handicraft. The technological appliances do not automatically contain symbolic values, they have no references to local culture and seldom stimulate sensory experience. To create homes and objects that fulfil such habitual requirements and at the same time are being creative and contemporary con-stitutes a great challenge to the designers of the future, meaning today's students of design.

As responsible for this development, China's political authorities have become in-creasingly aware of the necessity of environmental sustainability. There is also a concern about securing a certain economic living standard and general social welfare. In this respect "The Nordic Way", meaning the Scandinavian countries' economic model that comprises these issues, is regarded as a model (Tang Guo Quin 2009). It stands for the ability to com-bine economic profitability with democracy and human and ethic values. However, there is a tendency to concentrate on quantitative matters. The qualitative ones, relating to cultural and ontological matters, are easily forgotten. When culture is taken into account, it is usually as an isolated matter of rescuing the so called cultural heritage, which is regarded as something belonging to the past with minor relevance to the future. Through centuries China has been renowned for its old high standing aesthetic culture which used to be an innovative force. To secure a meaningful everyday existence in the future, it is necessary to re-establish the link to cultural traditions. The

question is how to re-establish and revitalise it.

Since the start of China's new political era in the late 1900s Norway has been an ac-tive partner, with regard to both business and higher education. A future challenge is how our engagement can contribute to a fruitful development of China that includes the values of its traditions. Finding a strategy that works would also mean a competitive factor and improve-ment of competence for our own sake. To build on our own traditions and our existing image towards the outside world, in other words the concept of Scandinavian Design (SD), seems to be a logical way. The concept is also the design equivalent to the political and economical concept of "The Nordic Way", admired by the Chinese political authorities.

The investigation in based on a combination of two cases, the Norwegian firm Jotun's business engagement in China, and a design education cooperation project between Xi'an University of Architecture and Technology (XUAT), The Norwegian University of Science and Technology (NTNU) and Akershus University College (AUC).

The concept of Scandinavian Design

There are three reasons for why SD could contribute to revitalise China's own tradi-tions: its historic origin in the idea of The Other, its relation to design from the East, and its ethical and aesthetical standards.

Fascination for The Other constitutes a basic element in human development. Ex-periencing something different, often in the form of geographical polarities, makes it possible to see oneself in a broader perspective. It also stimulates innovation. The notion has played a crucial role in the development of de-sign during the Modern era, and it has generated con-ceptions like Orientalism and Occidentalism, and the specifically design related idioms of Chinoiserie and Japonism. The concept of SD, which was coined in 1949, is founded on this phenomenon (Skjerven 2001). The main difference is that the geographic polarities are North-South in stead of East-West, but it also includes elements from the latter.

The concept has its origin in Roman Antiquity. In the ex-perience of their newly con-quered territories the Romans found a distinct cultural difference between the countries South and North of the Alps, which they wrote about in their topoi. They regarded their own society as a highly developed social struc-ture based on rational and abstract thinking. At contrast they found the people of the North to be living in non-hierarchical structures, in simple and natural surroundings, behaving and thinking intuitively rather than intellectually, and therefore using organic constructional methods rather than mathematical. Also finding qualities in their way of living, the experience enabled the Romans to become aware of strengths and weaknesses in their own society. Thereby their experience constituted a depar-ture point for change and innovation. This outside view of the difference between the South and the North developed into a general conception. It was recognised and became internalised within the regions that had been described. During the era of nation building in the late 1800s the conception constituted an important ingredient in the construction of national identities. At the German continent the Scandinavian countries were seen as Ur-Germania. This notion was successfully utilised by the Scan-dinavian countries and Finland at the World Exhibitions. At the same time the West's fascination for the East and vice versa was flowering at these ex-hibitions.

After the Second World War the North-South conception was put forward as a busi-ness concept to promote the export of high end design products from the Nordic countries. The ob-jects that were promoted corresponded with the concept and at the same time with Modernism. The situation led to product in-novation at a hitherto unknown scale. The objects were made of natural materials in simple and organic-like forms, being in accordance with tradition yet at the same time modern, and of-ten made by a mixture of craft skills and modern technology. Actually, their design was built on impulses from other cultures. Among the most important were the crafts of the Chinese Ming dynasty. The work of one of the most influen-tial designers in the creation of the SD idiom, the Danish furniture designer Hans J. Wegner, is an obvious example. In order to make a modern chair for bentwood production with minimum quantities of material he designed prototypes for four "Chinese chairs". Their model was a Ming quanyi chair (Jakobsen 1992).

In this way the products from Scandinavia and Finland gained reputation from the outside world as being in accordance with the region's traditions yet highly modern, and re-flecting val-ues that were different from but still with affinities to one's own, whether it be Asian, American or European. This has since then constituted the outside world's general view of products from this region. In the early 1990s, when the EU expanded its borders, regional branding won new actuality as a way of making oneself visible in the greater society. So did the concept of SD, which was used by Nordic producers of design objects as a guideline for product development and marketing in their adaptation to the new situation. In spite of being criticised as outdated by some people (An architectonic masquerade 2010) it is still being used by several enterprises, for instance the small design firm Norway Says and the bigger and more widely known company Scandi-navian Airlines. However, it no longer constitutes the only way, but exists among a variety of approaches.

The company Jotun

The still mainly family owned firm Jotun, with its Head of-fice in the former whaling city of Sandefjord, is one of the world's 10 biggest producers of paints and protective coatings. It is an important global actor, renowned for its products of high qual-ity and its ability to meet international standards as regards en-vironmental sustainability. It has defined a set of basic values: loyalty, care, respect and boldness (Jotun 2007), which are sup-posed to constitute the basis of its business strategy. The brand is expressed in its logo. It consists of a penguin inscribed in a global sphere, and its colours are yellow, red and black or dark blue. The use of the penguin has its origin in the founder's per-sonal interest awakened at his whale hunting trips in the Antarc-tic. The globe refers to the firm's world spanning business. The logo points to its family and local origin as well as being global, and contains no references to Norway or Scandinavia.

The firm started its business in China in 1993, and now represents a substantial and increasing part of Jotun's turnover. It comprises the whole range of the firm's products. It consists of four product segments: marine coatings, protective coatings, powder coatings, and decorative paints. The three first categories, which are products primarily for industrial use, have shown a substantial growth. As regards decorative paint, which represents the biggest and most competitive market, the sales have as yet been moderate (Jotun 2009).

As a global firm with long experience in foreign enterprises, the method that Jotun used to establish itself in China was one of standard procedure. They followed the big com-missions in ships paint, its core product category, thereby creating a spearhead for other product segments. The activity was extended to other industrial protective coatings. Working closely with contractors of large enterprises one has also managed to get commissions of high prestige and with strong cultural implications and symbolic content. Among these is the world's biggest bridge, the Taizhou Yangtse Bridge.

To reach national markets, including the Chinese, Jotun's main strategy is to work lo-cally. To secure local knowledge one is almost entirely hiring Chinese staff. One also brings together market and laboratory personnel, thereby combining various competence in order to adapt its products to the local market (Almestrand 2010). On the other hand, the Chinese staff is trained in the Jotun strategies, thereby securing common values on a global scale. As regards specific national needs, physical requirements due to climatic differences are met with adaptation based on technical research. On the other hand, products of a decorative character belong to the standard repertoire of products, which have been developed for the Scandinavian market. They are sold without adaptations, and under the regular labels (Lar-sen 2010.) This means that they are marketed with no regard to national cultural preferences.

In comparison, the situation in Dubai, another of Jotun's important and lucrative mar-kets, Jotun has been particularly successful in all segments. In this country the corporate identity fits well into the family-run state with its intention to become an internationally oriented society with few references to its local culture. Since the start there have been good personal and thereby cultural relations between the family of the emir and the family owners of Jotun. Although it may seem childish one should also take into account the two families' interest in birds: the emir's in falcons, the Jotun family in penguins. In addition to its many large commissions for the contracting market Jotun has established itself in the lucrative private market by ways of several cultural adaptations. It has developed products adapted to these particular customers, and they sell very well. No such thing has yet happened in China. From Jotun's point of view the reason is that developing products within this segment takes longer time than others, thereby realising its specific cultural character. In Dubai it took twenty years (Almestrand 2010). It is necessary to comment that Dubai and China are very different countries. The corporate identity does not fit quite as well into the huge and complex continent of China, governed by one party, with ambitions to become a leading global power on its own terms, and with its highly re-

nowned ancient culture. Jotun's standard procedure is to adapt its experiences and solutions from other countries in the same region (Almestrand 2010.) This has been a successful strategy in a small country in the Middle East where the culture is quite homogenous, but might not be the case in China. In the case of South-East Asia Jotun has been successful in smaller countries like Malaysia and Singapore. It is obviously not so easy to transfer experiences from for instance Malaysia to China.

The Chinese private market is the biggest and most competitive of the market seg-ments, and it therefore constitutes Jotun's greatest challenge. To reach it is necessary to be successful in with their decorative products, with its many layers of ancient, contemporary ad aspiring culture. It requires extensive product development based on culturally related matters. The products have to communicate a message that is comprehensible and attractive and makes them stand out from others. The company also has to make itself known with a particular identity that includes its values in a cultural context. Staff with competence in these matters ought to be involved in the process. The need of design competence is great. As yet Jotun is fairly unknown among the Chinese population. Therefore it is fairly free to choose how to be visible and what its message towards this market segment should be.

During the ongoing Expo 2010 in Shanghai several firms in the Scandinavian countries are cooperating closely. Jotun has decided not to take part in the joint venture. It is going to expose itself on its own in the form of a single event, a concert with contributions from all over the world (Naglestad 2010). It thereby makes itself stand out as a global firm oriented towards diversity and cultural values. This shows its global standing and its set of values, and it even comprises an explicit appreciation of cultural values. On the other hand, it does not tell anything about Jotun's own standing and what makes it different from other global enterprises. By not taking part in the Scandinavian joint venture it has also forsaken the possible advantages of regional branding within the framework of a renowned concept, "The Nordic Way" and Scandinavian Design. Totally, this gives an impression of strength, but also anonymity.

The XUAT – NTNU – AUC design education project

The cooperation between the design faculties of XUAT, NTNU and AUC has its origin in the late 1980s in a project between the architectural departments of XUAT and NTNU (AUC 2005-2010). This was focusing on the conservation of the built environment surround-ing Xi'an (Høyem 1997). Starting in 2005 the design education project had another aim and scope than its architectural predecessor. It was to develop sustainable design for future China. This reflected the field of interest of the engaged faculties, and the prevalent vogue of so called eco-design in the international design community. It also corresponded to the political attitude in China at that time, characterised by even stronger emphasis on industrial de-velopment along with a growing awareness of environmental risks.

During the courses the Chinese and Norwegian students have been working together in groups by ways of oral discussions, CAD construction and visualisation, writing and at-tending

a few common lectures. It has only comprised a minimum of crafts, i.e. workshop training limited to making models in clay and paper. In fact, the premises at the faculty in Xi'an do not offer such facilities. It is solely directed towards industrial design. Consequently, the courses have been focusing on problem solving of functional and practical matters, aim-ing at finding simple and low cost solutions that can be industrially produced and that do not damage the physical environment. Although not at the explicit agenda, matters of living habits and culture have constantly popped up during the work process, which in itself means a great cultural challenge to the participants. Matters of aesthetics, symbolic content and sensory qualities have not been included, and have been regarded as being of marginal relevance to the topic of sustainability. Since there has been no opportunity to work concretely with the materials and techniques as such, sensory aspects important to the expressive dimension of objects have scarcely been included. Neither have relations to production units and the market.

Following the official politics of China, there is naturally a strong motivation among the XUAT students end educational staff for making production cheap and at mass level, and they are therefore focused on finding solutions to practical problems of the everyday. This also corresponds with the views of the Norwegian participants as to what China needs. How-ever, the course in 2009 demonstrated a beginning shift in attitude towards taking cultural matters into account. One of XUAT's own professors, Shi Lei Ming, gave a lecture on the present urban development that by ways of demographic statistics demon-strated its conse-quences for people's personal lives (Shi Lei Ming 2009). His contribution put forward the question of how to combine large scale urbanisation with sustainability related not only to pollution, but also to quality of life. In fact, several of the XUAT teachers and students have expressed their engagement in quality of life and symbolic values, often including them in their own work. This has been to the astonishment to the Norwegian teachers, being more oriented towards rational matters (Gulden 2010). In addition, the writer of this document par-ticipated for the first time by giving lectures on cultural matters in a global and regional per-spective. One of them was dealing with design in Scandinavia, with emphasis on the concept and its origin (Skjerven 2009). It was received with interest and appreciation. However, its content was not understood as particularly relevant to their project and was taken little into account in their own prob-lem solving. This makes it evident that the explicit inclusion of cul-ture as a topic and an approach in design thinking is some-thing that needs to be cultivated, so to speak.

In the aftermath of the course I sent a questionnaire to some of the XUAT participants, both students and teachers, concerning their regards on Scandinavian design (Xi'an 2009). It consisted of open and fairly general questions to allow the participants to formulate their per-sonal views on the topic. It turned out that they to a high degree corresponded with the tradi-tional concept. In addition, there was a clear tendency to include a new aspect, that of envi-ronmental sustainability, re-lating it to the concept's expression of closeness to nature and the use of natural materials. Their conception of the common

nominators of what is typical of SD today can be summed up by the following elements: warmth (both physical and psychologi-cal); the use of natural materials, in particular wood; simplicity of form; availability for all; en-vironmental sustainability. It was regarded as contrary to most of today's Chinese objects, which in their opinion tend to be industrial and extremely or rather too commercial. This means that the concept is still living, and that it has even been updated to comprise one of the most impor-tant challenges of future design. Although finding similarities between own ancient traditions and SD, none of the students were able to see any likeness with today's design. Except for the occupation with sustainability, this included own work. Rather, they saw a break with tradition due to industrial and commercial requirements, which they partly found regretful and would like to change. Additionally, one can conclude that the comparison had caused a certain critical reflection on today's design practice in China that has led to a clearer and more critical view of it. This indicates that there is a potentiality that the concept might be developed as a methodological tool to bring about critical views and innovation.

The perfect match?

The concept of SD seems to fulfil most wanted require-ments to a design thinking and practice that might solve the problem at stake, that is fit for the Chinese market, and which Norway can contribute to. It comprises sustainability both quan-titatively and in the sense of quality of life. It stimulates the devel-opment of vernacular traditions in cross fertilization with those of the outside world. History has proved that it works, the Chinese design community appreciates it. And may be most importantly: at the political level it corresponds with the gov-ernment's ideal of "The Nordic Way". It seems to be a win-win project for both countries, commercially as well as academically. While China will be better suited to handle its chal-lenges in the modernisa-tion process, Norway will sharpen its competitive edge and de-velop its professional competence. So what are we waiting for?

What would an active adaptation of the concept mean to business end education? Used in business the concept offers a distinct but flexible branding that can be adapted to each firm's own purpose, corporate identity and nationality. It constitutes a cultural basis for product development and market adaptation. In the case of Jotun it might give the firm a clearer cultural pro-file which would enhance the significance of its official prestige projects. As for its aim to reach the private market segment it might be of particular relevance. Here the firm faces the need for extensive product development, where the culture of the target market has to be taken into account, and even constitutes an el-ement of influence. The con-cept of SD would have to be adapt-ed and fitted into the firm's corporate identity, and to its standing as a global corporation, which is a considerable challenge. On the other hand, its local origin fits well into the regional concept of SD. So does its emphasis on sustainability. As for the firm's product range for this market segment it has not been marketed within the concept of SD although it has been developed for the region. The fact that the products are particularly fit for the Scan-dinavian countries ought to be a good departure point for the use

of the concept. To improve its results in the private market Jotun is obliged to adapt its product range within the segment of decorative paints to the prevailing values and the consumers' taste. In addition to keeping its standing as a global enterprise it has to choose between branding itself as a family firm like in Dubai, or by the concept of SD. The earlier described situation in China as well as Jotun's own ambitions to be a value driven firm with high stan-dards of quality, points to the concept of SD.

To the Chinese designer it represents a culturally based and value oriented approach that is different from but at the same time comprises affinities and in many ways constitutes an ideal. It is based on attitudes to matters that are crucial in all design thinking, but of par-ticular relevance to the situation in China to-day: sustainability in general, quality of life, and the situation of vernacular traditions in an era of industrialisation. An example that illustrates its relevance is the work of the Hong Kong based designer Benny Ding Leong. He has de-veloped what he calls an "East West" approach to design thinking which in his opinion suits the challenges of the global design community. It is made up of a mix of Eastern and Western ideas, but mainly on the tradi-tion of Ming furniture (Clark 2003). The result has great similarity with the values of the concept of SD. To the Norwegian designer it means a partly forgotten concept containing ontological values that are easy to forget.

The XUAT – NTNU – AUC education project is in a stage of change towards a broader and more human-oriented way of understanding sustainability. In this process the introduction of the concept has already proved to be a helpful tool to stimulate critical reflec-tion and a fresh approach to product development. Studying its content and comparing it to one's own attitudes will make it possible to get a clearer view of one's traditions as well as giving impulses for innovation. Combining tradition and har-mony with nature with modernity it constitutes an ideal starting point for developing a way of design thinking that supports these values within the framework of technical and industrial develop-ment. Xi'an, being the cultural capital of China and at the same time subject to rapid urban development makes XIAT par-ticular-ly well suited for this new approach in the cooperation project.

What about the people who all these ambitions to create meaning is meant for? What do they actually want? In other words, what are the preferences of the private segment of the market? Among the well educated elite the taste is often Western oriented although interpret-ing and using Western elements in their own way. Among the increasing number of "nouveau riches" the prevalent tendency is to boast of one's own economic stand-ing by ways of glossy products, so called Gold Teeth Design. At an overall level Chinese consumerism is growing and constitutes an environmental threat. The situation represents a challenge to the political authorities as well as the designer profession. The matter of sustainability in all its dimensions is also a matter of education and attitude among people in general. The concept of SD offers a starting point for developing a range of products that meet the needed requirements, but is dependent on a cor-responding attitude among the users.

To repeat the question: What are we waiting for? The con-cept of SD constitutes a way of thinking that supports cultural sustainability, and innovation based on traditions. It might be "the perfect match". But this has to be tried out, hopefully as a co-operation between Jotun and the Chinese-Norwegian research project.

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Mobilized Collaborative Services:

Promising cases on mobile communication for social innovation and their design implications

Abstract

This paper aims to investigate the value of Mobile Communication Technologies (MCTs) in grassroots social innovations in network society by case study and their design implications. Through analyzing 15 promising cases, defined as Mobilized Collaborative Services, paper discusses on how MCTs enable collaborative services in three perspectives: Personal, Portable and Pedestrian (3P), Anytime, Anywhere and to Anyone (3A) and At The moment, in The place and to The individual (3T). Then the paper reflects above findings to design implications. The research generates pilot design guidelines on the situations that mobile communication is favourite and necessary to be used in social innovation: when mobile phone is the only available option, when the encounters of services take place in moving surrounding, in specific places or in specific moments.

Keywords

Mobilized collaborative services; Mobile communication; Social innovation; Case study

1 Introductionw

The issues of sustainability are shifting from environmental concern, intended as a specific problem to solve, to the perspective of sustainability, intended as a new way of living and producing (Manzini &Jegou, 2003). The problems today we are facing are complex more than complicated (Bruan et al., 2006), which calls for different approaches of innovations: not only technical and scientific innovations, but also social ones. Social Innovation (Mulgan, 2006; Manzini, 2008), as a radical change of social-tech system, is regarded as an important drive to move toward sustainability. And Collaborative Services (Jegou &Manzini, 2008), a new mode of service implicated in grassroots social innovations, become new objects of design intervention for sustainability.

The phenomena of collaborative services and production are emerging and booming in two contexts by different ways: they emerge as Creative Communities (EMUDE, 2006; CCSL, 2007; Meroni, 2007), on one hand, in everyday life such as Car-Pooling and Co-Housing; on the other hand, in cyber space they appear as Open Source Method (Mulgan, Steinberg & Salem, 2005) initials, such as Linux and Wikipedia. The former are groups of people who creatively and collaboratively solve everyday life problems by themselves, and their behaviours imply environmental sustainability and increase the social fabric. The later are volunteer-powered, internet-enabled and geographically-dispersed Networked Information Economy (Benkler, 2006), which embodies a new way of creating knowledge that combines an open and democratic ethos with an extraordinary ability to produce work of high quality and on a huge scale.

As matter of fact, with diffusion of Information and Communication Technologies (ICTs), the two spaces become nearer each other. In particular, high diffusion of Mobile Communication Technologies (MCTs) arise Ubiquitous Computing (Weiser, 1991), Personalized Network (Wellman, 2001) and P2P Relational Dynamic (Bauwens, 2005; 2008). The synergetic relationships between virtual spaces, physical spaces and social spaces evolve to a hybrid space, Space of Auras (Casalegno & Susani, 2005), which is more conductive to social interaction between people and their communities. In another word, mobile communication extends and reinforces the technological platform of the network society and diffuses the networking logic of social organization and social practice everywhere, to all contexts - on the condition of being on the mobile Net (Castells et al., 2006) in a ubiquitous network society.

2 Cases study

The principle concerns in this research are: In network society, how MCTs enable collaborative services; what are the values

of them; and how design interventions promote them. Around these concerns, a phenomenological research was conducted by cases study: Connectivity for Social Innovation. It is research collaboration between DIS-INDACO, Politecnico di Milano (PO-LIMI) and MEL-Design LAB, Massachusetts Institute of Technologies (MIT). The first purpose is to investigate the creative applications of mobile communication for social changes all over the world. By desk research, seminar and experts interviews, more than 100 initials all over the world were collected. Among them, 15 promising cases were selected and identified as promising cases of collaborative services enabled by MCTs(See table_1). They are not exhaustive possibilities of such cases. As a pilot research, it's enough to have these typical cases to understand what they are and what's the matter with mobile communication. Here the paper doesn't describe those cases since they are accessible by Internet (See Appendix), but only give an example of "People's 311" in New York City (See table_2).

Categories	Promising cases	Service ideas
Producers/ consumers networks	Cell Bazaar	Local market
Community-based initiatives	Neighbourhood Watch	Mutual community on security
	Wildlife	Mutual community on security
Result-oriented encounters	Baltic Sea	Volunteer network for disaster respond
	Alternetrides	Rideshare
Competences, time and products exchange	MCT-supported Time Bank	Time Bank
Mapping diffused information	Ushahidi	Crisis reporting and mapping
	Platial Maps	Geographical mass source
	People's 311	Bottom-up governance
Mobilizing volunteers	BabyGoHome	Homeless reporting and mapping
	Amber Alert	Volunteer network for emergency
	The Extraordinaries	Mass source for social work
	Cell phedia	Mass source for common knowledge
	Pedigree	Authentication system for drug
	Fighting Avian	Volunteer network for natural disaster

Table_1 Categories and service ideas of cases

People's 311

Keyword: city life, mapping,
URL: http://peoples311.com/   Place: New york, US
Picture:

Short description:
The People's 311 is a public photo pool documenting non-emergency 311 conditions throughout New York City. We encourage citizens to post photos here of dangling traffic signs, illegal advertising, dead or dying street trees and the like, along with their locations.
Problem/Context:
People's 311 focuses on the little things in city life than none of us pay any attention to because they don't affect us much personally. We see them as trivial, insignificant, as someone else's problem.
Solution/idea:
We see this project as a chance to show the potential for everyday people to get a government job done better than the government; to show an ideal where we ARE the government.
Technologies:
Mobile photo, Web, MMS, flickr, mapping
MCTs role:
Taking photos, send MMS

Table_2: The case of "People's 311"

Looking at those cases, some of them seem similar, but most of them are very different. Cell Bazaar is a mobile local market; Baltic Sea is accident response of volunteers, Ushahidi is to against the violence. They are often different in service ideas, motivations, structures of system, involving degree. However, as a whole, they demonstrate a common nature of collaborative services: the solutions are based on collaborative participation and the participants are more in peer relationship instead of that between clients and service providers. Moreover, those solutions are strongly based on mobile communication. Without MCTs, they don't work at all or work in very different ways. Even though in different cases, MCTs are used in quite different ways and in different levels, they are key elements in service systems. It has to be distinguished between everyday life use of mobile phone and specific use of MCTs in collaborative services. The former is a kind of general infrastructure and context of our society, and the later is related to the system that needs to be "designed". For these reasons, I defined them as

Mobilized Collaborative Services.

3 Enabling solutions in ubiquitous network

Looking at the cases and their solutions one by one, as a whole, they show a strong common nature of mobile communication: ubiquitous network and computing. But they also demonstrate the different characters in using mobile communication as key elements of solutions. In the following discussion, the paper will argue different meanings of mobile communication in mobilized collaborative services: Mobile phone and communication is "personal, portable and pedestrian (Ito, 2004)", which makes very different from the telephone as a fixed and household phone; Basically, mobile communication is accessible "any time, any where (Perry, 2001) to anyone", which makes different from computer-supported Internet; Particularly, it can work "at the moment, in the place and to the individual (Casalegno & Susani, 2005)", which gives different values from what mobile communication is used for in general.

3.1 Personal, portable and pedestrian

Mobile communication is personal, portable and pedestrian communication media. Being personal means individual: the users own the mobile phones and subscribe the services, they can do whatever they like with them and by them; Portability means you can take it with you: it's small and compacted enough to take way and works without depending on other equipments; but you have choices to take it or not even it's portable. So pedestrian means people really take the mobile phone with them all the time. It becomes a part of you. It was said that the tools are extension of people's hands, while the mobile phone and communication is really another "hand" in our body. For these reasons, mobile communication becomes essential elements in enabling solutions of mobilized collaborative services.

Individual

The participants or users of all the solutions in those cases are individuals. They participate and involve the collaborative services in the place of themselves individually, not of others, families, group, or organizations. Even in general collaborative services that we can found from the cases of EMUDE or CCSL , the participants are usually individual. There are also a number of cases like Co-house, Micro-nursary, purchasing group where service encounters are between household or related to families. In those cases, the research didn't find the particular use of mobile communication in solutions. While in most of cases of collaborative services or creative communities, people participate them as individuals. For its "personal, portable and pedestrian", mobile communication technologies are enabling technologies for individual participation. Mobile phones are individual tools to use for solutions, mobile digital services are individual media to communicate. For examples, in the case of Baltic Sea, the volunteers register as individuals and the requests of action to emergency accidents reach to individuals as well by mobile communication. It's not manageable if the system tries to reach the volunteers by cable telephone.

Autunomy

In the Mobilized Collaborative Services, the participants have autonomy to involve the services as mobile communication is personal and individual. As matter of fact, autonomy is usually precondition of collaborative services in general because they depend on the participants' attitudes, being collaborative, which is impossible to be forced. Therefore mobile communication becomes enabling technologies to arise the autonomy of participants. In case of Cell Phedia, the users are not forced to post questions or give answers to questions, on the contrary, they like to do partly because they have autonomy to manage the participation and do in the ways they like. And mobile communication has a good condition to protect the autonomy. The MCT-supported personal network keeps a good balance between individual space and connections with others. As results, the participants have high degree of autonomy without scarifying the possibilities to act with the autonomy.

Identity

As mentioned above, the participants involve into the services individually, moreover, they participate in the name of individuals with identities. Mobile communication, being "personal, portable and pedestrian", can manage the identity well between the users and what they do with services. Today, in most countries, the mobile numbers are linked to the subscribers' identities. It's not an independent device to be used, but an extension of your identity. In another word, when you use mobile phone, it is used in the name of you. In the case of Neighbourhood watch, who receives the message of suspecting danger may trust the information not because it comes from which mobile phone, but because they understand whom it comes from. This is very different from the cable telephones that usually are linked to the households or companies, also different from Internet where you can do whatever in the name of nobody or fake identities. However, in the system of collaborative service, somewhat users would like to use the real identities. In most of cases, it's difficult to be collaborative if you don't know whom you are collaborating with. And mobile communication gives identical guarantee each other. Finally, it becomes an agent to manage your identity in the mobilized collaborative services.

As a personal, portable and pedestrian communicating device and service, mobile phone and communication gives value to enabling solutions in terms of individual, autonomy and identity, arising the personal networks of participants. In comparison, the cable telephones are more recognized as a household or companies' terminals and with their identities, and also because it's fix, it's not in your personal control even it belong to you individually. Therefore, it doesn't offer the good autonomy to the users to involve collaborative service. Internet has more multi-facets in this point. When it is used on the desktop PC, even though you have the personal account in Internet, the interfaces where you use services are not personal. When it's used in personal laptop, most of services on Internet do not need your identity. Therefore, mobile communication has those privileges to enable people to involve the collaborative services.

3.2 Anytime, anywhere and to anyone

The diffusion of mobile communication technologies largely

enhances the spread of the space of flows and timeless time (Castells, 2000) as the structures of our everyday life. By making possible interactive communication around the clock and across the space, regardless of location of the nodes in the network, wireless communication homogenizes space: being ubiquitous means transcending "anytime, anywhere and anyone". Those qualities of mobile communication contribute significantly to the enabling solutions of collaborative services. They arise the high accessibility of services; they keep the participants connected or to be ready to act; they build a common technical platform among popular. The ubiquitous network of mobile wireless communication becomes fundamental infrastructure for the enabling solutions of mobilized collaborative service.

Accessibility

Ubiquitous network arises the high accessibility of collaborative services because the participants can access the service regardless of the time when you do and place where you are. The enabling solutions in cases have good accessibility largely due to mobile communication. Even though in most them, the users can access the service by PC Internet beside of mobile communication, without mobile phones, the service will become much less accessible or not work at all. In case of Baby Go Home, instead of using mobile with camera, peoples also have options to use the general digital cameras to take photos when they see the homeless kids then upload them to Internet by PC after they go back home. However, if they have to do like that, a large number of participants will give up to finish the process that is too complicated. They are happy to do something good, but unless it's convenient without making themselves in trouble. In a word, they do it partly because of the accessibility by mobile communication.

Being connected

By ubiquitous network, it's possible to make the people connected each other all the time. Being connected doesn't mean technically your mobile is under the signal of GMS or you can use it whenever, but means that there is continual interaction flow between you and others in the network, whether users are conscious of it or not. The interaction flow can enhance the social ties between nodes of network and generate a common dialog context for intended interaction. As matter of fact, most of mobile social network software has this function. It's a good enabling technology for some specific collaborative services. By mobile communication, users can keep connected to network with unintended interaction, to generate favourite context of collaborating between them.

To be ready

In some cases, being connected is important. While in others, you just need to be ready. Ubiquitous network can enable the users to be ready for something unexpected. As the mobile communication works anytime and anywhere, the default agreement between users is to get ready to use it anytime and anywhere, to act or react. It is particular important in case that quick response is required but when and where the action happens are un-expectable. Enabled by mobile communication, the participants will be get ready without doing anything more. In case of Baltic Sea, after the volunteers once subscribe the service,

they will be regarded to get ready to participate the emergency response to accidents. By mobile communication, the system can reach necessary every volunteer easily only when related accident happen, and the volunteers only respond when they get request from system without spending more energy or attention to be ready.

A common platform

By diffusion of mobile communication, Ubiquitous network doesn't only mean you may access service anytime and anywhere, but also to anyone. The high proportion of subscribers in population in most of countries builds a common platform of communication and media between the citizens. It's so obvious to be ignored easily in related research. However, it becomes core of idea when other technical resources are limited in collaborative services. In the case of Cell Bazaar, a mobile-based local virtual market, the farmers and fishmongers rarely have computer and are able to access Internet, so mobile phone and communication is the best common platform between them. The cases like The Extraordinaries, Ushahidi are open to everybody to register and contribute, mobile communication make it possible to everyone since it's a most diffused common platform between individuals.

3.3 At the moment, in the place and to the individual

Ubiquitous network starts from connection anytime, anywhere. With the development of related technologies and services, mobile communication more and more integrates the interactions between virtual space and physical space. The experiences has transformed from "anytime, anywhere and anyone" to "at the moment, in the place and to the individual". The space of flow and timeless time doesn't mean no space or no time. Whatever happens weather in virtual or physical space, it needs material infrastructures that in real space and time, but simply regardless of what time and where. There is no different to book a hotel room by mobile phone between calling it at home or on the street. The interaction is de-contextualised. On the contrary, in the most of cases in this paper, the intension and action of participants largely depend on the environment whether in physical or cyber spaces. In particular, with location-based services and GPS, the interaction can be high contextualized, at the very moment, in the very place and to the very individual.

Instant interaction

In some solutions of collaborative services, instant interaction is required. In a ubiquitous network, you may manage connection and communication as you planed, and you also can deal with something happening in real time, and some of them need to act in the moment when it happens. In the case of Neighbourhood watch, the participants are not waiting for suspecting danger, while they encounter it only at a certain moment when it happens in a certain place. Then they have to take actions quickly to diffuse the information by mobile phones and others in network are supposed to react quickly. In this case, the action would be meaningful unless it is done in the real time with instant interaction. In case of Baby go home, theoretically it's not so urgent to post the information online as last case. However, if the volunteers don't do at that time, it's most likely less possibility

to do it in another time.

Contextualization

In some other collaborative services, particularly in the group of "mapping diffused information", the interactions are very connected with places by location-based services. The content of action is based on the specific location and the interaction is largely contextualized by the place and other elements around the places. In case of People's 311, the participants would like to post the information of problems in public spaces when they encounter the problems and where they are. That's the favourite context to enable the participants. Moving from that context, otherwise, people will have less motivation and intension to involve. Therefore, ubiquitous network and mobile communication catalyze the contextualization of collaborative services.

4 Design implications

In last part, I discuss in detail on the roles or values of mobile communication in enabling solution of collaborative services. So, talking about design for collaborative services, the further question the paper is going to answer is: When or what situations would mobile communication be used as core elements of enabling solutions? The answer of this question becomes a pilot design guideline for mobilized collaborative services.

4.1 Only available option

Collaborating needs communication. Mobile communication is a prior choice when there is no other way to communicate. Thanks to the tele-communication, mobile communication and Internet, the human being society, has entered the information age, but not everywhere. In many territories, people are lack of communication technologies.

In those poverty countries, usually the communication industries are week and small. Between the three ways of communication and industries, for some reasons mobile communication is the favourite one to be established relatively easier and with lower cost, both to service providers and final users. In Africa, the mobile communication is diffused largely in most countries, comparing to tele-communication and Internet. This is the first situation when mobile phones are only available communicating devices to actors. Many cases in Africa on mobile communication for social changes are based on this point. Certainly, most of them are not collaborative services. In our cases, the typical one is Cell Bazaar, a mobile local market in Bangladesh. It's a virtual market for the farmers and fishmongers who have no access to computers terminals. In this case, the mobile communication is the only and best platform to the farmers and fishmongers. In the majority of rural areas, computers and Internet are still not diffused as urban. Not so many farmers have computers and Internet either. The second situation is when part of necessary actors could only access mobile communication. Actually among the actors from urban communities, probably most of them can access Internet. However, for most of farmers, as another part of actors in system, mobile communication is favourite platform to involve the services. And it becomes the common platform between them.

4.2 In moving surrounding

The "mobile" nature of mobile communication becomes essential when the actors work with surrounding in moving. This is so natural that we often ignore this point. Here I would like to elaborate it a bit in terms of collaborative services by the cases. Even in every life, using mobiles, if somebody asks you, " why do you use mobile phone?" There could be a lot of reasons and answers. Among them, the first reason should be " because it's mobile". Because of being mobile, it could be personal, portable and pedestrian; it could work in anytime and anywhere and anyone, or could work in that moment, at that time and to that individual. All of those roles and values of mobile communication are connected to its "being mobile". As matter of fact, the most of cases can match this point in certain sense. Here I am going to elaborate them in several situations.

The fist situation is that the collaborative service is about mobility. Therefore there would be a lot of interaction between the actors or actors and system when they are in moving, such as the case of Alternetrides. The potential actors are able to involve the services only when they are in the real time and situations. At that moment, mobile communication is best way to reach the system and interact with it. When the actions of collaborative services have to be done out of desk or outdoor, mobile communication becomes favourite. This is second situation, such as the case of Neighbourhood watch. When residents find some dangerous phenomena, they need to report to others wherever they are. The similar case in this situation is Pedigree. The third situation is mobile social network software that enables the actors to keep in connected and visible to each other anytime, anywhere they want. To do it, the mobile phones and communication has great advantages since they are not only portable, but also working in moving.

4.3 In the specific places

By ubiquitous network, mobile communication becomes a bridge between the people, place and information. As it mentioned above, it can work "in that place". In particular, supporting by location-based services, mobile communication becomes powerful platform to enable the collaborative services when the interaction and experiences are connected to specific places.

Most cases in "Mapping diffused information" are examples in this situation. Because the information, stories and experiences are connected to the certain places, they can be visualized with geographical identities, mapping them in a digital space. For example, the case of People's 311, it's a public photo pool documenting non-emergency 311 conditions throughout New York City. Citizens are encouraged to post photos here of dangling traffic signs, illegal advertising, dead or dying street trees and the like, along with their locations. The point in this case, the citizens need to be enabled to do something when and where they find the problems. Because when they are still in that place and looking at the problems, the vivid and real experiences can generate strong motivations to involve the collaborative services. Otherwise, the motivation will largely decrease when they are not in real places as we know there are a lot of problems in our society whether we can see or not.

4.4 In the specific moments

Mobile communication can work every moment, whilst it becomes very important to collaborative services when the interaction or actions have to be done in certain moments that can not be planed. Most of collaborative services on emergency responses are in this situation. For example, the case of Baltic Sea, it's a system to mobilize the volunteers for the quick responses to accident of oil spills. The accidents are not expectable on when it would happen, so the systems are not able to prepare and wait for accidents. However, once it happens, it requests quick responses and actions. By mobilizing volunteers with mobile phones, the gaps between sudden problems and weekness organisation can be filled. Given that those volunteers are not able to plan participation of emergency responses, they do whatever as usually in everyday life, whilst at the specific and unplanable moments of emergent accidents, mobile communication becomes a best way to reach them. A similar case is Amber Alert, using mobile technologies to mobilize citizens to help find abducted children. Research has shown that the first three hours after a child's abduction are the most critical time to recovery efforts. So once it happens, it requests very quick response from the volunteers who are in or near the places of accidents, to search the abducted children.

The certain moment might be also important in solution even though it's not emergent, but because it's the favourite moment to actors to involve the services. For example, in the case of Baby Go Home, when citizens find the suspected homeless children, it's not such an emergency as an accident. However, that moment could be best time to have related actions with the vivid experiences and favourite context. Otherwise, once they leave from the occasion, losing the context, the motivation to act will largely turndown. So mobile communication can enable to citizen to have actions in that specific moment.

5 Conclusions

Although there is some limitation on the cases collection and analysis, some tentative conclusion could be given. From the fifteen cases of Mobilized Collaborative Services, it can be found that mobile communication is very valuable in several levels of ubiquitous network and computing. In conclusion, mobile communication is particular important to be a key element of system in four situations at least: When mobile phones are only available communicating devices to actors; When the actors work with system in moving surrounding; When interaction and experiences are connected to specific places; and when interactions and actions have to be done in certain moment. The first two situations are in perspectives of actors of services; the last two are in the perspectives of contexts of services. As a whole, they give a panoramas view in using mobile communication to design for collaborative services.

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Renovating the Suburbs for a Sustainable Future

A World House Year 3 Project at the Institute without Boundaries

Abstract

The Institute without Boundaries in Toronto is a unique academic centre focused on collaborative design for social, ecological and economic innovation. As part of the Institute's World House project, in 2008-9, the interdisciplinary student and faculty team investigated how to renovate the inner suburbs of metropolitan cities, looking at the social and technological innovation required to engage citizens in the process of revitalizing neighbourhoods. Characteristic of other post World War II suburbs, Toronto's inner suburbs are suffering from aging infrastructure, aging populations, increasing demand for affordable housing, and limited access to sustainable food, energy and services. The Institute collaborated with two non-profit organizations, Habitat for Humanity and Evergreen, to develop community engagement tools, a catalogue of scalable "renovation" ideas, and an implementation strategy. A case study neighbourhood was used to contextualize the project and to encourage the students to design projects that are as real and as detailed as possible. The resulting proposal, Renovate Your Neighbourhood, includes design concepts for more affordable and diverse housing choices, more vibrant citizen-managed public spaces, and more sustainable land development patterns. This paper responds to the Sustainability & Social Innovation theme through a case study of an innovative model of design education, where students interact with the real world to develop and test new systems of design thinking in collaboration with industry, non-profit organizations and community members.

Keywords

collaborative design, community engagement, Evergreen, Habitat for Humanity, inner suburbs,

neighbourhood, rejuvenation, sustainability, Toronto

Located in the School of Design at George Brown College (Toronto, Canada), the Institute without Boundaries (IwB) is a unique academic centre that teaches collaborative design, researches design tools for social, ecological and economic innovation, and provides strategic consulting and interdisciplinary problem solving to clients. The Institute offers a nine-month postgraduate program, where a small group of international students from a variety of backgrounds in design, arts, science and business, come together to work on complex problems. The inaugural project, Massive Change: The Future of Global Design, was led by Bruce Mau Design, and sparked a discourse on the potential of design to leverage positive change for the future. Building on this vision, in 2006, the Institute moved into its second phase, World House, to tackle issues of shelter by developing housing systems that operate on the principles of sustainability, universality, technological responsiveness and ecological balance. In 2008-9, the Institute focused on "renovating" the inner suburbs of metropolitan cities, looking at the social and technological innovation required to engage citizens in the process of revitalizing neighbourhoods. The resulting proposal, Renovate Your Neighbourhood, is a five-phase, community-based program that includes design concepts for more affordable and diverse housing choices, more vibrant citizen-managed public spaces, and more sustainable land development patterns.

The Institute's projects are designed around collaboration with external partners, whether they be manufacturers, non-profit organizations, community groups, municipal or national governments. This allows students and faculty to design for real clients, and apply innovative thinking to problems that require solutions that can be implemented. While working with specific partners, the IwB considers their needs from a broader perspective, with the goal of creating solutions that could be locally adapted by like entities around the world. For Renovate Your Neighbourhood, the IwB team of eight students, guided by seven faculty, imagined how two national non-profit groups, Habitat for Humanity Canada and Evergreen, could become catalysts for community action leading to suburban renewal. Habitat for Humanity is an international organization with affiliate offices across Canada, that "mobilize volunteers and community partners in building affordable housing and promoting homeownership as a means to breaking the cycle of poverty" (Habitat for Humanity, 2007). Evergreen, a Canadian organization, strives to "make cities more livable…by deepening the connection between people and nature, and empowering Canadians to take a hands-on approach to their urban environments" (Evergreen, 2000). The two institutions have previous experience pairing house building with community landscaping, and they approached the IwB to explore how they could strengthen their working relationship to better serve their

volunteers and clients. The result was a design for a program that built upon and extended the mandates of Habitat for Humanity and Evergreen, and that could be launched by the two organizations in Toronto, or customized by other non-profits or neighbourhood groups in urban centres across North America.

A Case Study Neighbourhood in Toronto's Inner Suburbs

To further contextualize the project, and to encourage the students to develop their proposals in as real and as detailed a way as possible, a case study neighbourhood and street were selected in Don Mills, one of the first planned suburbs of Toronto (Javed, 2009). Typical of other post World War II neighbourhoods, Don Mills was linked by main arterial roads, and planned around curved streets of bungalow houses and community spaces such as schools, parks and churches (Gillham & MacLean, 2002). In Toronto, the combined suburban residential areas and green spaces now occupy approximately 75% of the city's land (City of Toronto, 2006), representing a large and often overlooked opportunity for urban rejuvenation. While the physical structure of Toronto's inner suburbs has remained relatively unchanged since the 1950s, the social, economic and environmental contexts are dramatically different. These suburbs now present critical challenges characteristic of cities planned during the automobile era, such as social isolation, increased housing costs, changing populations, aging infrastructure, diminished quality of public spaces, and limited access to affordable and sustainable food, energy and services. To prioritize opportunities for renewal in Don Mills, the IwB team applied the Institute's World House Matrix (2006), an analysis tool that provides a holistic perspective by grouping design considerations into twelve systems under terrain, climate, economy and culture.

Four Community Projects to Create Balanced Neighbourhoods

Adapting the commonly used "triple bottom line" approach to sustainability, the team set the goal of creating balanced neighbourhoods that are social, green and diverse. The team developed a checklist for community self-evaluation based on a range of qualitative surveys and existing measures for urban design (Table 1). The checklist is intended to help initiate community discussion about local issues and areas for improvement, and to help focus visions and define shared goals. Once interested citizens identify areas in need of "renovation," they can look to the catalogue of small, medium, and large-scale community project ideas to improve their neighbourhood over time, based on their own assets, capacity, and appetite for change. The Renovate Your Neighbourhood catalogue (Figure 1) is organized by four common urban features that could serve as starting points for collective action: schools, parks, malls and housing. Typical of IwB projects, Renovate Your Neighbourhood not only offers "designed" communications, products, environments, services, and organizations, but also presents processes through which these elements can be developed and systems within which

they are related.

The school project proposes that schools play a greater role in community life and inter-generational learning. Cities are facing concerns about food security and poor adolescent nutrition (Friendly, 2008), and many low-income areas in Toronto's inner suburbs (Hulchanski, 2008) have been labeled "food deserts" where communities have limited access to healthy food choices (Lister, 2007). The proposal suggests that schools become centres for local food networks where education about nutrition and food security is paired with hands-on learning about growing and preparing food. Students plant vegetables and fruits to transfer to family and community gardens at home, in schoolyards and parks, creating a wide collaborative community food network, supported by inter-generational programs such as seed and recipe exchanges, picnics and harvest celebrations (Figure 2).

The park project sees large suburban parks as underutilized assets, and encourages people to take ownership of inner suburban parks to make them more relevant to contemporary life. Many Toronto Parks, Forestry and Recreation programs (2007) are targeted at environmental improvement, health and sports, especially for children and youth. The project offers ideas to promote park use by a wider demographic (including parents, young adults and the elderly), such as community events, landscaping and building initiatives. Parks would become canvases for residents to create their own activities over and above typical events, such as hosting outdoor movies and community-run cafes. This proposal includes designs for a system of portable, temporary structures from outdoor lighting and furniture, to garden sheds and cafes, to supplement existing park infrastructure (Figure 3).

The mall project rethinks the future of suburban strip malls as new mixed-use destinations that increase affordable housing and reduce the impact of cars. Typically, 65% of mall sites is taken up by parking lots (Bond, 2002) which perpetuates car dependent lifestyles, accumulation of pollutants and contributes to "urban heat island effect" (City of Toronto Urban Design, 2007). In this proposal, the redesigned mall breaks from tradition by prioritizing pedestrian use in the short term through community events and green spaces. Longer-term changes are proposed by modifying the typical parking lot layout to allow for pedestrian walkways, plantings, bicycles and car sharing. Finally, new rooftop buildings add affordable housing to the existing retail mix.

The housing project looks at adapting houses and suburban lots in light of critical issues such as the increasing number of lower income families in the inner suburbs (Hulchanski, 2008), rising property prices, and large population growth. Neighbours would work together to share costs and labour on home and garden renovations that allow people to live in their homes longer and more sustainably. The project outlines how large suburban residential lots and unused commercial spaces can be subdivided for new affordable housing, and provides designs for a modular housing system adaptable to a variety of sites.

The Renovate Your Neighbourhood school, park, mall and housing proposals are strengthened by the fact that they are community–driven and interrelated. For example, plants grown

at the school feed into the community garden and greenhouse outlined in the park proposal, or into the shared gardening renovation projects designed for homeowners. The nutrition education program for the students integrates intergenerational learning and interaction with the neighbours, leading to community programming for the park and mall.

An Implementation Plan for Two Real-World Partners

The IwB team designed Renovate Your Neighbourhood so that Habitat for Humanity and Evergreen (or other similar organizations) could facilitate these rejuvenation projects by providing communities with the required expertise to undertake construction, land development and gardening projects. The two institutions could also contribute labour and financial support by leveraging their strong volunteer bases, sponsors and experience in fundraising. To assist in the implementation, the IwB team developed a series of modular structures that could be prefabricated and sold by Habitat for Humanity and Evergreen, allowing the two non-profit organizations to generate revenue. These structures are designed around ten and twelve foot square buildings that can become garden sheds, greenhouses, community cafes, single-family or multi-unit homes and apartments. The partnership model for the two institutions also includes a retail co-location strategy. Habitat for Humanity's existing Restores, which sell recycled housing and construction materials, would be paired with a new Greenstore, designed by the IwB team, where Evergreen would sell salvaged gardening materials, plants and tools (Figure 4). The stores would distribute the prefabricated structures and give administrative and promotional support to the Renovate Your Neighbourhood program.

Inspiring the Community to Take Action

The success of this proposal hinges on motivating and inspiring communities to implement projects in the catalogue. To launch and sustain Renovate Your Neighbourhood, community engagement plans were designed to increase volunteer participation, solicit feedback, include the public in the "renovation" process, and share the results. This includes public events, an advertising campaign for Habitat for Humanity and Evergreen to announce the program and recognize "community champions," and templates for print materials that volunteers could customize to raise awareness. By celebrating success stories with neighbourhood awards and documenting the projects on a central web site, a series of case studies would be available to inspire and inform other communities in their efforts to renovate their neighbourhood. The web site would be an outlet for communities to add new projects under the school, house, park and mall categories.

Renovating the inner suburbs to meet 21st century requirements for sustainability is a challenge, but more significantly, the ways to achieve this objective are not immediately determinable. In the end, the Institute without Boundaries' solution was neither entirely prescriptive nor purely process-oriented. Instead, models were proposed that could be adapted locally and that would al-

low for change over time. The resulting product describes new ways of living in the suburbs and an alternative design model for producing urban change that connects citizens, NGOs, design resources, community action and interaction with the government, developers, and non-profit organizations.

A final exhibition and catalogue described the overall system of how communities could share local initiatives that lead to incremental and scalable transformation of aging suburbs (Figure 5). The next step is to launch pilot projects, as described in the catalogue, with interested communities in order to gauge the effectiveness of the concepts and the efficacy of the proposed processes. The project has already caught the attention of additional organizations including the United Way, People Plan Toronto and the Toronto Community Foundation.

Social: Community Gathering & Involvement	Green: Healthy Living & Environments	Diverse: Value & Options
Does your neighbourhood have: Public spaces that are: •Welcoming to people of all ages and abilities •Peaceful •Active •Safe •Used at night and on weekends •Used for sport and recreation •Used for commercial purposes Public spaces that provide: •Facilities such as seating and bathrooms •Clear signage and wayfinding •Access to information and local media •Opportunities to express creativity	Does your neighbourhood have: •Clean streets •Trees and greenery •Older buildings and heritage places •Ways to reduce the impact of and reliance on cars •Networks of bicycle paths and facilities •Access to daily necessities within walking distance •Access to food and places to grow food •Access to renewable energy sources •Architecture and landscaping that respond to environmental conditions •Opportunities to reduce, reuse and recycle •Outlets for environmental education •Environmentally responsible industries	Does your community offer: •Housing and services that are accessible •Affordable rents, land sales and housing •Diverse types of houses and buildings •Mixed-use buildings (live, work, play) •Ways to minimize household costs •Free community events and spaces •Places of employment •Access to schools •Access to medical services

Table 1: Community Checklist for Neighbourhood Evaluation
Developed by the Institute without Boundaries

Fig. 1: The Renovate Your Neighbourhood Catalogue includes a re-
search summary and implementation plan for the non-profit partners,
and detailed renovation projects for communities. Photo by Justin
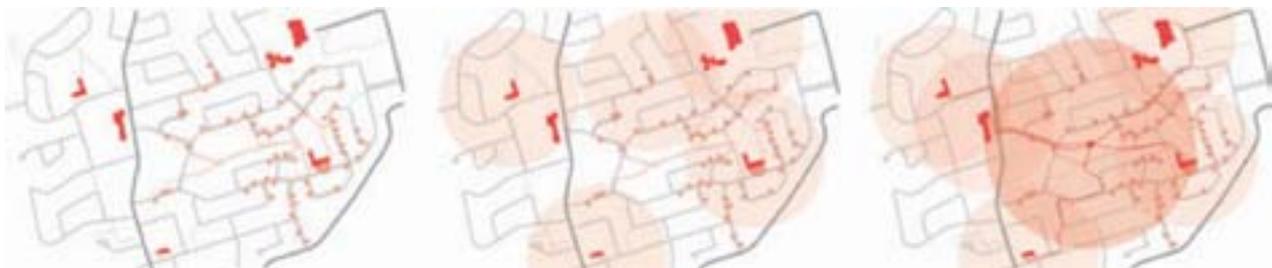
Fig. 2: A community food network based in local schools spreads
over time to homes and parks. Maps by Eunice Lam.

**Fig. 3: Artist impression of the community café project in a park.
Illustration by Sisley Leung.**

Fig. 5: The Renovate Your Neighbourhood exhibition
at George Brown College School of Design, Toronto, June 2009.
Photo by Angela Lewis

Fig. 4: Greenstore retail plan as shown at the Renovate Your Neigh-
bourhood exhibition.
Photo by Angela Lewis

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The Renovate Your Neighbourhood publication can be downloaded at http://www.worldhouse.ca/re_neighbourhood.

Liliane Chaves

Three Creative Communities in Curitiba, Brazil

Abstract

This paper presents reflections about sustainability and social innovation issues, showing case studies of creative communities in the Brazilian context. This research is developed into DESIS Network (Design for Social Innovation and Sustainability Network on Brazil), specifically the example achieve by the Curitiba Partner. The paper is divided into two sections. The first presents the method adopted for the research development. The second contains examples left by students regarding creative communities. Finally, considerations are done about the case studies where the specificities of the Curitiba's context regarding social innovation are identified. The DESIS meetings were part of an Extension Course promoted by the Design Department of University of Paraná. As methodological approach was explored a theoretical and practical framework, social innovation and sustainability issues were discussed. In sequence, students lead real example cases of social innovation in Curitiba. The cases discussed and selected as the best three for interviews refinement a case of gardening in public spaces, a bicycle event, and a case of a shared laundry room in a private familiar building. The cases showed for the researchers that initiatives less common in Brazilian context ought to be considered as creative and innovative ways to improve citizenship.

Keywords

sustainability; social innovation; creative communities

By observing the actions performed in the quest for sustainable development we start to consider the intensity by which changes must be implemented in order to achieve an effective result, one that leads to the continuity of the planet and the entire ecosystem contained therein. Nowadays, several initiatives from different disciplines started to adopt and incorporate the sustainable development discourse, proposing changes in current contexts. However, the course of these changes seems to lead to a result that is not effective enough to the maintenance of the planet, either to the present generation or to the next ones.

The planet has already passed its limit of resilience, and humanity now looks for strategies of power to negotiate the remaining resources, creating social and economic pressures (Manzini , 2008). We ought to drastically reduce the consumption of resources, in an amount estimated by some researches that reaches the magnitude of 90% of the current resource consumption by mature industrial countries, which is called Factor 10 (Meadows et al, 1978). Even though such quantification could be put into question, the importance of a drastic reduction in current consumption cannot be questioned. Additionally, there is a concentration of consumption of resources by a minority over a majority. We also see in Brazil, for example, a continuing and growing social inequality and an unequal distribution of resources, although the environmental and social discourse is inserted in the current economic and political systems.

Thus, we come to a conclusion that deeper and more radical changes are needed, changes that are not just a redesign of what already exists. It is necessary to break the current consumption and production model, something that Manzini (2008) calls "systemic discontinuity".

From the survey of this need, some research in design for sustainability started to focus on the level of strategic management of design, in search for radical innovations and for the understanding of which would be the designer's role with regards to innovative solutions.

One of the boosters of this kind of research is the professor Manzini, from Politecnico di Milano, Italy. Having several projects directed to social innovation and design, this author started a project called Creative Communities for Sustainable Lifestyles (CCSL), promoted by the Sustainable Lifestyle Task Force of the United Nations, funded by the Swedish Government and endorsed by the United Nations Environmental Program (Jégou, F.; Manzini, E., 2008). This project began with the research EMUDE (Emerging User Demands for Sustainable Solutions), focused on promising cases of social innovation of the European partners countries, which participate in the project, aiming to "explore the potential of social innovation as a driver for technological and production innovation, in view of sustain-

ability" (Cipolla, 2008, p. 13). Yet the CCSL chose to leave the European border and focused its research in Brazil, India and China. From the material developed to this project, a network of design schools interested in promoting and supporting the research in design for social innovation and sustainability – DESIS – started . The DESIS-international has several local initiatives (Brasil, China, India, South Africa etc.) collaborating in a peer-to-peer spirit to research promising cases of social innovation.

In Brazil, the DESIS network is now formed by the following universities: UFSC (Federal University of Santa Catarina), UFPR (Federal University of Paraná), UFF (Fluminense Federal University) and USP (University of São Paulo). It is coordinated by the university UFRJ (Federal University of Rio de Janeiro), specifically by the COPPE Institute (DESIS , 2010).

This paper presents some local results of the activity of DESIS-Curitiba, a city in the south of Brazil and the capital of the Paraná state, performed by the Center for Research in Design and Sustainability of the Design Department of UFPR. It specifically presents three case studies of social innovations found in the local context. As DESIS-International proposes, the case studies presented here refer to "people that, with no formal education in projectual disciplines, create by themselves and in a collaborative way solutions for their own problems" (Cipolla, 2008, p. 14). With these case studies the aim is to investigate and evaluate which is the potential of these initiatives in the transition to sustainability. Besides, the designer's role in these initiatives will be considered, leading the students to think about new design concepts in real cases.

The cases were collected during an extension course of 32 hours, which took place every Wednesday afternoon from October to December 2009, and followed the model proposed by DESIS-International. The course was offered by the Design Department of UFPR and coordinated by Professor Liliane Iten Chaves.

The paper presents, in the method's section, the organization of the course, the participants' profile and the phases of the activity. In the results' section, the cases studies are presented, and the participants themselves have reported their works. Thus, the first one is "a case of gardening in public spaces", collected by Mariana Tomaz and Éder Almeida Loureiro. "The bicycle event" was developed by Mariana Ordacowski and Rebeca Storrer. The last one, "a case of a shared laundry room in a private familiar building", is authored by Rosana A. Vasques and Nieli B. de Proença. In the final section – discussion –, there are reflections about the course, its peculiarity in the Brazilian context, specifically the Curitiba one, which were observed in the examples pointed out.

Method
Procedure and context

In order to start the activity of collection of cases, a free extension course, with no charge, in the beginners mode, was chosen. This choice is due to the fact that the UFPR design course is annual, and therefore the subjects had already started since February . The extension course model has as a positive point the fact of being open to the general community, without being restricted to people connected to UFPR.

A poster was made to release the course, displayed in the several design courses in the city of Curitiba, and an e-mail was sent to the Design for Sustainability Brazilian Network Group. Students in different years of UFPR's undergraduate and post-graduate, as well as participants from the general community, subscribed to the course, with a total of nine people. The following were from UFPR: Mariana Amaral Tomaz (undergraduate), Patrícia Mitie Kojima (undergraduate), Rosana Vasques (post-graduate), Tássia de Matos Bianchini (undergraduate), Filipe Augusto da Silva Leite (undergraduate). The following were from other institutions: Éder Almeida Loureiro (public school teacher), Mariana França Ordacowski, Nieli Braz de Proença, Rebeca Laísa Alves Storrer .

Three professors gave the course: Liliane Iten Chaves (PhD – coordinator), Dalton Razer (Dr) and Aguinaldo dos Santos (Dr). A student from UFPR was invited to assist the organizing task: Mariana Tomaz, a scientific initiation scholar.

Classes started in 10/21/2009 and ended in 12/9/2009. There were eight meetings with four hours each, every Wednesday from 2 pm to 6 pm.

The following content was in the course program: introduction to design for sustainability, the social dimension of sustainability and the designer's role, the strategic design and its possibilities in social design, research of promising initiatives in design for sustainability, and evaluation and analysis of cases surveyed from creative communities initiatives.

Material and procedure

In the DESIS-International site a structure of activities is available, clearly presenting each step to be taken regarding how the case studies could be developed. They suggest case studies to follow four steps:

•Step 1. Research of promising initiatives: where the students will search in the several different sources, when they think a case corresponds to social innovation, that is, when people joined together to solve a daily problem in a collaborative way. These cases follow criteria explained in Manzini's book (2008).

•Step 2. Field documentation of selected material: personal interviews with the participants of the most promising cases, after early discussion and group evaluation in class.

•Step 3. Design exercise workshop: where the researched cases are presented and possible improvements to be done with the design insertion further suggested by the group . The development of some kind of toolkit with the required elements so that the case could be replicated is proposed.

•Step 4. Dissemination of results: a seminar in which interviewed people and general community are invited to the cases presentation and evaluation of the proposed interferences is suggested.

In the DESIS site there are also supporting documents available to the research of cases: a format light, a picture checklist, a consent agreement, an interview guide and an in-depth format to the interviews.

Date	Contents	Steps	Activities
10/21/2009	Introduction and inputs for initial research of promising initiatives	1	
10/28/2009	Presentation of the first re-search cases of promising initiatives and refine-ment	1	_each group of students brings 3-4 hypotheses _cases are discussed in class with teachers _for each case a DE-SIS light format is filled
11/4/2009	Presentation of research of promising initiatives	1	_post findings ONLINE _ selection of the best cases for interview _organization of the appointment with a key-representative of the selected initiative for a interview and visit of the case
11/11/2009	Appoint-ment for an interview	2	_interview and visit of the case
11/18/2009	Presentation and discus-sion of cases interviewed Organiza-tion of interviewed results	2	_coming back from the visit to the case, write a synthesis of your interview following the indication of the in-depth format...
11/25/2009	Presentation and discus-sion of the interviewed cases Organiza-tion of interviewed results	2	_coming back from the visit to the case, write a synthesis of your interview following the indication of the in-depth format...
12/2/2009	Final pre-sentation of results Organization of workshop	2 3	
12/9/2009	Design Exercise workshop	3	

Table 1   Content and organization of activities by date

In the DESIS site there are also supporting documents available to the research of cases: a format light, a picture check-list, a consent agreement, an interview guide and an in-depth format to the interviews.

As previously observed, in the first step the participants are expected to research examples of promising initiatives. A first explanation was necessary to this happen, with regards to sustainable development concepts, design for sustainability, design levels for sustainability, strategic design, service design and systems design for social innovation.

Thus, the first class started by trying to pass the essential concepts and criteria to the activity. To that, seminars were the option chosen to classes with the Manzini's book as base, which is called: "Design para a inovação social e sustentabilidade: comunidades criativas, organizações colaborativas e novas redes projetuais."   In the beginning of each class a chapter of the book would be discussed, with a total of four chapters. In the table 1 above it is possible to observe the dates and the proposed content. The step 4 was not considered to this course, once this activity was being developed for the first time in UFPR, and the expectation was to learn the route to be followed in order to further enhance its replication. Both teachers and students were seeing the content for the first time and it was necessary to think over about it, as well as about the activities sequence and choice criteria. Thus, it was preferred to not call the external community before having the concepts consolidated. To the cases research, students were divided into groups of three to four people, according to their preference to the theme previously presented individually and selected to the continuity of the works. At the end there were three completed cases of promising initiatives of social innovation.

Results
A case of gardening in public spaces

The artists Fernando Rosenbaum and Goura Nataraj, who are part of the "Coletivo Interluxartelivre " , found a bromeliad thrown on the ground in a street of Curitiba and decided to find a place to replant it. From that on, "libertarian flowerbeds began to appear in the city", as a way to look for a "different ideal of urban life" (G. Nataraj, personal communication, December 02, 2009). Therefore, the Jardinagem Libertária was created, proposing the utilization of unused and underutilized spaces, by planting in them trees, flowers and so on. The utilization of public space and expression started in 2002 in Curitiba, with the idea of urban reforestation.

The Jardinagem Libertária targets are urban flowerbeds, sidewalks, parks, public squares, gardens and woods. The actions happen through the free initiative of groups and gardeners, which arrange seeds and seedlings for free in terrariums or they raise them at home. Thus, the work is completely based on the voluntary action, and around 50 people are now dedicated to Libertarian gardening in a regular and consistent form in the city of Curitiba, where more than 500 seedlings have already been spread.

The movement has grown, and groups in other cities of Brazil started to appear, such as Blumenau, Rio de Janeiro and Manaus, formed by voluntary participants with different profiles.

The action also aims to make the passerby think through "gardens" created in sidewalks and abandoned places by public initiative, which denounce the lack of green spaces and the lack of quality of life. Thus, the initiative is according to the concept of creative community for being a group of people who have decided to improve the quality of their contexts, focusing on environmental actions. The actions can be done either individually or in group. The participants of different groups share information and experiences and plan actions through a blog site (www.jardinagemlibertaria.wordpress.com) and through e-mails.

The environmental and social benefits of the initiative are unquestionable: with more plants, the city becomes more flourished, people have more contact with nature and become familiar to names of different species of plants, besides the fact that fruitful trees and edible herbs are at the disposal of whoever feels like eating them. There is also an increase of the biodiversity and of feed for birds, a soil recovery, and other environmental advantages.

1.The following are the proposed improvement ideas in relation to design in order to improve the initiative:

2.Even though there are "Jardinagem Libertária" plaques in the sidewalks and a blog, yet the movement could be more disseminated. The information on the blog is not hierarchically organized, which becomes difficult to find explanations of what the movement is about in each city and how to participate. A site would allow a faster comprehension of the movement and its actions and how to participate.

3.The Jardinagem Libertária would have to adapt to cultural, climatic and environmental characteristics of each place in order to be replicated.

The actions count with a relatively high number of participants, not because there is a great effort to announce them, but because friends invite friends, that call colleagues and therefore the number of involved people increases. Maybe is the informal and communicative Brazilian way that allows that something like this comes to happen.

A bicycle event – "Bicicletada"

The growing number of cars on the streets of major cities is causing more and more problems, such as traffic and pollution. In this context, "Bicicletada " is a free civil and horizontal initiative, which tries to promote non-motorized transportation and citizenship. It consists of a pacific bike riding that lasts around one hour and is done once a month in the downtown of the city, preferably on the busiest streets, with the following main objectives: to disseminate bicycle as a means of transport, to create favorable conditions for using this vehicle and to make people's means of transport more ecological and sustainable, mainly in the urban area, considering that there is a limited quantity of cycle-tracks in the city of Curitiba, which discourages people to adopt bicycle as a means of transport.

In Curitiba, "Bicicletada" started in 2005, but had no continuity and happened once in a while. However, since February 2007 some people committed to continue it on a fixed date and time (last Saturday of each month at 9:30 am in the Rectory of the Federal University of Paraná – UFPR). Thus, more people joined the initial group of 6 cyclists, and since then the event has been happening every month, having now around 100 people that participate with their bikes, roller skates, kick scooters and other non-motorized transports. Other people collaborate by producing graphic material, disseminating the ideas through the forum, giving ideas of activities etc. (Bicicletada, 2010).

"Bicicletada" is an initiative that promotes environmental sustainability through adoption and dissemination of transportation alternatives that have less impact on the environment, because it stimulates the behavior change of both participants and the ones that observe the bicycles on the streets, in a way that it is possible to search for more sustainable ways of transport and life. Besides, this promotes well being through physical activity and gathers people, working also as a place to meet new people and serving as a meeting point to those that believe in the right to share the public space. For more information on this case you can look at: www.bicicletada.org/.

Poster (left) and Picture (right) of "Bicicletada" in Curitiba
Source: www.bicicletada.org/

During the design exercise, a lot of improving ideas to the initiative came up, as it follows:

1.Rental service of bicycle, cycling helmet and other accessories to those that do not have the equipment and want to participate in "Bicicletada".

2. "Buddy": a fellow that helps beginners or whoever needs by giving tips and motivating to continue participating.

3.Blog system with tips of better roads, routes etc.

4.Scheduling of routes and times .

5.Maintenance platform, system of lending bicycle pump.

6.Comparative Google maps of routes and social, environmental and economic benefits, time and distance.

7.Interconnected system of bicycles to the public system, so to plan parking.

A case of a shared laundry room in a private familiar building

The shared laundry of the Denver Hill building, located at the downtown of Curitiba, was organized by the first people that lived there, who were motivated by the limited space inside the apartments that did not make possible the installation of individual laundry machines. Thus, the residents got organized to buy laundry machines, clotheslines for internal and external

use and shelves for putting dry clothes. At first, two laundry machines were bought and then more two after five years, being four laundry machines that are used by residents of the 44 apartments of the building. There are no explicit rules that limit the frequency use of laundry machines, neither a schedule for using them, which promotes the random meeting between the several residents and a higher social cohesion through the integration between neighbors of different genders and cultures.

The initiative was chosen because it offers an economic and environmentally less aggressive option to the residents of this building through the sharing of few laundry machines by a relatively high number of people, which requires a more social and community integration between the users. Therefore, the initiative is according to the three dimensions of sustainability, and it is one of few shared laundry cases that exist in the city of Curitiba.

Shared laundry room in Curitiba
Source: Nieli B. de Proença (2009)

As proposed improvements (design exercise), the participants of the extension course suggested around fifteen ideas, among which:

•A message board to let notes as "I took your clothes out of the washer and put them in the compartment x", "please take my clothes out 'cause I'll be travelling", "please…" etc.

•To provide a kit for small repairs on clothes in the laundry room.

•Seats for people stay in the laundry room while they wash their clothes. A shelf with magazines and books that people can use and share.

•Change of clothes system (clothes rack to put clothes on and change them…).

•Private meeting point, with schedule to who wants to wash clothes together and meet in the laundry room (use message board).

•Joint purchasing of (biological) soap powder, softener etc.

•Encourage the sharing of clothing clips (they are used individually).

Discussion

With regards to the activity, it is possible to affirm that the extension course model chosen showed to be very interesting. Despite the model choice was due to the impossibility of studying the themes in the disciplines available and in course, the extension course allowed a non-imposition of frequency and

grade obligation. Thus, participants joined the group because they sympathized with the theme, something that helped a lot in the sequence of the activities. Besides, since the course was open to the general community, several non-designers could participate, and therefore there were important collaborations such as the one with sociologist Mariana França Ordacowski. For being a free extension course, with no charge, the peer-to-peer character of DESIS network was promoted, developed in a spontaneous way and allowing people that were really interested in the theme to participate in the meetings.

There was some difficulty in the evaluation of cases regarding the criteria suggested by Professor Manzini (2008). Participants often brought examples that, although contemplating the criteria, had no continuity character, that is, they were punctual initiatives, which happened only once. There were other times in which cases were of welfare to the poor, without corresponding to the criteria of being an answer to a daily problem faced by participants of the initiatives. In this regard, it is important to underline that in Brazil the research in design concerning the social dimension has traditionally the characteristic of dealing with paternalism or creation and development of activities related to cooperativism. Hence, it was quite difficult and polemic to communicate a new social innovation vision to the participants. Even when they seemed to have understood the criteria idea, they unconsciously come back to the paternalism perspective.

It was very interesting to observe that cases already established in some context may become innovative examples in another context, as it is the case of the laundry room or the "Bicicletada" case. In Brazil, each residence usually has a specific room for doing the laundry, with sink and laundry machine, so the sharing of laundry machine is not very common. But in other countries like Switzerland, for example, it is common to have a shared laundry room in buildings. It is possible to realize how interesting is to highlight these cultural differences, for the knowledge of cases in other contexts may enrich the options for new initiatives.

Finally, we observed that one of the greatest difficulties in the Brazilian context is the lack of confidence in sharing initiatives. This may be due to a current culture in which the smartest one takes advantage of others. Thus, to promote a relation of trust is a critical point in the Brazilian context. Moreover, Curitiba has the peculiar characteristic of coldness, with people whose social life is usually restricted to their family groups, a possible consequence of the cold weather and the influence of the closed nature of European immigrants that came to the city fleeing from the war. As a result, the creation of promising initiatives begins with great difficulty, but once they are established they have a very strong continuity character.

Therefore, we can point out that the cases described in this article, each one in its own way, promote the improvement in social cohesion in the context of Curitiba, either by the integration between neighbors and people of different genders, generations and cultures.

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Notation

1. The Brazilian school year starts in February and ends in December.

2. For more information about the DESIS research, you can search at http://www.sustainable-everyday.net/desis09/

3. "Design for social innovation and sustainability: creative communities, collaborative organizations and new projectual networks".

4. In English: Interluxefreeart Colletive.

5. In English: Libertarian gardening.

6. In English: Bicycles.

Xin Liu
State of the Arts and Prospects of China's Education on Design for Sustainability
Curriculum Research based on LeNS Project

Abstract

Facing increasingly intense competition of international market and the domestic deteriorating ecological environment in "post-crisis" era, the innovative design strategies based on sustainable development will become core competition means of China's enterprises to overcome their difficulties and achieve the "leapfrogging" development. DFS (Design for Sustainability) education is the foundation and motivation to achieve such a development. However, the most of Chinese design education institutions have no quite clear realization to the meaning, concepts and methods of DFS, and there is also a certain degree of misunderstanding. This paper firstly summarize the development status of China's Education on DFS, and then describe the teaching methods, ideas, and the corresponding tools drawing on the LeNS (The Learning Network on Sustainability) Asian-European education cooperation projects which Tsinghua University participated, and also introduce part of the students' work of LeNS workshop. The author thus concludes the different levels of teaching contents of DFS corresponding to the status of domestic design academies. These Curriculum Research and practice not only conducts a useful exploration in the future development of China's education on DFS and will also make a positive contribution to the change of enterprise development model from only concerning on the material products, to the sustainably pattern providing design of PSS (Product Service System).

Keywords

Design for Sustainability, Education, LeNS project, Product Service System, development model

Despite the fact that China is taking the lead in recovering from the global financial crisis, it is undeniable that this unanticipated crisis has brought a great impact on the "development pattern" of China's economy and enterprises. This pattern, with a lack of creativity and ignorance of the environment, has become an impediment for the sustainable competitiveness of Chinese enterprises. Most enterprises in China, quite used to borrowing from their foreign counterparts, are experiencing a crash development pattern mainly dependent on labor-intensive manufacturing industries. Some enterprises do invest a lot in the design and updating of products but their understanding of design is just for a superficial modification. Design, losing its basic advantages of integrating technologies and resources, creating high added value and leading the enterprise to constant innovation and development, is becoming a tool simply to stimulate people to buy products. Besides, in the economic development of China, the GDP is so overly highlighted that it always fails to take the consumption of environmental resource into the production cost. Enterprises are highly dependent on high input, high consumption, high pollution and low efficiency to create profit. This is a phenomenon not only in production but also in design.

The concepts of "green design" and "design for sustainability" are actually publicity stunts of some enterprises, which can hardly be really implemented in practice. The result is that, at home, more serious pollution and consumption means greater profits, while at abroad, that though China produces cheap goods for people around the world at the cost of precious resources and damages to the environment, it is accused of "dumping" and suffers from frequent commercial sanctions.

In the "post-crisis" period with increasingly fierce market competition and deteriorating environmental conditions, China is placed in an awkward position where rapid development and environmental protection are both pressing issues. We cannot copy the western pattern of "pollution first and treatment later" which is at a high price for our country with a large population and meager resources. Therefore, the development strategy of "Design for Sustainability' will become an important way for Chinese enterprises to get through difficult situations and achieve a leapfrogging advancement. The Chinese word, "Wei Ji" consists of both "Wei"(means risk) and "Ji" (means opportunity), indicating that a reflection on the crisis and corresponding transformation may turn out to be essential opportunities for human beings to speed up economic development and evolve consciousness at a certain stage. The education for "Design for Sustainability" underlies and promotes the fundamental transition of development pattern of Chinese enterprises.

1.Current situation of DFS education in China

DFS (Design for Sustainability) originates from the concept of sustainable development. It is a course of practice in which designers reflect deeply on the relationship between human development and environmental concerns and continuously seek for changes. Any design-related educations, activities and researches that put the sustainable development concept in practice, in their essence, should belong to the DFS category.

The education for sustainable development has been inevitably popularized worldwide. In the World Summit on Sustainable Development in Johannesburg, South Africa, in 2008, the importance of "Education for Sustainable Development" was fully recognized. Besides, it also emphasized that the EFS for human beings involved both introducing environmental protection to the subjects and promoting a balanced development of economic objective, social need and ecological responsibility. This conference also advocated an educational transformation aiming to enable the students to have the skills, thoughts, values and knowledge of living in communities. (Qian Lixia, UN Decade of Education for Sustainable Development Implementation Strategy, 2005). In December 2002, the UNGA passed a resolution to implement the plan of DESD (United Nations Decade of Education for Sustainable Development) from 2004 to 2015, calling for an integration of ESD into all-level educational strategies and action plans of all the countries during the 10 years.

The general objective of DESD is to penetrate the idea of sustainable development into every aspect of learning so as to change people's behaviors and build a more sustainable and just society for all the people. As a part of this 10-year plan, ESD aims to cultivate a new generation of designers who are responsible and capable of undertaking the innovation and design of sustainable products and services. (Carlo vezzoli 2008)

Since the beginning of this century, the Chinese design education circles have conducted fairly extensive discussions over the topics of green design, eco-design, low-carbon design and sustainable design. There are also some professors who have taken the initiative to focus on this foresighted issue. For example, basing on years of experience in design practice and teaching, together with Chinese traditional thinking and system design theory, Professor Liu Guanzhong from the Tsinghua University put forward theories and methods of "MATTEROLOGY", shifting design teaching from focusing on the "thing" to emphasizing the whole system, that is, reflection and innovation on the "matter". His core concept is similar to the design theories of the PSS.

Professor Zhao Jianghong from Hunan University is also one of the experts in the design educational circle who firstly introduced the foreign DFS concept into China. His major focus is on the developing direction and relevant theories in industrial design under the condition of post-industrialization and informatization. He also combines modern DFS with Chinese ancient philosophies, such as the idea of "what exists serves for profitable adaptation, and what dose not for usefulness".

Professor Benny Ding Leong in the Hong Kong Polytechnic University, also an active advocate of education of DFS in China, initiated the "Culture-based" strategy of DFS as well as the concept of "Relevant Ecology". He is also the one who primar-

ily proposed the design concept of Sustainable Product Service System (SPSS).

In addition, Professor Ezio Manzini in the Politecnico di Milano has been publicizing the concept and means of a sustainable design based on social innovation in Chinese design schools. He directs a lot of workshops and design teaching activities and also sets up DESIS (Design for Social Innovation & Sustainability-China). Recently, the LeNS (The Learning Network on Sustainability) has greatly promoted the spread of DFS concept in China.

Despite the painstaking efforts of experts at home and abroad, in general, domestic education of DFS is still in its infancy. Many people are discussing about it but few are really participating into the activities due to a lack of relevant knowledge. Moreover, most of Chinese design education institutions have no very clear realization of the meaning, concepts and methods of DFS, and there is also a certain degree of misunderstanding.

Design education is closely related to social needs and economic development. However, as described above, China's economic growth is highly dependent on consumption of resources and enterprises make profit mainly by coping and "follow-up" Strategies. Their requirement for design is simply a modification of the form or a retrofit of foreign classic designs, on the purpose of stimulating customers to buy more and more products. Most of the enterprises ignore their obligation of protecting the environment and remain blind to their social responsibilities. As for governments, they fail to fully recognize the functions of design but only concern about the increase of GDP. Due to these factors, there is a natural lack of support and stimulation for the practice of middle-and-long term education of DFS in China.

If the financial crisis can fundamentally stimulate and promote the economic transition of China and correspondently spur the development of education and implementation of DFS, then we can say that a real "chance" is coming for China.

It seems that everything is advancing toward a positive direction and Chinese leaders and governments at all levels are attaching great importance to innovative design and the sustainable development of environment. It is safe to say that it is now a great time for the design education institutions in China to vigorously carry forward the teaching of DFS.

In the following part, this paper will base on the results of the LeNs Project and the 2010 Tsinghua DFS Workshop to illustrate the content, methods and tools of DFS teaching in detail, so as to promote the didactical communication and cooperation between universities.

2.About LeNS (The Learning Network on Sustainability)

LeNS (The Learning Network on Sustainability): Asian-European multi-polar network for curricula development on Design for Sustainability, focused on Product-Service System. This project emphasizes an innovative developing strategy of PSS (Product Service System) which aims to "find solutions". It can help the enterprises to shift from a production model focusing on "material products" to a new profit model providing creative prod-

ucts and services and finally satisfy the interests of enterprises and customers as well as realizing environmental benefits and social well-being.

LeNs is one of the large-scale cooperation projects between the international education institutions. It is also one of the Asia-Link research projects funded by European Union. The Politecnico di Milano in Italia conducts this project, with the participation of the Academy of Arts & Design of Tsinghua University and other universities from Finland, Holland, India and Thailand. The objective of LeNS is to build an open online learning platform to vigorously facilitate the communications and cooperation between Asian and European universities in their research and teaching experience of DFS.

This project was launched in 2008. Participants will spend three years collecting and sorting out the local concepts, means and cases related to DFS and then make these improved and optimized research results acceptable to different cultures and finally share them on the online platform. By then, all the teachers or researchers around the world who are interested in DFS can download relevant materials and coursewares for free. They can also participate in updating related knowledge and information and building a shared resource pool for DFS. The participants of LeNS sincerely hope that with their efforts, http://www.lens.polimi.it can be recognized, concerned and utilized by more and more people so as to spread and implement the concept of DFS. In order to better achieve this goal and enhance service efficiency, all the countries are engaged in developing localized online learning systems, translating documents and organizing teaching exchanges. LeNS-China is also in preparation.

Although Europe is taking the lead in DFS research and practice, yet exchanges between Asian and European universities shouldn't be unidirectional because of the social, economic and cultural differences. The purpose of the cooperation is not to impose western design concepts on China and other Asian countries. Instead, we should have in-depth understanding of the spirit and connotation of DFS and selectively absorb and borrow advanced experience in design before transforming them into feasible means that accords with Chinese conditions.

3.About Tsinghua DFS Workshop

Up to now, LeNS project has held eight international DFS workshops in seven countries, relating to the basic necessities of people's daily life. In these workshops, students from different universities exchanged their roles and designed the campus for each other. In this way, the concept and means of DFS can be taught and publicized among students and meanwhile, the students are trained to understand and try a cross-cultural design experience.

In November 2009, Academy of Arts and Design, Tsinghua University held a LeNS workshop on the theme of "Sustainable Mobility Solutions for Delft Campus", presided by four professors from Delft University, Politecnico di Milano and Hong Kong Polytechnic University and two professors of Academy of Arts and Design, Tsinghua University. Over 40 students from 6 Chinese universities participated in the workshop. They had different professional backgrounds, including product design, vehicle design

and economic management, etc. After a week of collaborated research and design and preparation for the statement, the group members put forward their own creative solutions to the problem of "campus transportation". These design concepts are not only the innovative design of products but are systematic solutions to the transportation problems of the whole area, which mainly focus on the full application of Product Service System.

Compared with other European members of LeNS, the education of DFS in China has not been listed in the formal curriculum. No relevant requirements for this subject are even included in the syllabus. Therefore, there is a lack of teaching experience and methods. Considering this, the workshop integrated the typical creative thinking of Tsinghua University with the experience of two European universities in DFS teaching in the aspect of teaching methods and tools. In this workshop, there are illustrations of the basic concepts and ideas, discussions about key problems and sensible creativity tutorship. In addition, priority analysis, concept selecting and proposal evaluation by means of software tools are also involved in the workshop.

On the first day of the workshop, professors from different universities gave lectures on DFS-related themes, including the goal, means and procedures of SPSS design as well as some cases studies. During the later days, discussions were held within groups and advising professors would occasionally participated in the discussions, answer questions or help the students to analyze their ideas and have a clear direction of design. This workshop was processed in the following five steps: (See Chart 1; Refer to carlo vezzoli, 2009)

Phases/Processes	Objectives
1.Strategic Analysis Analysis of the reference context Analysis of the reference structure Analysis of best practices	Gaining the needed information to facilitate the generation of ideas oriented towards sustainability.
2.Exploring Opportunities Ideas generation oriented to sustainability Development of the sustainability design Orienting scenario - visions/clusters/ideas	Producing a "catalogue" of promising strategic possibilities, i.e. a sustainability design-orienting scenario.
3.Concept Design Visions, Clusters And Ideas Selection System Concept Development Env, Socio-Et. & Econ. Check/Visualization	Defining one or more system concept oriented towards sustainability.
4.System Design (And Engin.) System Development (Executive Level)	Developing the most promising system concept in a detailed version necessarily to its implementation.

5.Communication (Presentation) Multimedia Reporting: Overall Qualities Multimedia Reporting: Sustainability Qualities	Producing the documents for the external communication of the solution's characteristics (general characteristics but above all the sustainability ones).

Chart 1. Processes and objectives of the workshop

Since it is designed for a completely strange circumstance, the students do no have too much pre-connectional experience, and therefore must collect materials, analyze and create with a strict approach and procedure. The follows are the introduction of the work courses and final design solutions of some groups.

BIKES (Bike Information Keep Eco System): The project puts forward a new way to enhance the mobility system without designing any new products by observing the existing patterns both in staff and students groups. The key words are simplicity, convenient, parking, transform and recycle.

At the very beginning, the team members talked with Professors who came from the guest universities and reviewed the pictures and documents very carefully to find problems. Then they used the "card-sorting" method to display all the problems, and reformed them based on different requires of different users. Afterwards, they got several concepts from discussion and brainstorming, and then improved them based on the feedbacks from professors. Rational assessment involved during this process by the means of SDO tools which developed by Politecnico di Milano, analyzing the environmental, socio-ethical and economic sustainability elements. They used "system map" to clarify logistic process about how information, material and financial flowed. And then, they converged some of the best ideas into a reasonable system. Finally, the team made the storyboard and prototype to demonstrate how the system worked.

The final solution was aimed at the key-findings from STRATEGIC ANALYSIS, such as the lack of bike fixed center or parking places, the need to transform bikes from campus to train station, and disposal of bikes, mess in second hand bikes market etc.. The ways to solve the problems are as follows:

(1)Settle a submission center inside the campus, so that freshman can register their bikes and get a SIM card, which can be allocated wherever you want on your bike, and then the information center can locate and manage your bike.

(2)With help of the SIM card, you can easily find your bike in the parking place. Turn on your cell-phone camera, point it to the parking area, then in your screen, there will be a frame around your bike.

(3)Since there will be a tram through the campus, which is a potential resource, then we can arrange some stuff to carry bikes from one place to another in the campus.

(4)Since there are so many dumped bikes in the campus after the owners leave school or go out for a long time, the managers can use their cell phones to find the information of the user and contact them, if they don't want it anymore, the bike can be reclaimed and reused or even sold.
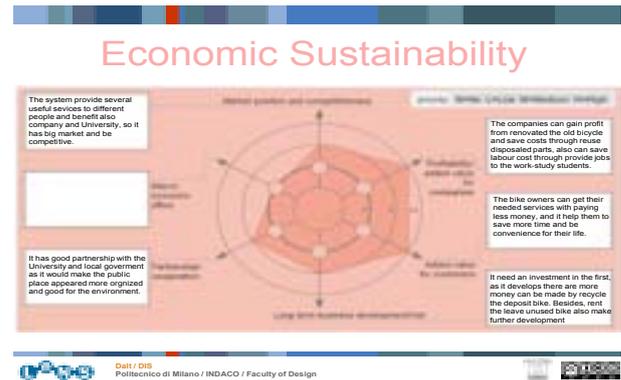

Figure 1. the team using the radar map to analyze the environmental, socio-ethical and economic sustainability elements.

Figure 2. the story board showing that how people use the BIKES system.

I-CO: This PSS is designed for the academic staff of TU Delft who lives outside the Delft town. This design has a modular characteristic. To a great extend it takes the support of the service system into consideration, which is creative and practical.
It is found in the early STRATEGIC ANALYSIS phase that most of the staff of TU Delft live outside the Delft Town (e.g. Rotterdam or The Hague), thus the transportation and environment between their home and working place is not very convenient or comfortable. When go to work, most of them first ride a bike for about 20 minutes to the bus station, and then wait there for some time, the length of which is not fixed. After about half an hour's bus they arrive at Delft Station and then ride for 15 minutes to school. This is extremely inconvenient in bad weather (Holland is a rainy country). Aiming at these key findings, our team makes our target population and proposes the key words in this design as high efficiency, convenience, comfort and the full use of time on the way to work. The proposed I-CO Rental Product Service System will reduce the transfers to one time and according to the distance and features of the path it uses service facilities to realize the quick transfers of transportation module, solving the above problem effectively. If the distance is not very long the user can simply use the O-part and drive while standing on the vehicle, which is very flexible. If you drive for a long distance or on the highway, the user can auto load "C-part" in the service station in order to ensure the speed, comfort and safety. After getting off the highway, the user can auto unload the C module when passing the service station at the crossing, which ensures its portability and flexibility.
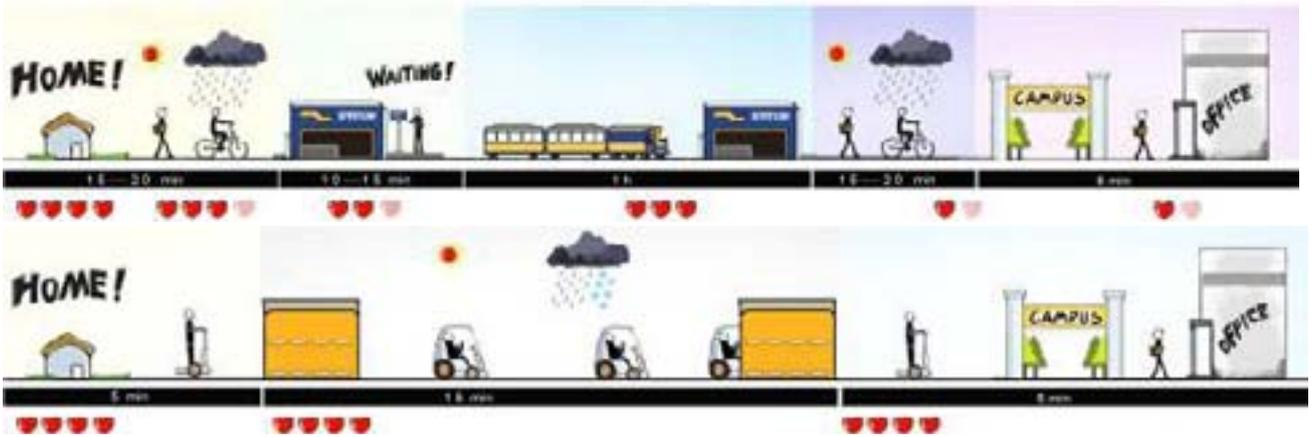
Figure 3. the story board showing that how the new PSS design partly improve or
complement the mobility system compare with previous situation.
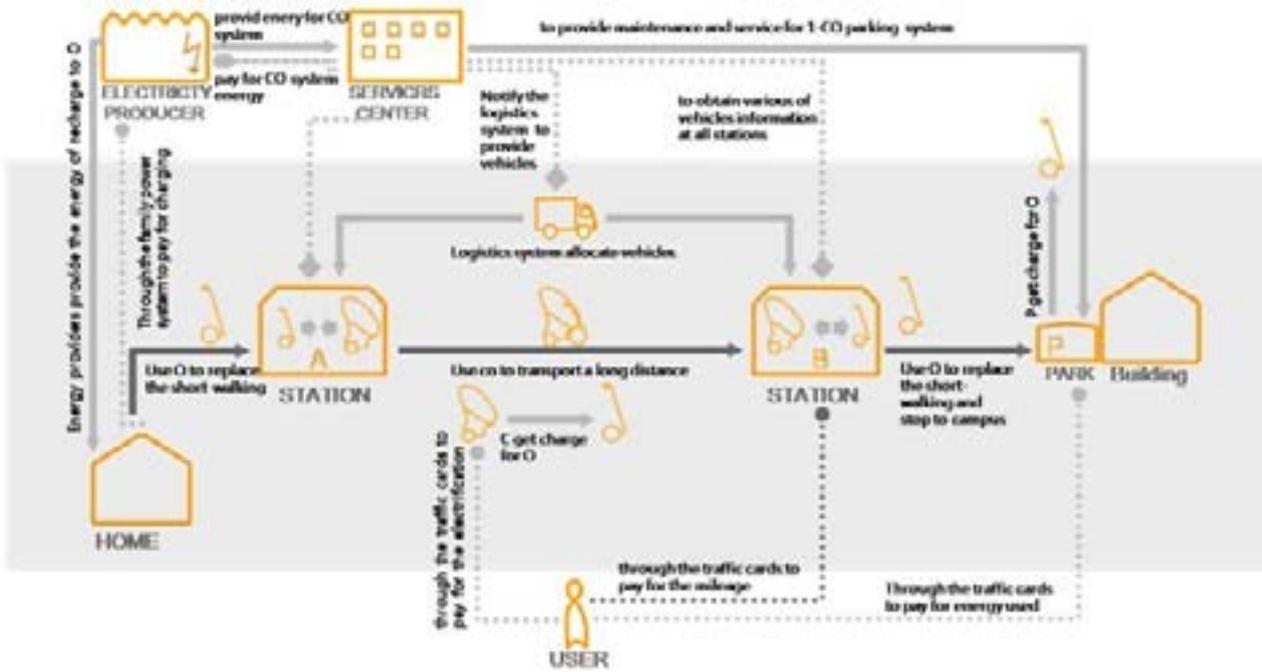

Figure 4. the system map showing that how information, material and financial
flowed.

Figure 5. the design description of transferring station and the sktech of the modular
product.

This vehicle can drive automatically on the highway, which allows the user to work during this time. I-CO is also a new means of public transportation. Rental system, which makes maintenance and recycles more easily, is adapted to improve the utilization efficiency of the material. People can rent this vehicle in the service nods all over the country. It also helps to reduce the total amount of private cars in the long term for its convenience and cheap price. To be even more sustainable, clean energy, electricity produced by wind and solar power are used in the system. (Figure4)

X-Point: X-point is a Campus Route Information Service System for the visitors which can lead you everywhere in the Delft University.

It is found in the early research that as a world famous comprehensive university, Delft receives large amounts of visitors everyday. Because of its large area and numerous institutions, how to fast and conveniently guide the visitors who are not familiar with the campus to their destinations is also one of the starting points to solve the problems in campus transportation.

X-point consists of a series of service terminals, hand-held touch-screens and background server systems, set near the main building. The power supply of this service terminal comes from the solar panel on its top and there designed an input screen with various heights for disabled people.

X-point Service System is bounded with the user's cell phone number. When you get out of the Delft area it can also remind you to return this hand-held touch-screen.

Figure 6. the design-orienting sceanario.

Figure 7. the story board showing that how X-point Service System works.

Windmee: proposes a new series of Value-added Service System of E-bikes to solve the problems of going out of campus and encourage and reward people for using green ways more when going out.

This team first carefully analyses the going out conditions, main problems, and core appeals of different people, campus plan, public transportation route, relevant regulations and other limited conditions.

The aim of this solution is how to encourage the target population to travel by electrical bike to the campus. The Windmee system supplies electrical bikes besides normal bikes in the university bike allowance. The university staff can buy one with added services. Extra supports for the electrical bikes are free fingerprint secured parking space inside the campus, free 'on-the-road' and campus support service for electric bikes during working days and a information system including a website, a smart phone application and / or SMS service for the latest weather forecast, energy charging / saving advice and your improving carbon footprint statistics (which can be added as a gadget to your online profiles).

The Windmee PSS design can benefit all stakeholders include staff member, Delft university, energy company, electronic bike producer, local government as well as our environment.

Figure 8. the story board showing that how the staff use the Windmee PSS

Figure 9. the interface design of the online system and bike storage
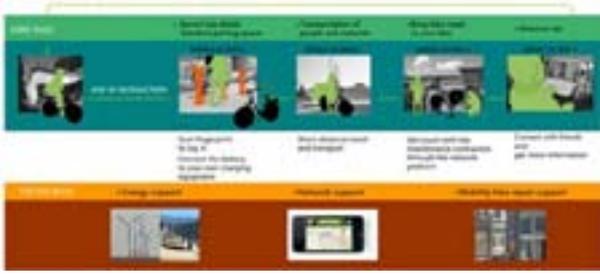
Figure 10. the role play description include user role and system role

4. Conclusion

For domestic design institutions, the DFS teaching should consist of several major stages, namely, the concept, methods and tools. The first step is to spread the thinking and concept. People's values and Consumption attitudes are the basic factors that influence the sustainable development. Therefore, to introduce and popularize a sustainable "view of happiness" should be the priority. The methods should include two parts, one is to educate an inter-disciplinary and systematic logic of thinking from different perspectives, which means learning to think on DFS, and the other is to teach specific working manners and processes, which means learning to implement. As for tools, they are necessary teaching aids and expressive symbols, such as analysis software with fine interactive features and graphs, etc. All the things described above are insufficient in our teaching.

However, it is not possible for the students to put forward perfect improvement measures for the whole transportation system of the Delft campus within such a short workshop. The aims of this short-term teaching are: to strengthen the education on the DFS concept and cultivate the students to have a strong environmental and social awareness; to help the students preliminarily master scientific and systematic design approaches and evaluation criteria and have a better understanding of the core of DFS as well as the selecting and assessing process of design schemes.

With the increasing recognition of LeNS in China and with the efforts of organizations such as DESIS-CHINA, as well as the efforts of many experts of design education, DFS education is bound to achieve a rapid development in China. Despite of a lot of challenges, this design teaching practice will surely have a far-reaching influence on the innovation and sustainable development of domestic enterprises and also play a positive role in promoting the economic transition of China.

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Design for services and place development

Interactions and relations as ways of thinking

about places: the case of periurban areas

Abstract

Services are a constituent element of urban planning. Nevertheless, a new perspective arises when considering regional contexts, and when considering services as an approach to design and subject matter for design.

The essay presents reflections raised by a group of projects in various parts of the world, conducted by local research partners within the international DESIS Network (Design for Social Innovation and Sustainability) and dealing with agricultural periurban territories. These projects are methodologically related to one currently in progress in Milan conducted by the Politecnico di Milano, Slow Food and Università Scienze Gastronomiche, which is expected to generate a scenario of sustainable local food production and consumption for the region.

Service design here aims at introducing a service-driven vision influencing the approach to regional planning, with the objective of strengthening the role of sustainable agriculture by creating a network of services supporting production systems and de-mediating offering and demand. Short food chains, multifunctionality of the systems and mutual collaboration between the stakeholders are the concepts framing the project. Fostering social innovation is considered a crucial action, since local creative communities can play a major role as potential engines of change.

The essay discusses the methodological framework through which these projects are conducted, the role of design schools and researching-teaching activities in the factual promotion of this kind of design issue, and a first set of design results of the ongoing projects, making connections among them.

Radical changes in the everyday life of communities

We claim that designing for sustainability with a strategic perspective means facing and promoting radical changes in ways of living (Manzini & Jegou, 2003). This assumption informs the way we use strategic design and design for services to tackle the sustainable development of places and regions.

Design for Services is an essential component of strategic design when the aim is to move from a framework of values and characteristics into specific solutions, and when we need to make manifest possible future behaviours that require new ways of interacting and producing value within a community and its environment. Services in fact exemplify systemic changes at the level of everyday experiences (Meroni & Sangiorgi, forthcoming 2011).

Strategic Design is an approach whose goal is to interpret ongoing situations, where problems are open and ill-defined, tasks unclear, processes experimental and where knowledge is something that emerges step by step, by continuous interactions with other players. Any strategic decision is the consequence of interaction with the environment, its actors, constraints and opportunities and, according to Game Theory the behaviour of players can be driven by the comprehension that favouring the interests of the community can be strategic to favouring one's own interests (Zurlo, 2004 and 2010). Therefore, strategy can result in win-win solutions, where the interests of the individual (a person, a company, an enterprise) can converge with those of the environment and of the collectivity. In compliance with Bateson's concept of ecology (Bateson, 1979), affirming that the minimum unit of survival in evolution is never simply an individual organism, not even a species, but always species-plus-environment, win-win strategies appear to be those with this potential for causing them both to evolve. Any strategy to achieve a radical but successful change must, consequently, consider both eco-efficiency and social behaviour (Brezet & Ehrenfeld, 2001; Vezzoli, 2007) in a brand new approach.

Investigating and promoting social innovation (innovation that moves from emerging behaviours in society) takes us in this direction: by working with innovative social parties, searching for, exploring, observing and involving in the design activity the most pro-active and creative social, economic and productive resources of a context, we believe that we can start a project with a reasonably good chance of successfully causing a situation to evolve. It is here that social innovation becomes crucial, especially when a project is about communities and territories. We call these emerging social behaviours creative communities, groups of people who creatively organize themselves to obtain a result in ways that are promising steps towards sustainable ways of living and producing (Meroni, 2007), and visionary ventures, meaning

enterprises that challenge the conventional ways of doing in the market, in the name of a fairer, more sustainable and valuable production and consumption system. This kind of social innovation is actually prototyping innovative ways of doing that can be seen as a driver for technological and production innovation. The practices they propose combine a high degree of feasibility and an impressive visioning; they have the power of transmitting to us their ideas, feeding our imagination about the future and becoming the source of inspiration for new solutions and services rooted in existing assets. They embody in a positive and fashionable way the contemporary interpretations of jobs which we believe can become the basis of a truly green economy: they try the unprecedented with remarkable bravery, they risk, they learn by doing, they apply a trial-and-error approach that is costly and often apparently reckless. They are led by visionary individuals who have been able to gain the support of the community, attracting and motivating people by the strength of their ideas (Manzini, 2007; Leadbeater, 2007; Drayton, 2010) All together, these phenomena of social innovation create a strong pattern of local changemakers (Drayton, 2010)who we believe can become the drivers of innovative projects.

Bateson's concept of ecology shows us the profound and vital relationship of a community with its environment, which means for designers two fundamental factors to be investigated: the community's sense of belonging to the (private and public) space, and the relationship that exists between local people and local resources. These two issues are, with different shades of meaning, the focus of investigation for some schools of urban and regional planning around the world (the Scuola Territorialista in Italy; the New Urbanism movement in North America; the INTBAU - International Network for Traditional Building, Architecture & Urbanism in UK) that we like to acknowledge as scientific references when speaking about sustainable place development. They actually affirm that the valorisation of local heritage (environment, urban settlement, culture and society) is the only possible approach to producing the lasting enrichment of an area, because places are the result of a historical co-evolution of human settlement with environment, nature and culture, whereas the functionalistic approach tends to consider the territory as a kind of technical support for activities organised independently from the local means, resources, potentialities and qualities. Therefore, sustainable development not only refers to the reproducibility of natural resources, but also to the way in which urban systems are established; to the coherence of production systems with local resources and entrepreneurship; to the development of capability and self government by local communities. In short, to community sovereignty (Magnaghi 2000).

We take this multilayer definition of "place" as the result of the interaction of the community with the environment and believe that Design for Services, which has recently taken up the debate about regional development (Meroni et al, 2008; Meroni, Simeone & Trapani, 2009; Jégou, 2010) can significantly contribute with conceptual tools to research on these topics. In fact, Service Design looks at the interrelations within a community and at the relations of the community with its territory with a distinctive approach, as we will discuss in this essay.

We also believe that, on one hand, this disciplinary approach can complement those of planners, architects and sociologists and, on the other, it can shape the competences and skills of a new profile of designer.

New generations of designers and new skills

A new generation of designers needs to grow up, be trained to develop new skills and equipped to contribute in solving new kinds of problems that are both systemic and wicked (Manzini in Meroni, 2007; Buchanan, 1992). At the same time, a new generation of entrepreneurs needs to flourish, oriented to the so called green economy and commit to jobs that are potentially the engine of this economy, but that ought to be reinvented in the light of contemporary lifestyles.

In the most established design schools all around the world, interdisciplinary curricula oriented to train students to design for services, or to develop a strategic approach to design are flourishing. The Politecnico di Milano has matured over 10 years experience in master level courses in Strategic Design, Product Service System Design and Service Design, being one of the schools pioneering these approaches. We believe that new design profiles should address the abovementioned new design demand, and therefore students can beneficially be challenged with problems of a systemic dimension. And, even more, we believe these students can significantly contribute to "warming up" research thinking in this field, and prototyping tools for intervention in systemic problems. Actually, their involvement can result in a double achievement: practising on real cases helps them to develop awareness towards sustainability and systemic thinking, and approaching these themes in design studios allows teachers to begin exploring new research topics with more freedom and creativity. Therefore, we systematically combine research and training, setting up design processes where training activities are synergically integrated with action research, and giving students the opportunity to measure themselves with similar topics, in dedicated studios or workshops. This is a unique chance for cultivating in young people an alternative awareness of design and business, where emphasis is laid on the environmental, social and ethical issues of the community, and for testing the preliminary hypothesis of research with initial ideas.

Investigating a community in its own environment means paying primary attention to the ethics and values of the project, so as to orient design actions to make these values tangible and to develop an approach that connects design to human dignity and human rights (Buchanan, 2001). In doing this, a shift from the concept of User Centred Design to one of Community Centred Design is implied (Meroni, 2008), where understanding behaviours and collaborating with the most active social communities in conceiving and developing solutions (Ogilvy, 2002, Jégou & Manzini, 2008) is the distinctive work of the designer. Community Centred Design refers also to an approach that upgrades the consolidated methods and tools of User Centred Design to the scale of community, in order to understand its behaviours, needs and network of relationships.

As a consequence, this approach requires two kinds of

competences: one related to knowledge of the context, the other to creative collaboration with non-designers.

The former results in field immersion, so as to pursue a direct experience of the contexts and develop empathy with the community. It produces a de-mediated knowledge of people and places that leads to empathic design: an approach where designers are pushed to move in real contexts so that projects benefit from the emotions of both users and designers (Leonard & Rayport, 1997). To activate people, to spur them to take action and collaborate in doing things, designers must be aware of the kind of behaviours a community will be willing to take up. Understanding the pivotal assets to rely on in order to design solutions that propose radical changes in everyday life is, thus, as essential as knowing the unexploited assets and unmet needs of a given context. Moving from here, designers can work with local communities to develop scenarios, or hypotheses with some chance of finding the right humus on which they can flourish as future solutions (Ogilvy, 2002).

The latter, which results in designing scenarios for and with local communities, requires the designer to be able to manage collaborative processes and transdisciplinary skills. Helping collaborative design practices to happen, fostering conversations around systemic changes exemplified at the level of everyday experiences, and materializing big shifts in tangible lifestyles and business opportunities are actually some of the peculiar capabilities that we believe a designer for services today must have (Meroni & Sangiorgi, forthcoming 2011).

A critical context for urban development and food sovereignty

Periurban areas are, today, among major critical contexts in regional development projects: lying between a town and its rural surroundings, they are mainly used for agricultural activities (sometimes sustainable, often conventional), but subject to urban expansion where formerly separate cities and towns merge into vast urbanised zones: the way this comes about is crucial for the sustainable development of a region (Donadieu 2005 Viljoen, 2005). We take them as metacontexts (Manzini, Collina & Evans, 2004), that is widely found typologies with analogous characteristics in different contexts. Periurban areas are the thresholds where urban and rural dynamics meet, creating unique opportunities (or risks) to improve the quality of everyday life and make a decisive step towards sustainable development. The reflection developed in this essay arises from a cluster of ongoing projects around the world (Milan, Shanghai, New York and Porto Alegre) within the DESIS Network[1] which, notwithstanding the different progress of the work, can be seen to rest on similar bases and hypotheses.

Initial field observation, supported by theoretical and empirical research, led us to recognize the following main needs, resources and design challenges:

Needs and critical factors:
•agriculture is managed through both sustainable and conventional methods: in the absence of alternative and more direct channels of sale, agricultural practices become gradually less profitable year by year (Fleury, 2005; Donadieu 2005)

•the proximity to town is a real threat for these areas, given the unquestionably higher value of urban exploitation compared to agricultural use of the land, in the current mainstream market (Viljoen, 2005; Petrini, 2005) and in the limited perspective of the present day;

•the aging population and the progressive lack of motivation for youth to work as farmers are the reasons for the massive exodus from these areas. This is due to several factors, among which : the meagre profitability of the work; the industrialisation of activities and the "downgrade" of the role of farmer to one of industrial worker; the lack of appeal of agriculture-related professions due to their apparent obsolescence and inadequate social-recognition in mature economies.

•the overall quality of life in the areas is perceived as low because of the scarcity of services, entertainments, infrastructures, social opportunities.

Resources and local assets:
•sustainable agriculture can become a recognised added value, thanks to the demand for "clean and fair produce" (Petrini 2005) which comes from the city and is usually bigger than the offering;

•proximity to town can be seen as an advantage for these agricultural areas, because of: 1) the ease and convenience of food transportation and delivery to town; 2) the possibility of inventing local tourism formulae connected to agri-culture, taking advantage of easy and fast connections with the city; 3) the opportunity to mix functions and activities so as to complement and match urban ones;

•the quality of the life in these areas is, in terms of health, unquestionably better than in town, because of cleaner and fresher air, vegetation, less noise and pollution, more open spaces;

•the presence of creative communities and visionary ventures, challenging the traditional way of living and producing in urban and rural settings, is noticeable here and has a relatively high impact: the sizable number of initiatives operating in the agricultural field is likely to be due to the application of urban-like creativity (Florida, 2005) to agricultural issues. Actually, the diffusion mechanisms of creativity and activism which are often accelerated in cities and rely on emulation, find in these critical contexts a natural area of application. These kinds of initiative offer a good picture of the lively humus characterizing these contexts, despite scarce support from the Institutions and even the apparent obstructionism of policy against these small actors, to the advantage of big territorial players (agribusiness, builders, big retailers).

Design opportunities and challenges
•to increase the regional self-sufficiency of the food system through various forms of local food sale and de-mediation (Meroni, 2006) of agricultural production. This still remains the most important function of periurban agriculture (Petrini, 2005);

•to foster multifunctionality of systems and differentiation of offering over specialization, in order to increase the economi-

cal profitability of enterprises, while enhancing the attractiveness and feasibility of services;

•to conceive new cultural meanings for agricultural jobs by creating added value services and produce, build over the quality of products, services and activities;

•to strengthen the relationships between rural areas and the city in terms of material, economic and cultural flows, and rationalize then according to a sustainability assessment;

•to invent new forms of agritourism, agriforestry and proximity leisure to take urban inhabitants into the nearby countryside, and to intensify relations between agricultural activities and urban life by imagining new services supporting urban farming;

•to find creative interconnections and new forms of collaboration and synergies between farms and other local activities, so as to save resources and create closed loop systems, connecting inputs and results of rural activities within a logic of service symbiosis (Mirata & Ristola, 2007);

•to implement new communication technology as support for collaborative services (Manzini & Baek, 2009);

•to create an imaginary around the place and its produce: branding products and services in the name of quality and values.

These design challenges, focused on delivering services and relations for a more ecological food production, distribution and consumption, represent the core of the innovation demand expressed by periurban areas, and have different specifications in the different geographical contexts.

Approach and method of work

As mentioned, a Design for Services perspective to Place Development shifts the design focus towards the investigation of interactions and relations. In the specific context, these are represented by the network of services supporting the agricultural business and the new forms of de-mediation between offering and demand.

Shortening the food chain, fostering multifunctionality of the systems and implementing collaborative practices are the key concepts in common that shape the design briefing of the projects, which is based on the following hypotheses:

•using local resources to develop a distinctive offering (Mirata & Ristola, 2007; Magnaghi, 2000) and activating collaborative practices of work (Cottam & Leadbeater, 2004) can produce tangible and effective improvements in the quality of life and environment;

•sustaining local collaborative patterns, which involve inhabitants and enterprises, can create the conditions for social innovations to flourish and change settlement models by changing underlying practices (Latouche, 2004);

•supporting social innovation is therefore crucial, because creative communities can play a major role as potential engine of the change. This assumption implies an approach to transformation that, borrowing concepts from Positive Psychology (Seligman & Csikszentmihalyi, 2000; Inghilleri, 2003), relies on and enhances the positive assets of a system or a context in order to produce a change;

•bridging divisions between disciplines, institutions and public, private and voluntary sectors is, today, the most advanced way to innovate in production and particularly in service provision. According to Landry (2000), new forms of alliances have to be set up, while Murray, Caulier-Grice and Mulgan (2010) speak about overlapping fields of the social economy, social entrepreneurship and social enterprise.

Therefore, the method of work currently being experimented starts by observing local assets, goes on to create specific projects shaped by/oriented towards a scenario and ends up with the creation of a network of synergies:

1.Resources and assets mapping: finding, analyzing and visualizing the "place capital" (natural + artificial + social) and the relative potentialities.

2.Social innovation mapping: finding, describing and representing the local creative communities and their initiatives.

3.Scenario and solutions design: co-designing a set of scenarios for the context, exemplified in specific solutions connected to the existent social innovation.

4.Defining pilot projects: finding the most promising initiatives and developing ideas about how to replicate them or start up new initiatives using existing assets.

5.Project networking: linking projects in a local system, creating mutual connections and relating them to the external environment.

6.Project communication: communication of single projects and of the whole scenario.

One crucial point of scenario-building is the connection of the projects into a network organization, or more specifically, the way the different services are connected to support one another and to frame a consistent scenario. The strong sense of community that we have observed in cases of social innovation leads us to assume that the social and relational basis for the network is likely to be the need to enhance actors' perception of a coherent community where everybody (the local "changemakers" - Drayton, 2010) contributes to collective success. This is facilitated when a shared vision confers the network with a sense of identity, claims values, creates trust and orients motivations, actions and strategies (Van Alstyne, 1997). The functional basis for the network is the need to share or complement the various assets and operations of the different activities, so as to make beneficial synergies. As a consequence, three forms of synergy can be investigated:

•Synergies between analogous activities: economies of scale and scope of similar solutions that can benefit from sharing some operations and infrastructure, and creating critical mass.

•Synergies between complementary activities: economies of scale and scope between different solutions which, while delivering different products and services, have many common elements since the outputs of one activity become the inputs of another.

•Synergies between compatible activities: economies of scale and scope between solutions which, when combined, can generate mutual virtuous savings and reinforcement.

Synergies allow collaborative problem solving to happen, meaning that they create the condition for breaking tasks into

sub-tasks and sharing them (Van Alstyne, 1997), activating collaborative services (Jégou & Manzini, 2008) and collaborative entrepreneurship (Dayton, 2010). Altogether they outline different scenarios of Community Supported Agriculture, where food production, trading, hospitality, leisure, cultural and social activities create a unique mix of functions.

The six-step process here described aims to generate ideas for activities and services based on the creative use of local assets and to establish a direct connection with local creative communities and ventures. We propose that regional planning be informed by these ideas and by the network structure of city and its periurban area that they imply. Having said this, we believe that the specific contribution of design for services consists in offering a methodological toolbox to support a new paradigm of urbanisation based on this approach, and in engaging a continuous, strategic dialogue with the community (van der Heijden, 2005; Manzini, Collina & Evans, 2004; Landry, 2000; Kahn et al., 2009).

Ongoing projects

The process presented in the previous paragraph has been applied, in different stages, to the aforementioned projects. While the ones in New York and Porto Alegre are still in the proposal phase, Milano and Shanghai have already developed to a stage that allows more than a few reflections about their outcomes as design and training experiences. For these two contexts the opportunity to share some design thought arises from a couple of applied research projects for the local periurban areas: the Agricultural South Park in Milano and Chongming Island in Shanghai.

The process has been reiterated more than once in the two situations, upscaling the substance and importance of the projects. In fact, in both cases an extensive design experiment has been carried out involving students[2] in initial self-committed research. A couple of workshops have created the first scenarios and set of ideas that enabled the start of a strategic conversation with prospective partners and interlocutors for projects with real commitments. From here further professional research steps have recently been taken.

Milano

The Milanese project, in fact, started as methodological research, funded by the Italian government[3], and then evolved into a bigger, more specific project named "Nutrire Milano. Energie per il Cambiamento" (Feeding Milano. Energy for change, http://www.nutriremilano.it), funded by local institutions (Fondazione Cariplo - a bank foundation- Comune di Milano and Provincia di Milano). The project was proposed and is now being developed by a partnership between the Politecnico di Milano, Slow Food Italia and the Università di Scienze Gastronomiche. Students' contributions have been integrated in the process since its beginning, and currently other classes of service design students are participating in it: for them the topic has definitely become their chance to face a real context of application, and for the School of Design a consolidated and recognised field of work.

The first ideas developed with students have evolved into a broader scenario built on the principles of direct relations (de-

mediation) between producers and consumers, and collaboration among actors. Eight service models, inspired by the existing situation and taking it a bit further (Meroni, Simeone & Trapani, 2008), have helped the scenario to materialise into tangible lifestyles and business opportunities. These include the Collective Park Brand, the Farmers' Market, Public Green Procurements, Food Box Subscription, the Visitors' Centres, the Rural Cultural Centre, Horticulture and Urban indoor/outdoor agriculture (for a detailed description see: Meroni, Simeone & Trapani, 2009) (fig 1).

Fig. 1: The network of service models developed for the periurban area of the Parco Agricolo Sud di Milano, Italy.

This scenario has then laid the basis for the project, Nutrire Milano, whose pillars are multifunctionality, de-mediation and collaboration.

The main actions undertaken in this project are: 1) supporting existing best practices and resources in the agricultural field; 2) activating resources not yet / no longer valorised; 3) creating new services. The project will systematically implement pilot activities to test and assess ongoing ideas: the local farmers' market is already under experimentation (http://www.mercatidel-laterra.it/ita/network/milano) (fig.2)
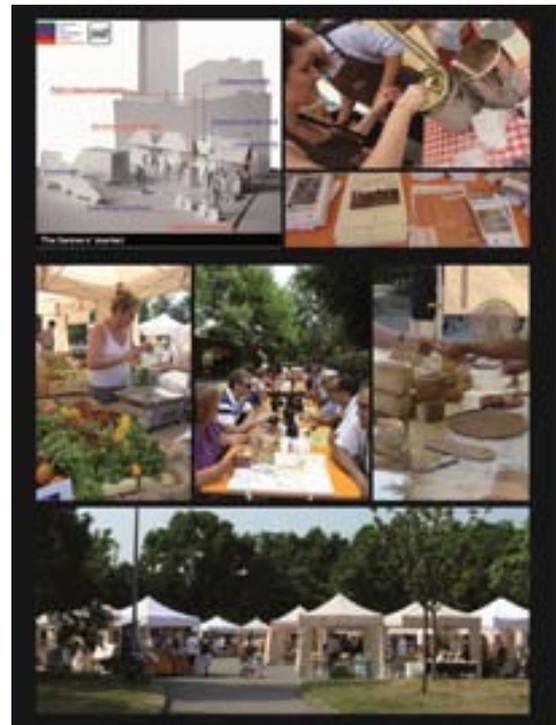

Fig. 2: The 'Mercato della Terra' in Milano: the first pilot project

launched within the framework of the project Nutrire Milano for the
Parco Agricolo Sud di Milano, Italy

Shanghai

The Chinese project started as a self-committed applied research project by Studio TAO of TEKTAO[4] and IDEO Shanghai, and then, by involving Tongji and Politong university students, it has grown in scope and capability of creating connections with local and international partners. Currently the various seeds of ideas planted by the students have flourished into a comprehensive scenario which joins different services of food production / distribution and local tourism into a network, and proposes a hub (Design Harvests Hub) as a local engine for discussing the scenario with the local community and gradually implementing it. In particular, the workshop with the Politong students[5] has led to a proposed network of five new, creative business ideas dealing with food, agriculture, hospitality, mobility and health, to create an entrepreneurial community in the village of Xian Qiao, in Chongming Island. (fig.3)

Fig. 3: The five new business ideas developed for the periurban Island of Chongmin, Shanghai, China.

Conclusions

The conclusions we would like to draw from the discussion of these experiences fit into two categories: results concerning the disciplinary approach of design for services applied to place development, and the involvement of design school students in similar activities.

The discipline: design for services
•The value of introducing a design for service perspective

in place development processes, can therefore be summarized in the distinctive contribution it makes to the following points (Meroni & Sangiorgi, forthcoming 2011):

•Creating convergence: assuming that the key objective of scenario building is to generate convergence among diverse players on a vision for the future (Manzini & Jegou, 2003), design for services can help scenarios "materialise" into concepts and artefacts;

•Supporting design thinking: assuming that today, and more and more in the future, good ideas will come from both amateurs and professionals (Leadbeater, 2008), new approaches are needed to reverse top-down design processes and shape horizontal frameworks of collaboration where innovation is interpreted as a social, cumulative and collaborative activity. Design thinking represents an approach to idea generation and problem solving that both designers and non-designers can develop and apply: Design for Services can create the conditions for it to spread, offering specific tools to help (highly relational and multidisciplinary) co-design processes to target communities of innovators. This leads to the concept of community centred design, where attention shifts from the individual "user" to the community, which replaces the role that was previously reserved for the "user in helping the designer to decode and interpret the emerging design demand;

•Building capacity: assuming that the very essence of designing strategically is enhancing and building capacities in communities and organisations to see problems better, while choosing the right strategies to act (Burns et al., 2006; Meroni, 2008; Zurlo 2010), design for services can contribute by conceiving services that enable new behaviours through the provision of competences and by appealing to people's individual motivations. In fact, social psychology (Seligman & Csikszentmihalyi, 2000) teaches us that the systematic building of competency and skills is a way to prevent problems and facilitate collective wellbeing (Von Hippel, 2005). According to several authors (Parker & Heapy 2006; Zuboff & Maxmin, 2002) a new service enterprise model is emerging which is no longer centred on products or services, but on the provision of "the support" people need to navigate a complex world and to lead their own lives as they wish. Manzini (2007) speaks about "enabling platforms" and "enabling kits" as ways for designers to help people generate their own solutions.

The involvement of design schools
•Cross fertilization: assuming that design for service and design thinking are approaches that largely benefit from transdisciplinarity and extended strategic conversations, the systematic involvement of students becomes a real opportunity for "warming-up" thinking and creating a larger arena for idea generation and discussion. It is, moreover, an opportunity for them to practice systemic thinking, tackle wicked problems, develop and prototype ideas and get in touch with competences other than design.

•Links: for designers, and thus even more for prospective designers, the exercise of conceiving and developing ideas which are mutually interconnected into a local system is a way

to experience the complexity of a real context and to trigger a mutual learning process.

•Empathic design: assuming the importance of stepping into the shoes of others in order to understand their positions and become more capable of designing for and with them, the social innovation led approach brings a distinctive value both to education and practice. Pushing students to work as "antennas" of social innovation (Jégou & Meroni, in Meroni, 2007) is a way of training young designers in field work while, at the same time, putting them in touch with extremely motivated groups of visionary, non-professional, designers, who reveal unexpected creativity, opening the mind and driving one to think-out-of-the-box. We have experienced in students what we have also noticed in our research team, viz. the development of emotional connections and empathy with the context that eventually also stimulate a real sensitiveness towards sustainability.

•New design skills: assuming the need for academics to respond to a new demand for professional design, place development projects offer the chance to build and test a new set of skills for designers dealing with services.

To conclude, we would like to acknowledge that similar research projects are opening to designers, and especially designers working for services, quite a promising area of operation which has been so far territory of architects, urban planners, sociologists and economists. Designers are here bringing to the table a kind of knowledge that is likely to be peculiar and therefore not exclusive of other roles, but instead complementary. This new role is connected to the rising impact of services on the way economies produce value, and to the increasing importance of network technologies as means of self-organisation and distributed creativity. Therefore these research projects are experimenting, in both professional and academic contexts, methods and tools for this new role of the designer.

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Notation

1.Design for Social Innovation and Sustainability: an international network launched by a group of researchers gravitating around the Politecnico di Milano (http://www.desis-network.org)

2. students of Service Design and Product Service System Design from the School of Design of the Politecnico di Milano, and of Politong Master Program - a double degree program between the Politecnico di Milano and the Politecnico di Torino in Italy, and Tongji University in Shanghai, China

3.The first commitment for the project came from the PRIN, Miur, 2006 – 2007, Italian University and Research Ministry, then in 2009 Fondazione Cariplo, Comune di Milano and Provincia di Milano, have funded the project " Nutrire Milano. Energie per il Cambiamento" (Feeding Milano. Energy for change) where the Politecnico di Milano partners with Slow Food Italia and Università di Scienze Gastronomiche.

4.Studio TAO is a Shanghai based design "think-and-action tank" focused on sustainability

5.The workshop was held by Anna Meroni and Lou Yongqi with the support of Miaosen Gong, Clarisa

Joon Sang Baek   Fang Zhong

How do information communication technologies facilitate the diffusion of grassroots social innovations and reinforce social networks of local communities?

With a focus on a digital platform that supports

a sustainable food network in Milan

Abstract

Democratization of information communication technologies (ICTs) has empowered people to generate solutions to meet their needs. These technologies allow grassroots social innovations to prevail in which people collaborate within their local communities to meet their social needs while at the same time diffusing their initiatives to a wider network of those who share values and interests. This research aims to identify the role of ICTs in facilitating the diffusion of social innovations and improving the social network of communities. Case studies of ICTs-supported social innovations are introduced and social network theories are adopted to identify the dual production of collaborative services. In the end, a conceptual model of a digital platform that supports sustainable food network in Milan is proposed.

Design for social innovation and sustainability

Social innovation is defined as "innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly developed and diffused through organizations whose primary purposes are social" (Young Foundation 2006). Design can contribute to promoting social innovations at several levels: user-centered and participatory design to elicit user needs for existent products service systems; service and strategic design to create and improve innovative product- service systems; design research activities to conduct case studies and to generate visions and cenarios of the sustainable future.

Manzini (2007) argues that radical innovations from bottom-up that often challenge traditional ways of doing things introduce a set of new, very different and intrinsically more sustainable solutions and these micro-transformations become the groundwork for great systemic change.These grassroots activities can be defined as a type of social service in which the final users collaborate to produce solutions to a wide range of social needs that have failed to be met by existing solutions. For this reason, they are called collaborative services and the people who designed them are called collaborative organizations (Jegou, Manzini 2008).

2. Collaborative services
2.1. ICTs for collaborative services

Similarly, collaborations exist in the virtual space based on peer-to-peer network. Advanced and democratized information communication technologies (ICTs) have brought to us new ways collaborate and produce. To name a few, archives of distributed knowledge, information and data; peer-to-peer platforms for sharing information and trading products and open-source software projects based on Creative Commons licenses. Exhibiting characteristics of anti-rivalry and inclusiveness (Cooper 2005), collaborative production in virtual space is distinguished from traditional ways of production in the market economy in that it is more democratic in political aspect and more efficient in economical aspect (Benkler 2006). They are the examples of socio-technological innovation that are changing our ways of production and living and show possibilities that ICTs can be used as an enabling solution, i.e., a set of product, service and communication that empower users to collaborate and solve their needs (Manzini 2005), to promote social innovation at the grassroots level.

Observing in depth the examples of digital production reveals that they also involve relational qualities of varying degrees. In other words, they too are based on social networks, though weaker, of equipotent users and, as it will be discussed later, it is these weak networks that contribute to diffusing social innovations. For this reason, a service matrix model is pro-

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posed where digital collaborative production is included in the realm of collaborative services (figure 1). In this model, services were mapped based on the degree of collaboration and the tie strength of service providers and users. The degree of collaboration was divided into strong and weak and the tie strength was divided into latent, weak and strong . Collaborative services are located in upper section in green.

2.2. Dual production of collaborative services

By definition, a collaborative service is a social service in which final users collaborate to produce innovative solutions to meet their social needs based on Peer-to- Peer (P2P) relations (Cipolla 2007). This definition implies that a collaborative service results in the production of two essential elements: solutions for social needs and relations between stakeholders, or in another term, a social network of the stakeholders. Furthermore, empirical studies show that the two elements are interlinked with each other, supporting the production of each other. That is, in the process of collaboration, a social network of the service stakeholders are reinforced and newly created as a byproduct. The social network, in turn, creates a favorable environment for new collaborations, thereby creating a virtuous cycle between the production of a solution and a social network. This research argues that the production of the two elements can be amplified by ICTs (figure 2) and thus proposes the following questions for investigation:

1.How do ICTs contribute to the diffusion of collaborative services?

2. How do ICTs strengthen the social networks of collaborative organizations?

3. What design strategies can be offered to amplify the production of collaborative services through ICTs?

To answer to these questions, three research methods were used. : Firstly, literature studies on social network analysis to formulate a theoretical framework that explains the relationship between ICTs, social network and the diffusion of innovations in general; secondly, case studies of collaborative services on the digital platform to obtain empirical data to answer the question 1 and 2; finally, an action research to apply the findings to and ongoing design project, developing a digital platform to support a sustainable ood network in Milan.

3. Literature studies

In this paragraph, related social network literatures are briefly referenced and their implication to collaborative services is discussed.

3.1. Social networks and the diffusion of innovations

The first reference discusses how innovations diffuse through social networks, especially through a specific type of personal ties. Granovetter (1973) who first introduced the strength of weak ties claimed that personal ties could be categorized into strong, weak and absent. The tie strength can be measured in terms of a combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie (Granovetter 1973). Strong ties arguably takes decades to be formed and are observed in intimate relations such as families and cliques. On the other hand weak ties take relatively shorter time to be formed and are observed among friends, colleagues and acquaintances. Haythornthwaite (2002) introduced another category of personal ties called latent ties, ones that exist technically but have not yet been activated
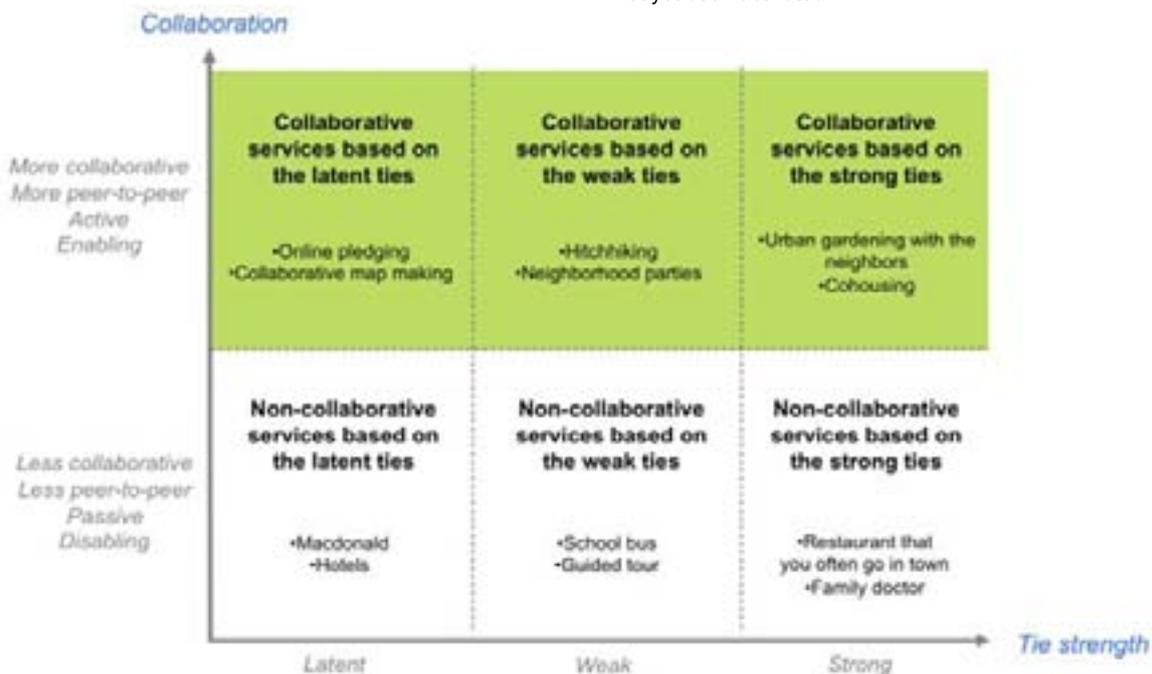

Figure 1. Positioning of collaborative service in the service matrix model
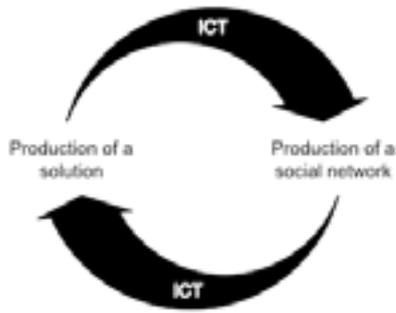
Figure 2. Production of a solution and a social network in a virtuous
circle and its amplification through ICTs

and are often observed among individuals connected via new media.

According to Granovetter, information tends to remain isolated in a group formed by strong ties whereas it tends to diffuse through weak ties. It is because people connected through strong ties share a large part of their social network and therefore tend to form an isolated group. In such a group, information is likely to be self-contained and inaccessible by those outside the group. On the other hand, people with many weak ties often play a role of bridges that connect groups and it is through these bridges that information, including difficult innovations, diffuses (Granovetter 1973). As a result, the social network of an organization whose members are connected mainly through weak ties forms an open network where information is widely shared among the members while an organization whose dominant ties are strong turns into fragmented cliques (Granovetter 1983).

Empirical studies on design for social innovation and sustainability reveal that the weak ties and strong ties in collaborative organizations are essential to the services produced by them and play unique roles (Baek 2009). The strong ties exist mainly in a community where collaboration initiates and is incubated. Given its inherent dependency on relational qualities, a collaborative service cannot exist without a group of people who share the same value. They are usually friends, families or long-time neighbors. They are the ones who incubate a service until it becomes robust enough to diffuse and maintain the core values of a service. On the other hand, the weak ties maintain a collaborative organization open and allow its innovation to diffuse and replicate. As the innovation diffuses through the weak ties, the collaborative organization develops into a network that shares the philosophy. As the initiative diffuses through the network, the impact of their innovation is amplified. Once an innovation is adopted to a new context (through weak ties), it requires strong ties between the adopters to incubate the innovation and the whole process repeats. In short, the diffusion of collaborative services is an iterative process where the generation and incubation of an innovation are mainly achieved through strong ties and the development and the diffusion are done through weak ties.

3.2. Social network and ICTs

The second research deals with a role of ICTs in social network. Wellman (2001) argues that the Internet supplements social capital by reinforcing and also creating weak ties. Kavanaugh (1999) goes further and claims that ICTs not only reinforces the existing weak ties within a local community but also contributes to building trust among the members by allowing them to get to know each other and to do things together. From on her case study in Blacksburg Electronic Village, she also reports that ICTs increases communication among the community members and increases their access to information resources. Gruzd (2009) reports cases where ICTs contribute to formation of strong ties in virtual communities.

If innovations diffuse through weak ties and ICTs reinforces and creates social networks that are mainly weak ties, it leads to a conclusion that ICTs facilitates the diffusion of innovations. This responds to our research questions that ICTs facilitates the diffusion of their solutions and reinforces the social network of collaborative organizations.

This conclusion is supported by empirical studies. Contrast to the collaborative services that use ICTs as a platform to communicate and collaborate mostly at the national or international scale, ones are passive in adopting ICTs are more likely to remain at the local scale (Baek 2009; Franquiera 2008; Manzini & Jegou, 2007; Meroni Ed, 2007). And because their members are physically close to each other and interact face-to-face, their ties tend to be stronger than those of collaborative services in the virtual space. In the service matrix (figure 3), they are positioned in the upper right segment where the services are collaborative and based on strong personal ties. There are several reasons why some organizations are reluctant to employ ICTs to diffuse their initiatives. They may not be interested in diffusing their ideas and they do not need to because, in fact, their communities work best standalone at the local scale (Franquiera, 2008). In other cases, they may be simply ignorant of the benefits ICTs bring to them, or they may not have the resource to adopt technologies they need or they may not have necessary knowledge and skills to use the ICTs even if they are available. In any case, because they remain at the local scale, their impact on society remains marginal despite their highly innovative ideas.

In conclusion, with an aid of ICTs, highly innovative initiatives that used to remain at the local level have a possibility to diffuse to a wider context. Locally spread initiatives can be connected to form a network in which information and knowledge can be shared to make them more robust and accessible and ultimately they can be brought into the mainstream of our society. In this process, social networks are formed between people who collaborate and expand, thereby creating a favorable condition for new collaborations. Social network literatures and empirical data support the proposition that the production of a solution and of a social network are indeed in a virtuous cycle and this cycle can be amplified by ICTs.

The findings from the theories were applied to an action research where, a digital platform is under development to support collaborative services related to a sustainable food network. The project is currently in progress and the detailed structure and

features of a platform is yet to come. Therefore, the platform that is about to be introduced is at the conceptual level.

4. Action research

The project is called Nutrire Milano and it was launched in 2009 by a consortium of DIS-INDACO in Politecnico di Milano, Slow Food and the Universita' degli Studi di Scienze Gastronomiche. It aims to promote and support sustainable agriculture in the peri-urban territory in the south of Milan called the Agricultural Park South of Milan (APSM) and to create a sustainable food network between local producers and consumers in Milan. The park is a vast territory of 47000 ha whose main usage is agricultural and there are approximately 200000 farms in this area. Meroni (2008) emphasizes the importance of this territory:

"… It is the peri-urban area that lies between a town or city and its rural surroundings, and is a critical context for the sustainable development of any urban area. It can be considered a meta-context (Manzini, Collina and Evans, 2004), a typology diffused with analogous characteristics in different contexts. These areas are currently subject to urban expansion where formerly separate cities and towns merge into vast urbanised zones: the way this comes about is crucial for the development of a region. It is here that urban and rural dynamics meet, creating unique opportunities (or risks) to improve the quality of everyday life and make a decisive step towards sustainable territorial development."

The project includes scenario design of three pilot projects, services for farmers and consumers in this region based on the territorial analysis and the scenarios are developed into working prototypes. A web-based platform will be developed to support specific needs of the pilot projects. The first pilot project is a farmers' market, a market organized in public spaces where farmers can sell produce directly to consumers, and the other two projects are at in the stage of brainstorming. The platform aims to achieve the following tasks:

•To support tasks related to organization, management and replication of the farmers' market,

•To promote the initiative to potential users, i.e., producers and consumers who have not yet participated in a farmers' market but may be interested in it,

•To create and reinforce a social network of farmers and consumers, thereby creating a social infrastructure for a new elective community of producers and consumers

The platform is composed of four structural layers: a social network base, enabling solutions, collaborative services and events.

 A social network base. Conceptually, a social network base is a virtual settlement where users can interact to form a virtual community. Technically, it is a database of users combined with digital social media that allow users to communicate and collaborate to achieve the common goals (figure 3).

The social network is expected to contribute to collaborative services in three aspects: firstly, it will foster the formation of a critical mass of users ; secondly, it will contribute to creating and reinforcing the relational qualities between users; and fi-

nally it will facilitate the diffusion of services to a wider audience. In short, the social network base will be a social ground for collaborations and these collaborations will in return feed back into the base with reinforced social networks, thereby forming a virtuous cycle.
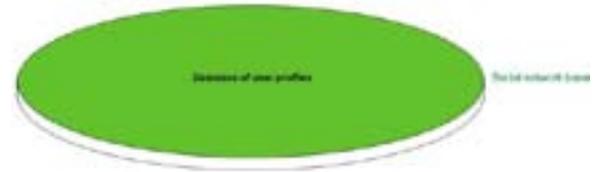
Figure 3. A social network base on the platform

An enabling solution. An enabling solutions in this context is a set of web-based technologies that support. In the case of the farmers' market, it will offer a variety of features that make the market more efficient and more accessible without sacrificing its core values. For example, food box combined with the farmers' market will allow busy consumers to decide in advance the items that they want to receive in a box and pick them up at the market. The platform could allow users to design their food boxes in an intuitive and interactive way.

On this platform, enabling solutions will be designed in module to be added easily to the platform at need. As the platform evolves, more services and therefore more enabling solutions will become available. It means that, on the social base, various enabling solution modules will be added and integrated with the social network base to become activated (figure 4).
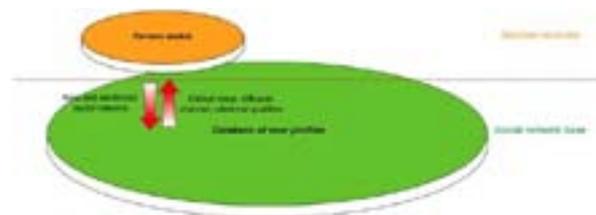
Figure 4. An enabling solution module on the platform

Collaborative services. Using the enabling solutions, people can create new services or bring existing services to the platform and make them more efficient and powerful. Services that require collaboration of users can benefit from the social network base by sharing the existing social networks formed by other services. This gives a momentum to the speed of their growth and diffusion of new services.(figure 5).
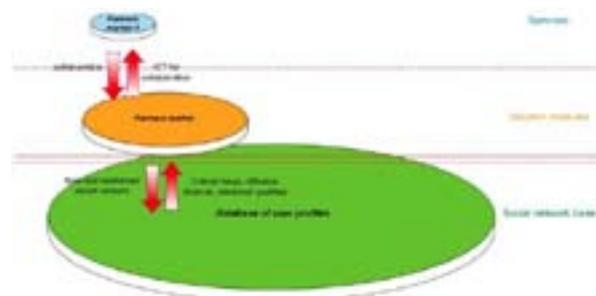
Figure 4. An enabling solution module on the platform

Once the social network base achieves a critical mass, new services can be launched and growth fast. One way to generate service ideasservice ideas can be generated. Stakeholders is to use a stakeholders' matrix combined with a typology of collaborative services on the digital platform (table 1). In the case of farmers' market, there are two principal stakeholders – farmers and consumers – in the columns and rows the table and as they intersect, four quadrants are created. This creates four sets of service opportunities for different combinations of stakeholders (in this case three because services between consumers and farmers are the same as ones between farmers and consumers). For each quadrant, ideas can be generated according to the typology of collaborative services.

Table 1. Stakeholders' matrix to generate service ideas

An event. An event is the result of collaborative services that happen in both digital and physical spaces. Events are important because they catalyze the formation of a social networks between users who otherwise would not be connected or connected latently (figure 6).

A successful event requires both social and technical interventions that need to be designed in the service design process. In the farmers' market, social interventions include cooking demonstration by the chefs of local restaurants, harvest festivals, auctions, food boxes, food court, take-away local food and etc. Technical interventions nclude all the necessary steps to make a farmers' market happen such as marketing of the event, the arrangement of the market space, allocation of the spots for the participants, installing necessarily infrastructure including furniture and audio/video system and cleaning up after the market.
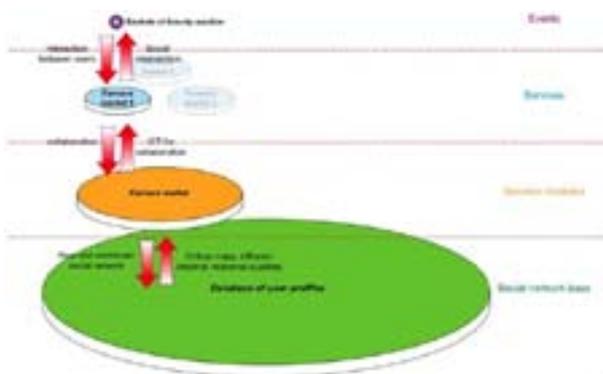
Figure 6. An event on the platform

5. Conclusion

ICTs can be an effective tool to foster bottom-up social innovation and to enrich the social fabrics of local communities. Three research questions were proposed with regard to the role of ICTs in diffusing collaborative services, strengthening the social networks of collaborative organizations and designing strategies to amplify the production of collaborative services. To answer these questions, literature studies, case studies and action research were used.As an application of the theoretical findings, a conceptual architecture of , a digital platform for a sustainable food network in Milan is introduced, . This platform, currently under development, will support a sustainable transformation of the Agricultural Park South of Milan with alternative and radical social innovations. The future work will focus on elaboration of the platform concept and implementation.

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Jakki Dehn

REMATERIALISE sustainable materials library

A catalyst for evolution, innovation and collaboration

Abstract

"I feel that the number of people who really care about the environment is still very small. I was among those who didn't care. However I realise that one's mind can be changed by learning and experiencing. To promote genuine environmental consciousness we should provide people with opportunities for touching and feeling." Yoshimu Ohtsu, BA textile student, Tama Art University, Japan, 2007.

The REMATERIALISE sustainable materials library embedded within education and developed over the last 16 years alongside significant research into the designers' involvement in creating markets for materials that consume less non-renewable resources, now houses over 1,200 samples from 15 countries.

This paper describes the value of this unique resource in reinforcing connections between nature, materials and sustainability. Counteracting the growing withdrawal from the material experiences of the physical world, the tactile and aesthetic qualities of these materials have given different generations a common focus.

Case studies describe how physical engagement with materials involving; industry, educators, design students and autistic school children has enabled real enquiry, collaboration and innovation. Sustainable materials consultancy with industry has given students educational opportunities and generated manufacturing business enabling the REMATERIALISE library to close the loop between environment, industry, education and social inclusion.

Introduction

I am a reader teaching Product and Furniture Design at Kingston University in the UK. I have been investigating the development of environmentally concerned materials since 1994 and with the support of a large research grant from the Arts and Humanities Research Council (AHRC) in 2003 developed 'Creative Resource' a travelling exhibition which focussed on the creative and economic potential of materials made from waste. The REMATERIALISE sustainable materials library has grown naturally out of this research to become a catalyst for collaborations between education and industry.

I would like to talk to about: -

•How the recent research has influenced the material selection within the library.

•The benefits of the library being part of an educational institution.

•The educational opportunities that have arisen from being able to share the resouces of a physical materials library.

•How a physical materials library can be a driver for social innovation.

History

I would like to put this work into context and give you a brief history of the development of the research. I used to have a workshop in the heart of the traditional furniture making industry in the East End of London. I designed and made furniture to order and all my materials and supporting processes were sourced within a two mile radius of my workshop. I grew up with a respect and love of materials and nature and when I switched to full-time teaching in 1991, had an increasing concern about our accelerating consumption of natural resources and the amounts of waste that products can generate.

I started investigating new materials made from reprocessed waste in 1994. Initially I was curious to see how recycled materials might affect the aesthetics of design, in the same way that the use of metal in furniture had had such an impact in the early 20th century. It took a while for these new materials to have this kind of impact.

Fig.1: Roughly Drawn Chair made from extruded recycled HDPE, designed and manufactured by Richard Liddle, Cohda Design UK.

This chair designed by Richard Liddle, made from extruded recycled supermarket bags was developed in 2005 and is a good example of a changing aesthetic.

Method

In 2003 the grant from the Arts and Humanities Research Council enabled me to conduct extensive research over three years into the sustainable development of these materials and look at the impact that environmental concerns were having upon the design process. This work included 45 face to face interviews in Europe, USA and Asia with people who had direct involvement with these materials. Case studies derived from talking to designers, manufacturers, waste management industries, retail outlets and government, formed the basis of the travelling exhibition, 'Creative Resource'. They described the economic potential of interdisciplinery collaborations, showing the transformation of materials from rubbish to desirable. Materials and Design trade shows were visited in Japan, the UK and Germany in order to discover supporting materials for the exhibition.

CREATIVE RESOURCE EXHIBITION
Textile Sector

This exhibition was about the value that we place upon materials, the status we assign to recycled materials and the design innovation that can transform our perception of waste. It was important that the information could be accessed by all ages and that the general public could see what could happen to the waste that they are careful to recycle.

Ceramic Sector

The exhibition comprised of five free standing material sectors. The products on display showed that using recycled materials made business sense. The benefits are not always immediately apparent but for many designers and manufacturers, that is the point.

The work of Annalies de Leede is a good example of the

importance of designers' involvement: -

"They said in this little factory that it was quite amazing that I could make such a thick bowl… normally because of the shrink, it breaks, it would not work, but because there is so much waste in it, it doesn't break". Annalies de Leede, Interview. 20/07/05.

Annalies de Leede a designer, who teaches at Utrecht School of the Arts in the Netherlands, was interested in the challenge of using waste materials. Through her experiments with recycling ceramics she discovered that she could produce a more stable material because there was less shrinkage when the clay with recycled content was fired. This project not only made her realise that materials were a key driver for her work but also that innovation cannot happen without collaborating with scientists and manufacturers.

Rubber Sector

These walking boots in the rubber section do not seem very different from any others but they contain a diverse range of materials including recycled office files, magazines and coffee filters. Products like this have a desirable quality and a direct impact on waste reduction.

Fibre Sector

There were about 230 material samples on display which could be touched and 110 products containing recycled content. This exhibition started at the Barnsley Design Centre in the North of England where it was visited by people aged from 5 – 80 years old. In particular primary school children (5-11 years old) were given questionnares to help them to discover materials and products and to consider the environmental issues relating to the use of materials.The exhibition concluded at the Building Centre in central London where it was seen by designers and architects visiting from all over the world.

How the recent research has influenced the material selection within the library.

Fig. 2: REMATERIALISE Sustainable Materials Library, Kingston University, UK

The REMATERIALISE library started in 1994 and grew out the research from 2003-2006. Since last year it has had a dedicated space within Kingston University, next door to the faculty workshop. The Product and Furniture design course places an emphasis on acquiring and developing the skills needed to use current and emerging materials and technologies in a creative, intelligent and sustainable way. There is a strong focus upon a physical involvement with materials and the newly extended workshop is a hub for this activity.

This unique sustainable materials library focuses on:

•Materials that use less virgin resources

Fig.3: Recycled materials; Cardboard, Gridcore, Japan. Steel, Gage Corp, USA. Glass and shell, GlassEco, UK. Glass, Bedrock, USA. Clay / glass / ash, Akristos, Eco-Brick, UK. Polyester, Durat, Finland.

This image includes Gridcore a recycled, recycled cardboard manufactured in Japan and used for seismic upgrades of buildings and GlassECO, a surface material made from waste glass and shells from the fish industry sourced within a ten mile radius of the manufacturing unit.

•Materials that are easily renewed.

Fig. 4: Renewable Materials; Cork flooring, Expanko, USA. Natural rubber flooring, Dalsouple, France. Cornstarch packaging, BioViron, USA. Bamboo flooring, Moso, Netherlands. Timber board, Plexwood, Netherlands, Nettle fibre upholstery fabric, Camira, UK.

This image includes cork flooring made from the waste from the bottle cork industry and upholstery fabric using fibres from the nettle plant.

•Materials that have not been used much before.

Fig. 5: Under Utilised Materials; Children's wellington boots,Smile Plastics, UK. Scallop shells, Aimori Koubou, Japan. Fish skin, Atlantic Leather, Iceland. Banana plant, branch fibres, Tama Art University, Japan. Coconut shell fibres, Lanka Coco, Sri Lanka, Paper money, Smile Plastics, UK.

This image includes Atlantic leather used for bags and shoes, manufactured in Iceland from waste fish skin. The manufacturing process uses hot water from the natural springs. There is also Aimori Koubou wall plaster made from ground scallop shells a waste product from the Japanese fish industry.

There are currently over 1,200 samples from 15 countries many of which have up to 100% recycled content. They are classified under the Uniclass library classification system used for the construction industry. This describes the material content, the nature of the material and sometimes the current use of the material.

The selection criteria for these materials to be included in the library include the following: -

•They must fit into one of the three material types mentioned above.

"It's not a matter about treating waste; to me it's a very serious matter about efficient use of materials" David Dougherty, advisor to UK government on waste management, interview, 19/08/05

•They must have aesthetic potential, if they look undesirable they will not be used.

"If it's made from waste and looks horrible then nobody is interested." Annalies de Leede, interview, 20/07/05.

•They must be in production or have the potential to generate new business.

"The people who are really stimulating I think often are the design profession. I do think that you get real innovation from there, they do challenge a lot of the givens." Jennie Price, chief executive of WRAP 13/03/06.

Many manufacturing companies now take a much wider environmental view about the production of these materials, giving information about the disposal or re-use of waste by-products and any post-industrial waste. In an ideal world the library would be able to give information on the life cycle analysis and carbon footprint of each material. The time and finance needed to develop this information is currently unsustainable but we are hoping eventually to develop a ratings system to give an idea of the environmental benefits of using these different materials.

The following case study and educational project give an idea of the stories behind the materials that has led to their inclusion in the different sections of the library:

Recycled Materials.
John Elson, Jedco, UK

"I think that it was probably our enthusiasm that carried it through to the latter stages, it became apparent that we could economically use recycled materials -- the costings were always slightly better than using virgin plastic." John Elson, Jedco, UK. Interview 24/02/04

John Elson of Jedco, a small product design consultancy in Surrey, was approached in 1997 by a group of entrepreneurs to develop a plastic scaffolding board. He taught Product Design at Kingston University, knew of my materials collection and decided to investigate the use of recycled materials. During close collaboration with the plastics industry to develop the right material in the right way, it became clear that the majority of the board could be produced from a mixture of recycled polyethylene reinforced with waste glass fibre. The main impetus was not environmental but economic. He found that it would cost less to manufacture in recycled materials and could address the needs of a wider market.

The reason for this material being included in the library was that this was the first example that we found of a recycled material that cost less to produce than the virgin material and which also became a strong business model.

The resulting board introduced in 2004, has many advantages over the traditional wooden board: -

•It is 20% lighter and unaffected by wet conditions enabling more efficient transportation, faster erection and dismantling.

•No splinters, sharp edges, warping, knots or rust.

•Dust free for use in sensitive interior environments.

•A safer, non slip surface.

•Greater resistance to salt water, oil, solvents, and acids.

•Lasts three times as long.

•Lower maintenance.

•Can be colour coded and have company names for added security.

•Conforms to all European platform loading standards.

•It is 100% recyclable at the end of its life.

The manufacturing plant in South Wales has expanded to increase its' capability for a growing market, the off-shore petroleum industry. The fire retardant used in timber planking on oil rigs reacts with the salinity of the sea water causing rapid deterioration, requiring it to be replaced every few months. This plastic plank, totally fire retardant and less affected by the sea, makes it a safer and longer lasting alternative.

Jedco employ about five people, through their innovative work (the environmental implications of this project enabled finance from the Welsh Development Agency, for a specific factory to be built in the south west of Britain,) they have enabled susbstantial economic regeneration in an area depressed by the decline of the coal and steel industry.

Under-used Materials
The Banana Textiles Project, Tama Art University, Tokyo, Japan.

"I feel that the number of people who really care about the environment is still very small. I was among those who didn't care. However, I realise that one's mind can be changed by learning and experiencing. To promote genuine environmental consciousness, we should provide people with opportunities for touching and feeling". Yoshimu Ohtsu, second year BA Textile student, Tama Art University. Banana Textile Project 2007.

Fig. 6: Banana Textiles Project; Textile Design Department, Tama Art University. Project leader, Kyoko Mashimoto.

This project at Tama Art University in Japan describes a future way of working with waste in order to develop material and product that will in turn support communities.

Tama Art University believe that it is vital in the field of Art and Design to re-examine the relationship between people and nature, they understand that studying environmental issues must be part of the regular curriculum. Supported by the Ministry of Culture, Education, Sports, Science and Technology and the government of Haiti, the project was to consider the use of fibre from banana tree branches to design environmentally friendly products. The goal was to produce commercial products that would contribute to a more sustainable world as well as cross cultural communication through the introduction of specific design and technological information that could be used in developing countries.

The students learned at first hand from one of Japan's living national treasures about the tradition of producing basho cloth, a woven cloth made from banana branch fibre used for kimonos. They also had specialist instruction on the extraction of the fibres and making paper. Their final designs included fabric, clothing and products which were beautiful, desirable, innovative and useful. The traditions of textile manufacturing techniques were evident but the concepts were based firmly in the 21st century.

They have now taken this project out to the Phillipines and weavers there are developing a small industry using the students' designs.

The educational environment is a good place to experiment with these ideas. Students can work with industry to test the significance of their design concepts, whilst educators can talk about cultural and material values.

The reason for a physical materials library is the need for Architects and Designers to see and touch the materials. Many of these materials although fully tested are at an early stage of their development. Designers understand about taking a risk and trying new things. Within this library at Kingston University they can make connections between different materials and processes.

Results
The benefits of the library being part of an educational institution.

It was interesting to note that most of the interviewees on the research project had links with education and felt that it was a vital part of their work. I certainly would have found it hard to develop this library outside of the educational system. It has given me plenty of opportunity to test this resource, whilst not being under pressure initially to make a living from it.

The benefits of housing this materials library within Kingston University are not only educational. The tactile and aesthetic qualities of these materials seem to give groups and communities a common focus.

MADE workshop at the Royal College of Art, London

We ran a workshop with educators and the industry including BAA and Samsung to explore the potential of a material, at an event organised by the Materials and Design Exchange (MADE) at the Royal College of Art in London. Each participant had 15 minutes to create a product from this packaging material, Bioviron, made from corn starch. This is used for food packaging by the US navy on their submarines. When the food is unpacked, this packaging can be thrown into the sea and will dissolve with no detrimental effect to the sea life.

The participants found this tactile material easy to manipulate. The different strengths and weaknesses and the story behind the material seemed to inspire them to treat it very carefully. They paid great attention to detail and were determined to create little waste. This workshop gave the opportunity for much fun and laughter which certainly helped everyone engage with these ideas.

Dovehouse School, Basingstoke.

"I can't express just what a difference it makes to our children having new and exciting people in to work with them and bring them new experiences." Hannah Stroud, organiser for the Eco Day at Dovehouse School Basingstoke 20/0709.

Invited to run a workshop as part of Dove House School's Eco day, we used the same material, 'Bioviron'. This is a specialist secondary school for autistic children. They bought in examples of rubbish and were fascinated to see the sorts of materials that they could be turned into. You cannot underestimate their powers of imagination. Despite the bland aesthetic of this material it seemed to release all sorts of ideas from; 'this is a present for my mother' to 'I am a ninja' and again a careful engagement with detail.

The educational opportunities that have arisen from being able to share the resources of a physical materials library.

The Product and Furniture Design degree course at Kingston University builds upon a long and symbiotic relationship between international research, education and industry and celebrates the cultural diversity afforded by these collaborations. The course has a well established strand of live projects with industry many of which have been inspired by a desire to connect with the sustainable materials information within the REMATERIALISE library.

Connecting with industry
Coillte

"We see it as one of our key responsibilities to share the knowledge that we have from within the forest products industry and to play our part in the process of inspiring students who will become talented future designers." Geoff Rhodes, Marketing and Business Development Director, Coillte Panel Products, Southern Ireland. 2009

Coillte Panel Products invited the Product Design students over to Southern Ireland to experience at first hand the complete production processes of one of the largest suppliers of medium density fibreboard (MDF) and orientated strand board (OSB) worldwide. They gave a passionate, comprehensive guided tour from felling young trees in the sustainably managed forest to compressing the fibres in the factory to produce the final boards. They then gave the students a design brief to use these materials in a design proposal for a food outlet at the 2012 Olympic Games.

"I gained the true knowledge of how these particular materials were manufactured and now have a better understanding of how they use sustainable forests." Christina Hoyte, Product Design student, 2009.

The effect of experiencing the whole manufacturing process was extraordinary. The commitment to sustainability and the scale of operation left one with a deep and new respect for this timber. The students understood the real value of the boards and the time and care that it takes to produce them. In turn they worked hard to develop their design concepts as a means to express their gratitude for this unique opportunity.

Marks and Spencer

Sustainable materials consultancy with industry has given students educational opportunities and generated manufacturing business enabling the REMATERIALISE library to close the loop between environment, industry, education and social inclusion.

At the end of last year we produced a report for Marks and Spencer (a major retail outlet based in the UK) about materials that use less virgin resources that could be used for the interior fit out of their new headquarters in London.
This was successful on several levels:-
•The architects convinced by our presentation, changed their material specification.
•This generated business for materials manufacturers included within the library.
•This gave the manufacturers confidence in the library and they now come and show us their new materials straight away. They are keen to have them featured in the library.
•Because they were excited by the success of the work, Marks

and Spencer set the Product and Furniture Design students a project to design environmentally concerned seating for the reception area within the new offices.

The outcome of the student work was that two winners will develop their seating and eight students including the winners were given work experience in their offices.

This is an example of these materials giving rise to some really beneficial collaboration and experience.

Discussion
How a physical materials library can be a driver for social innovation.

The library has given us worldwide connections with interested parties. In the short time that it has had a dedicated space within Kingston University it has been visited by architects, designers, manufacturers, librarians, researchers and journalists from Europe and Asia.

"You have really opened my eyes and given me a lot to think about. We would like to continue our association with your library." Mark Myers, Willmott Dixon Architects 28/05/10

When architectural companies have visited recently, I have been able to introduce them to the library. It is not only the opportunity for these people to see and touch the real materials, but the stories behind the material developments that help them to understand that they can make an environmental difference with their work. They are excited by the aesthetic potential of the materials and inspired to develop ideas of their own.

This is why the materials library has become part of the design ethos at Kingston University and has had an impact upon the students' work. Here are two final examples of products from the recent Product and Furniture Design BA Hons. Degree show.

Here the student was concerned about extending the products life. What if you re-glazed these products which are in good condition and still useable? Could it make them look more modern and desirable?

This student discovered that sheep's wool was being burned by farmers as they can no longer earn sufficient money from selling it. Here suddenly was a cheap material with huge potential. She developed the tools to use this material in a different way, designing a special glove to felt the machine carded strips of wool into tubes. She then made a giant wooden crochet hook in order to crochet a rug from the tubes. This is a business that she intends to develop and is currently looking at the potential to use the process in furniture.

This research has highlighted the creative and economic value of multi-disciplinary collaboration. I am interested in the enduring connection that people seem to have with materials and excited to see how concern for the environment, combined with innovative use and manufacture of materials has captured the attention of industry, leading to new opportunities for economic support within communities.

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Melike Tascioglu
First Things First at Last:
Questions on the Education of a Socially
Responsible Graphic Designer

Abstract

This paper examines how social responsibility of students can be improved in graphic design education within the scope of the course "Graphic Design Theory and Research" taught in Anadolu University Faculty of Fine Arts Graphic Design Bachelor's program, in which the third year students are introduced to the social and ecological role of a graphic designer.

The course starts with the reading and discussion of "First Things First" manifesto written by Ken Garland in 1964 —later revised and signed by well known designers and communicators in 2000—. The majority of the students do not have any previous knowledge about the manifesto.

Although students have a hard time understanding what they are reading at first (mainly because the article and the course is in English), the manifesto, together with the following articles to be studied on the following weeks (which are Investigation of Social Role of Graphic Designer, Discussion of Sociocultural Effects of Visual Communication, Graphic Design as Art, Citizen Designer, Designer as Author, Designer as Activist, Sustainability and the Ecological Role of Graphic Design) make a significant impact on the students by rising awareness on the power of visual communication and its global efficacy.

Introduction

With the strong influence of consumerism, graphic designers exercise to find new ways of communication. The demand from the industry pushes designers to work on the form and find new ways to attract the target audience. The content on the other hand is usually neglected.

Graphic design education, in general, concentrates on educating the eye and producing what communicates right with the eye. During a typical bachelor program, projects that simulate real life design problems are given to students to help practice the profession, as well as the instinctive behavior of using design elements in ways to help communicate more effectively. Typography, editorial design, packaging design, web design are the quintessential paths in graphic design education. However, this list has a missing part that is theory, not art theory or history of graphic design, but graphic design theory education.

"The question than is: what are graphic design's theories? It can be argued that the art-based principles of graphic design —including but not limited to contrast, hierarchy, repetition, alignment and color— are in fact theories proven through a long history of successful experimentation in practice. … [W]ithin the discipline of graphic design these principles are not regarded as "proven" theories because graphic design historically lacks a strong research agenda. On the contrary, graphic design — partly because of its arts affiliation —has developed a reputation as an intuition-fueled practice, based primarily on talent" (Bennett, 2006).

Of course, the theory of graphic design is not limited to basic principles of design. The force of visual communication needs to be well examined, and to do this, sociological, physiological, political and geographical facts should be taken in.

The contemporary theory of graphic design involved the "new rigor called 'authorship' " states Steven Heller in the introduction of the book "Design Studies". Heller (2006) defines that the designer as author creates self-generated work that sidesteps the typical client brief, as well as an umbrella for free thinkers, but more importantly, the force that influence designers to be "creators rather than mere packagers of content".

Developing an awareness of the problems of graphic design and understanding what graphic design really means is important. This is true for many professions of course, and graphic design is just one of those professions. It is however, an important one because it is manifested everywhere in our daily lives. It is the most significant tool of communication and visual communication is the biggest weapon of commerce as well as a cultural force with a major potential. For this, it is vital for designers (or designer candidates) to be aware of the power they have before letting others use it.

The power of visual communication when perceived solely as the power of commerce making is superficial. Research and criticism towards what visual communication is —or can be— is necessary. In the era of graphic design explosion, and at the time where every corner there is a training programme for graphics, universities should take a step forward in graphic design education by emphasizing theoretical and critical education.

Inspired by Massimo Vignelli's credo that there would be no serious design without serious design criticism, The "Looking Closer" series, published by Allworth Press and edited by important critics and writers on graphic design such as Michael Beirut, Rick Poynor, Steven Heller aims —as explained by its editors— "to identify new writers with a distinctive and critical voice who can help [graphic designers] better comprehend the work [graphic designers] make" (VIII, Looking Closer 5). The series were published in years 1994, 1997, 1999, 2002, 2007 and they form an anthology of critical writings about graphic design that covers 254 essays by 165 writers. The series, together with many recently published design theory books, form the strong base to add design criticism to graphic design curricula in universities.

Graphic Design Education in Turkey

Turkey, with a growing young population and large economy has become competitive in cultural, political and industrial aspects. The worldwide attraction to the power of visual communication and hence the graphic design education is strongly recognized in Turkey. It is indicated in Bilkent University Department of Graphic Design's web site that "Turkey, in recent years, has witnessed an explosion in advertising and communication that has resulted in the emergence of an aesthetic awareness in both the public and the private domain. There is a growing demand for well-educated designers in all aspects of visual language and communication."

The education programs of institutions match one another despite the slight differences in methods and output. Looking at the course schedules of the institutions that provide graphic design education, one can state that education towards practice is highly valued while theory courses are taken rather lightly. The theory courses are generally art history, art theory. Even, History of Graphic Design course is neglected in some institutions. It would not be wrong to say that there is a gap in the theory education of graphic design.

The leading Fine Art Faculties that offer graphic design programs in Turkey provide major courses by important designers and educators. In Mimar Sinan University (Istanbul) for example, the basic elements of graphic design and fine arts are taught for the first two semesters, and lessons of graphic design begin in the 3rd semester and are based upon the production of projects defined within a certain subject each semester. The programme is built up as follows: 3rd Semester: Design of corporate identity, 4th Semester: Design of brand and product identity, 5th Semester: Publication design, 6th Semester: Marketing communication design, 7th Semester: Environmental design and informative design. (http://www.msgsu.edu.tr/msu/pages/474.aspx, 06.06.2010)

In Marmara University Faculty of Fine Arts (Istanbul) the Graphic Arts Department program consists of Advertising Graphics, Packaging, Publication Arts Design, Periodicals, Illustration, Lettering-Typography, CompuGraphic Arts, Print-Art (engraving, lithography, serigraphy, mono-print, wood-cut, linoleum), TV-Art, Photography. Courses such as Turkish Art, Advertising Principles, History of Philosophy and Foreign Language Courses also cover the program. (http://gsf.marmara.edu.tr/index.php?bolum=2&dil=en, 06.06.2010)

Bilkent University (Ankara) Department of Graphic Design's undergraduate program consists of a two-phase curriculum. The first two years constitute the initial phase. A broad based curriculum during the first year exposes the students to fundamental art and language education as well as courses in Art History, Art and Culture and foundation studio art classes. The second year is made up of more intensive studio classes in Visual Communications, Illustration, Photography, Computer Graphics and Video Technology and Production.

The last two years comprise the final phase of the Graphic Department curriculum, where the student may choose to concentrate on Visual Communication Graphic Design, Illustration or Media Technology and Production. In-depth theoretical courses such as Analysis of Artwork and Philosophy are offered, in addition to a comprehensive array of electives that support and enhance the core curriculum. (http://www.art.bilkent.edu.tr/graphic.html)

Sabancı University Faculty of Arts and Social Sciences (Istanbul) offers theoretical courses such as "Visual Culture", "History of Visual Communication", "Concepts and Debates in Contemporary Art", "History of Electronic and Digital Arts", "Art Analysis: Theory and Criticism" in the Visual Arts and Communication undergraduate program. (http://fass.sabanciuniv.edu/vacd/eng/)

Established in 1997, Istanbul Bilgi University Department of Visual Communication Design aims at educating the designers of tomorrow with the expertise to conceive the most compelling visual problems then dwell upon them systematically, applying their practical media skills together with theoretical knowledge so as to offer creative solutions. Among the theoretical courses, the course" Digital Literacy" which intends to provide first year students with the basic skills of visual thinking and the key concepts of visual language. The course is equivalent to most basic design course in other institutions. "Contemporary Media Aesthetics" introduces third year students the various forms of contemporary media with a syllabus that covers topics such as land art, painting, cinema, animation, music, video art, advertisement and computer art. "Cyberculture" course studies the emergence of new media as an international art movement and the changes in cultural codes and daily practices. (http://vcd.bilgi.edu.tr/2009/index.html)

Looking briefly to the curricula of some of these leading design schools in Turkey, it can be noticed that there is a gap in Graphic Design Theory and Criticism. Although there are theoretical courses offered, they usually provide art theory, analysis of artwork etc. The emphasis is strongly on the practical side, and the education program focuses on production methods than

methods of creative thinking.

 This gap, of course, has a reason behind it. The missions of these schools are to provide education towards employment. Since the fast growing graphic design market needs more employers, the schools need to provide this. The important point is the lack of options of the graphic designer. Most graduates find a job in an advertising agency (if they are lucky) and in the agency they "do not really need" theory.

Not every designer can be on the cultural cutting edge, of course, but few want to be considered production slaves either (Heller, 2006). To prevent this from happening or to at least give a hint to future graphic designers that there could be other choices out there than making global companies earn more money, criticism in graphic design is vital.

Graphic Design Theory in Anadolu University Faculty of Fine Arts Graphic Design Department: Introduction of First Things First Manifesto

Anadolu University is one of the largest universities in Turkey. It is located in the city of Eskisehir, one of the fastest growing cities in the country. The graphic design department is one of the most popular schools in Turkey for the students who wish to study graphic design. Department of Graphic Design — founded in 1985— aims to educate creative designers who are able to solve any kind of visual communication problem and who have the proficiency to use the contemporary facilities efficiently. (http://grafik.home.anadolu.edu.tr/grafik/About.html)

The new "GRA330 Graphic Design Theory and Research" course in Graphic Design Bachelor's program is offered for the first time in 2009-2010 academic year in Anadolu University Faculty of Fine Arts aims to bring a new perspective to the program. The course introduces third year students to social and ecological roles of a graphic designer as well as providing a platform for design criticism for graphic design students.

The course starts with the reading and discussion of "First Things First" manifesto written by Ken Garland in 1964 and later revised by a group of international graphic designers in 2000 (Garland, 1999). It is important to state at this point that the majority of the students did not have any previous knowledge about the manifesto. When asked on the first day of class, it is found out that only 1 student out of 18 had heard about the subject. The students' average level of English is intermediate and therefore it was a challenge as well as a shift in the comprehension of graphic design for the students.

The readings started with these two paragraphs:

"We, the undersigned, are graphic designers, art directors and visual communicators who have been raised in a world in which the techniques and apparatus of advertising have persistently been presented to us as the most lucrative, effective and desirable use of our talents. Many design teachers and mentors promote this belief; the market rewards it; a tide of books and publications reinforces it.

Encouraged in this direction, designers then apply their skill and imagination to sell dog biscuits, designer coffee, diamonds, detergents, hair gel, cigarettes, credit cards, sneakers, butt ton-

ers, light beer and heavy-duty recreational vehicles. Commercial work has always paid the bills, but many graphic designers have now let it become, in large measure, what graphic designers do. This, in turn, is how the world perceives design. The profession's time and energy is used up manufacturing demand for things that are inessential at best."

These two paragraphs are probably the first and most shocking reading of the course for the students. In the education of graphic design, the aim is always to push the limits of graphic design to find the better. The results of design work have always been charming and beautiful. The importance of graphic design and its products has been an unchanging fact with no opposition. This paragraph on the contrary, introduces the students with the negative side of the profession. It states that graphic designers use their efforts to create "inessential things".

Since the text is in English, it takes time to read the text in class. One by one, reading every word, sometimes looking up for the meaning in the dictionary, slowly concludes by understanding the sentence. As sentences follow up, the meaning starts to make sense. Students start for the first time to understand what they do is not just creating a visual product. They start to see further in the timeline. They start to think about what's happening after the production. They —probably for the first time during their education— think about the social consequences of what they do.

"Many of us have grown increasingly uncomfortable with this view of design. Designers who devote their efforts primarily to advertising, marketing and brand development are supporting, and implicitly endorsing, a mental environment so saturated with commercial messages that it is changing the very way citizen-consumers speak, think, feel, respond and interact. To some extent we are all helping draft a reductive and immeasurably harmful code of public discourse." (Garland, 1999)

The following paragraph also brings a slight disappointment to the students. The future professionals in class, whose aims and hopes are becoming successful in advertising, marketing and brand development suddenly come face to face to the fact that these areas of design can be harmful, and are not respected by the authors of these manifesto. This is a strong impact among the students. They question their future career and try to find out what is right if these were all wrong. The answer appears as the reading continues:

"There are pursuits more worthy of our problem-solving skills. Unprecedented environmental, social and cultural crises demand our attention. Many cultural interventions, social marketing campaigns, books, magazines, exhibitions, educational tools, television programmes, films, charitable causes and other information design projects urgently require our expertise and help."

Discussions were held in class to furtherly understand what is wrong and what can be done. It became clearer that priorities of graphic designers should be reviewed. Some students asked how this can be done, some answered they have to do this even if they earn less money. Most students got confused at the end of the course thinking what is good and which way they will be choosing in the future. Group discussions continued with

ideas and comments about the choices the future brings. The general idea was to do advertising in an agency to pay the rent and if any time is left, help social campaigns pro bono. The most common idea was that this will be a harder thing to do.

After finishing and understanding First Things First 2000, further readings on First Things First, such as Rick Poynor's "First Things First, A Brief History" (1999) and Michael Beirut's "A Manifesto with Ten Footnotes" (2000) were done in the group together with new discussions. Michael Beirut's article shows what is missing in the manifesto. It looks at the manifesto in a more realistic way and attracts attention to some missing points of the manifesto.

Findings and Discussion

The assignment after 3 weeks of reading and discussion on First Things First manifesto was to write a short paper in class in 15 minutes of time about the manifesto and describe it in their own perspective.

Here are some —grammatically uncorrected— sentences from students' essays:

"First Things First is a manifesto which is published by Ken Garland. It is mention about purpose of graphic design. He said that graphic design is not just for make something flashy. You can sell your product easily thanks to graphic design but it is not all. There are 2 meaning of graphic design. Graphic design as persuasion and graphic design as communication. It helps people to find their way. ... Graphic design must be different from just consuming." (Selma Gurani).

"Being a graphic designer doesn't like a big thing for the people in first case but actually in a way its a huge responsibility for designers. So "First Things First" manifesto is something that reminds designers about their responsibilities. Its not just ad business its far far important." (Ilkay Berk Gul).

"First Things First is a manifesto about design. People discuss and talk about it still. Manifesto says: Design is not only for money, advertising or to sell product. Design is one of the way for to affect people. Designers should use their skills for social projects and campains. They should use design to make everything easier and more clear for people." (Sevil Simsek).

"First Things First is a politic position maybe a defense but in every way it is an explanation. Because they wanted to explain "what they do" of course they were making design but the important thing is "design for what" or "who I am for this design". Design should be in humanist and conscious way. However, sometimes they had a discuss between each other even they have the same view because this manifesto is necessary thing for designers but also it might be un employment for the people." (Pınar Ulus).

"In the 60's when the industry getting blooming and there were lot of customer who just want to buy, buy, buy, the industry need lot of designer for advertisement, packaging, brochures. But these weren't so exciting for designers. And people forget they are some kind of artist not just workers and they need to express themselves. And there are some many areas that need design also not just the commercial things. So they decided to publish a manifesto because these designers wanted to make the people's life and envoriement better and nicer and more beatifull. And wanted to make great works that has idea and meaning. It written twice because there were some same problems in the field of Graphic Design in 2000's like 1960's. And I think there will be another First Things First manifesto soon." (Réka Fignar).

"First Things First" is a manifesto, written and signed by graphic designers, and directors and visual communicators. It was published by Ken Garland in London 1964. The main idea of the manifesto is role of graphic design. Graphic designers job is to communicate visually. This can be used on selling products, but also need to tell people something about climate change, nuclear reactors or other social campaigns. Graphic designer need to give necessary information, and must not lie about a product, or an information which needs visual communication." (Z. Gokhan Apaydın).

"First Things First is a manifesto that was published by Ken Garland in 1964. It was about graphic design. According to manifesto, graphic design doesn't have to be for earn money. Sometimes, it should be help the world and people without expectation like money, career etc. I think, every designer must have responsibility about their countries, people or world's problem. And they should try to solve these problems. If I lived in 70's I would signed it." (Funda Akman).

Other articles on graphic design criticism are studied on the following weeks of the course consisting of subjects such as Investigation of Social Role of Graphic Designer, Discussion of Socio-cultural Effects of Visual Communication, Graphic Design as Art, Citizen Designer, Designer as Author, Designer as Activist, Sustainability and the Ecological Role of Graphic Design. "Green Graphic Design" by Brian Dougherty published by Allworth Press, "Do Good Design" by David B. Berman published by AIGA were two of the main books of reading together with the "Looking Closer" series.

A problem that was faced at this point was the fact that these books were not distributed in Turkey. The lack of resources in Turkish language of critical writings on graphic design forced the readings to be made in English, but the books in English were not available for the students either. The solution unfortunately was to take limited photocopies of only essential readings.

At the end of the GRA330 Graphic Design Theory and Research course a questionnaire was answered by the students. They answered casual questions such as "What have you learned during this course? Were the topics interesting? Were the topics useful for your future career? Do you think graphic design theory education is important?" as well as writing suggestions to improve the course.

Some of the —grammatically uncorrected— answers to the questions were:

•I learned I can change the world with design.

•I realized graphic designers have to think world and environment during to design. I will be conscious graphic designer in future.

•I think graphic design theory education is very important. All graphic design students can design but a lot of students do not know what is graphic design, how they use power of design

for changing world. This education provides graphic design students can realize power of graphic design.

•I believe that this course is very important for graphic design education. I think theoretical training is as important as practical training.

•This course reminded me something that is important.

•Green design and first things first manifesto will be useful for us. And a sentence, which is "ineffective design is waste", will be good example for my future life. I will always remember it…

•Graphic design theory education is very important cause we are studying 3 years and there were no lesson to teach us news about graphic design all over the world.

•Taking this course has changed my ideas about being a good and successful designer.

•The topics made me realize how important my existence was as a young graphic designer. I will never forget my responsibilities to the world I live in.

•I have learned about the problems that the designers are responsible for, but also designers could solve them.

•We are not craftsmen. We are trying to be designers. We are looking forward to new ideas to be a designer. And I believe that theoric lessons contribute ideas.

•Actually at the beginning, I didn't have the information about these books and some designers also. So, this course helped me to understand graphic design in another and sensitive way. Secondly, I think, making conversations and presentations is very obligatory thing for a student and I'm glad to made it.

The answers to the question "How can this course be improved?" had similar answers. Students replied mostly by the same comment that it would be better if there were Turkish text readings as well. Other and similar comments were;

•This course can be improved by more visual examples, source books and conferences of good graphic designers about course topics

•The topics are so important, but sometimes I need heard Turkish. Then maybe I can understand better.

Conclusion

In conclusion it should be stated that in Turkey, among many successful universities that provide graphic design education, courses on theory and criticism of graphic design can add a very different perspective to the students. This way, the possibility will be given to students to add something beyond consumerism to the world of graphic design. Soon, young writers can emerge who works on graphic design criticism. The gap of graphic design theory resource can decrease by new publications, both by students, professors or future designers.

The research made in this course had been a point of departure for further steps towards this direction. It was interesting and motivating to see even in about 12 weeks, the written and spoken English of the students improved when comparing the first quotes from the students with the questionnaire and the class discussions. This improvement puts support behind the idea that the course —or similar courses— can continue and help improve design literacy both in foreign and native languages. Although to solve the problem of resources, translations must be made. Class readings should be prepared solving copyright issues.

Graphic design education can lead a new generation to solve global problems instead of being a vital part of the problem. Graphic design criticism makes students question the social role of the graphic designer and can make a great impact on the students by rising awareness on the power of visual communication and its global efficacy.

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Image

**Fig. 1: Some of the students from class GRA330 Graphic Design
Theory and Research.**

Scott T. Boylston

Deconstructing Demolition:
Emergent Structures in Material Re-use and Social Innovation

Abstract

When an American city announced plans to demolish over 200 mid-century houses, The Emergent Structures Project was conceived as a means of not only harvesting this wealth of materials—which would otherwise be landfilled—but of nurturing community innovation in the process. As the salvage and distribution of the materials transpires over the next 18 months, the adaptive re-use projects are being recorded by a team of photographers and filmmakers. Site visits, interviews and photo documentation will be conducted. In 2011, a gallery show and photo exhibit will be held in conjunction with an international symposium highlighting this community-wide endeavor to reduce material waste, to reinvent the meaning of material adaptation, and to develop best practices.

The deconstruction and reclamation will be supervised by demolition experts, and will engage a broad cross-section of the community, members of which will be asked to work for a day before they haul their materials. We have also partnered with local farmers to build greenhouses, and tool sheds for community gardens. Furthermore, we will aid local entrepreneurs in building business models that take advantage of their personal craft and design skills, and supply them with the material they need for a small-scale production line.

A holistic, equitable, and environmentally sound strategy for productively deconstructing America's unwanted building stock is needed, and that strategy, from one city to the next, must be native to the place. A flexible framework for broad-based community activation can transform what would otherwise be a somber occasion (and one that is profitable only for a few) into one that transcends habitual boundaries of meaning between diverse communities, non-profit organizations, government agencies, and private corporations, and spreads the economic wealth resulting from the re-use of reclaimed building materials. We are prototyping this model in Savannah, Georgia, and developing a toolkit and roadmap that can be duplicated in communities across America. Through thorough documentation, best practices toolkits, and innovative benefit-sharing models, we will export this model to cities and communities in search of more sustainable solutions.

In what would otherwise be an environmentally costly and socially traumatic process of demolishing and landfilling an entire economically depressed neighborhood, a network of creative individuals is coordinating the efforts of city agencies, non-profits organizations, large and small businesses, local universities, community organizations and individual craftsmen in an attempt to reinvent our culture's appreciation for the value of reclaimed building materials. Through this process, numerous small business opportunities will be developed ¬for various local craftsmen, carpenters, and furniture makers, and help shape our perceptions of the nature and value of green jobs.

This large-scale reclamation project—which can be understood as a community-based material harvest—is being executed by a diverse array of contractors, engineers, designers, architects, artisans, volunteers and laymen, with the intention of creating an international model of collaborative material re-use. The goal is to coordinate the salvage and distribution of as much of the building materials as possible, and to record the numerous innovative re-use projects that transpire over the ensuing year or two. Site-visits, interviews and photo documentation of individual projects will be conducted to record the process. Significant contributions at all levels has come, and will continue to come, from classes being taught in the Design for Sustainability graduate program at the Savannah College of Art and Design.

Finally, on a day that coincides with a date relevant to the completion of the new neighborhood development, a gallery show of objects and structures that have been created with the salvaged materials will be held in conjunction with a symposium focusing on this community-wide endeavor to reduce material waste, to reinvent the meaning of material adaptation, and to develop best practices, and inspiring case studies.

Background

In 1943, 750 apartments were built in the Savannah Gardens area of Savannah as housing for World War II ship builders. Originally named the Josiah Tattnall Homes, these 'demountable' homes were intended to be dismantled after the war. Instead, shifting from property owner to property owner, they were renamed Strathmore Estates, and steadily fell into disrepair. In the 1990s, 370 units were demolished to make way for Savannah High School. In the years since, buildings have been demolished intermittently. Several years ago, Community Housing Services Agency (CHSA), a non-profit, government-based agency, purchased the housing project to prevent high-priced developers from building expensive housing and gentrifying the area. The remaining buildings are slated for demolition in 2010/2011, and the ensuing redevelopment will be mixed-use and mixed-income: housing and 'light' commercial buildings that are environmentally sustainable and economically affordable for residents within the surrounding community. They are pursuing Earth Craft certification (similar to LEED certification from the US Green Building Council, only the certifying body in this case is the Southface Institute), which creates real incentives for them to innovate on numerous levels, including waste diversion.

The Emergent Structures Project originated as the result of a meeting convened by The Creative Coast Alliance (a regional economic development agency) between three local sustainability leaders and the city agencies and contracted planners and engineers responsible for the redevelopment project. When it became apparent that there was a need for diverting demolition waste from the landfill, the offer to explore alternative means of tending to the unwanted buildings was entertained.

A Pressing Need For Innovation

The US Housing and Urban Development Department (HUD) estimates that over 230,000 public housing units are already scheduled for demolition[1]; every major city in America is confronted with knocking such housing projects down. These cities can either rely on the wasteful, demoralizing, and ecologically unsound practices of waste-to-landfill demolition, or they can engage in a value-based system of full community integration. The reason why so many references are Americentric is that this country has a unique problem with its relationship to housing; we build and build and build, then we demolish, demolish and demolish, often with little regard for durability or functionality. This is an aberration within the broader world view of human shelter, and one that must undergo a paradigm shift (for its own reasons, but also before it spreads), but one whose significant downsides must be addressed immediately even as we advocate for a rejection of this model altogether. In other words, by developing innovative reclamation models we do not aim to enable more unsustainable building, as much as aspire to clean up its mess on the way toward a more comprehensive, durable built-environment model.

With recent developments such as Presidential Executive Order 13423 (2007) that requires all federal construction, renovation, and demolition projects to achieve a 50% recycling rate (where markets or on-site recycling opportunities exist)[2] have

signaled to the industry that reclamation is finally moving higher up on the country's priority list. Organizations such as the US Green Building Council, Planet Re-use and the Building Materials Reuse Association are raising awareness and developing small-scale, limited-scope models for individual building deconstruction, and the US Military has recently deconstructed World War II era barracks with an eye toward the quantification of value. This is an idea for its time, but an idea without a clear master plan or inspiring and informative demonstrations...as of yet.

Material reclamation has always been a part of the building demolition process—and, in deed, it has been an integral part of the process until the last half century in America—but it has been minimal in scope and quantity in recent years, and of low enough priority to be dropped at the first sign of complication. Community-based deconstruction, however, has no real modern precedents, especially when executed at such scale. Bringing the full force of higher education resources has also not been a part of this equation, although many prestigious universities offer significant R&D capabilities to government and private partners in fields such as engineering and science. In fact, the essence of this idea is to weave together the many individual focuses and efforts of a broad array of already existing non-profits and commercial entities, and parlay that existing energy into an unstoppable force.

New Structures Emerge

As described within a 2009 US EPA report, 19 million tons of residential and 65 million tons of nonresidential demolition materials were generated in 2003[3](latest data available). Studies have shown that the deconstruction of a single 2,000 square foot house would provide an estimated 37 more worker days at a living wage than demolition and enough lumber for the construction of 660 square feet of affordable housing.[4] Green jobs apprenticeship programs provide another opportunity to take at risk youth off the streets, and teach them valuable job skills. The promotion of locally crafted products from locally harvested materials provides a convincing antidote to the ravages of globalization, and could demonstrate the very real value of broad-based collaborative engagement in concrete, financial terms.

From the beginning of this project, it has been understood that the building materials in Savannah Gardens are considered worthless to most. It's hard not to come to a similar conclusion after any cursory visit to the site. And while taking some pictures of trusses and studs and posting them online can provide a glimpse of where the opportunities lie, Design for Sustainability students spent over five weeks taking meticulous measurements of a Savannah Gardens duplex, and poured that data into a 3-D modeling program (figure 1). The goal is to use these measurements, and the interactive 3-D model that has resulted, as a tool to facilitate awareness of and interest in the sequestered building materials, and to provide us with a tool that can allow us to determine deconstruction schedules, collaborations, and techniques in a systematic fashion.
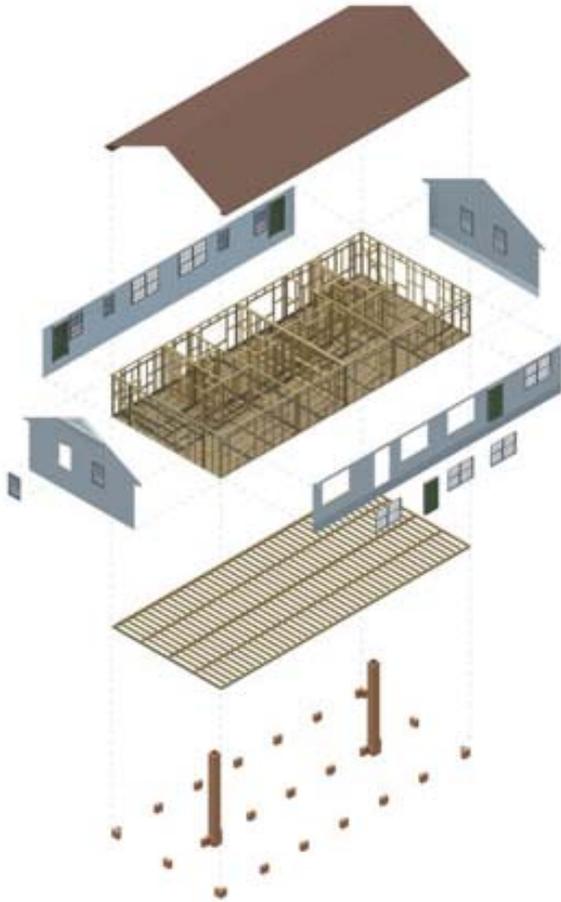
The data and resulting visual diagram these students have created make this project more viable than many skeptics thought only a few months ago. Each duplex contains a minimum of 1,680 sq ft of asphalt shingles, 2,368 sq ft of brick, 30 typical unbraced gable trusses, 350 king studs and 84 twelve-foot floor joists. This does not include the substantial square footage of tongue and groove roofing. And the majority of the wood mentioned above is old growth heart of pine, the majority of which is in exceptional shape. Despite the exterior appearances of significant decay in the neighborhood, this strong and very rare wood has withstood the ravages of time. Site visits coordinated for various partners have resulted in nothing short of astonishment when the quantity and quality of well-preserved heart of pine was revealed. This kind of advocacy alone has dramatically shifted the perceptions throughout this city, and has generated a buzz in various sectors. In our shift toward re-examining the value of our waste streams, we not only need theories, demonstrations and business models, we need an array of visual reminders, and logos can be a powerful means of highlighting, and in deed, legitimizing the value of optimizing waste streams. With this in mind, a mark that can be applied to

reclaimed building materials once they have been re-purposed has been created. (figure 2).

The 3-D model and the accompanying data will help develop more targeted 'shopping' opportunities for anyone interested in bringing a deconstruction plan to the table; to devise strategies for creative collaborations between businesses and non-profits. Such a concise catalog of materials will remove some of the unknowns from the process, and thus reduce barriers to participation. We understand there is a big difference between cataloging materials, and effectively recovering them. But as we continue to devise recovery strategies, this cataloging system has inspired people to think differently about the materials at Savannah Gardens, and has altered their perceptions of what is possible.

Quantifiable results will range from artifacts to metrics. A major set of data that will be calculated is the amount of material diverted from the landfill. This will be recorded in tonnage and, where applicable, board feet. Cost analysis of labor and equipment for deconstruction will also be conducted with an eye toward sharing this data with the construction industry. This data will also be compared with other data that has been collected in this young area of research, such as the aforementioned US Military projects. Greenhouse gas estimates will also be measured in hopes of sharing this information with the City of Savannah for their ICLEI (Local Governments for Sustainability) requirements and guidelines (among other things).

While the weighing of these materials as they leave the site will provide one particular kind of glimpse into the nature of our wasteful ways, a more inspiring set of data will be measured once these materials have been transformed by the community members that receive them. We will be able to juxtapose an abstract number of waste tonnage against an extensive

photographic record of human creativity; this measurement, on many levels, is priceless. Other measurable data will focus on the economic benefits of the apprenticeship program development, and data that highlights Savannah's opportunities in further developing an local craft trade by parlaying Savannah's historic character into deeper appreciation for authentic experiences. This, in turn, will provide a knowledge base for how we can inspire and inform other cities as to how they can encourage local craft movements that are meaningful to their city's identity, thus giving power to the movement to counter globalization, and placing people's destiny in their own hands.

A Wealth of Shared Materials and Knowledge: Partnerships and Projects

Pastor Johnnie Powers is 82 years old, and he designs modular furniture just for kicks. His house was built with brick from demolition sites around West Savannah, starting in 1964. The large-scale demolition that was taking place at the time was carried out to make way for the I-16 flyover that tore the fabric of African-American life along West Broad Street. While this misguided attempt at urban renewal had many negative results, Johnnie Powers and his wife Juanita found one way to make the best of the situation; they harvested discarded bricks from the ruins, and used them to build the house that they themselves had designed in the Carver Heights section of West Savannah.

We're creating the environment for Mr. Powers to run a small-scale production line of the modular furniture prototypes he's created. With several partners, we will design an apprenticeship program for at-risk youth and/or underemployed individuals that will be coupled with a hospitality sector marketing campaign to entice hotels and restaurants to feature the furniture in prominent places. Long-term plans include fostering a local craft center in one of the light-commercial buildings in the center of the redevelopment, and developing a trolley tour that goes beyond the typical Savannah Historic District, and brings people to where the craft is being made.

We are also helping the Girl Scouts of Historic Georgia build an eco-camp with materials reclaimed from the Savannah Gardens site. The year 2012 marks the centennial celebration of the founding of the Girl Scouts of America. As one way to mark the special occasion for the home of Juliette Gordon Low, Savannah, Georgia, the organization is creating an eco-camp. The Girl Scouts of America have a national partnership with US Green Building Council, and Rose Dhu Island has been identified by the Savannah-Chatham County Metropolitan Planning Commission as a high-interest land conservation property, which may make funds available to the Girl Scouts for the development of this project. A 3-day material harvest on the site of Savannah Gardens has already been held, and it yielded approximately 80 functional trusses (figure 3), 3,000 square feet of tongue and groove heart pine panels, and 5 palettes of brick. The event sparked interested not only within the local government for more deconstruction, but regionally and even nationally.

FIGURE 3
Some of the heart pine trusses recovered from the material harvest for the Girl Scouts' Eco-Camp.

Another partnership includes a harvest for a public outdoor eating area envisioned by Thrive Carry Out Cafe. Thrive Cafe is only one of two Green Certified Restaurants (Green Restaurant Association) in the State of Georgia. When they heard about the Emergent Structures Project they inquired about the possibility of having an outdoor eating area created from Savannah Gardens reclaimed lumber. Design for Sustainability students in conjunction with Emergent Structures conducted a public opening and charette that involved the landlord, tenants and customers of the strip mall, as well as county and city officials and staff, and countless others. But the charette, in keeping with the system's view of sustainability was about much more than the outdoor eating area: over the course of a 10-week class, students generated an array of solutions that are both sustainable and practical for the plaza, including greenroofing, permeable paving, composting and recycling systems, and photovoltaic panels (figure 4). Partnerships with private businesses and government agencies have led to broad collaborative networks to execute these projects. The outdoor eating space will be designed and the necessary furnishing will be constructed and installed; but that is only the beginning of the transformation of this prototypical American strip mall.

FIGURE 4

Community members and business tenants participating in the
Whitemarsh Plaza Sustainability Charette

At the broader community level, we have designed 'harvest days' for groups of people to volunteer in the deconstruction process for a day, and in turn offer them access to the materials that were harvested. The day is organized much like a building day for Habitat for Humanity; in fact, their advice was integral to the success of our first trial harvest day. We prototyped this harvest with approximately 20 people. The day began with a one-hour training session, was followed by the closely supervised deconstruction of some of the non-structural elements from a few homes. Small groups were guided through the process (providing educational training) by experts (and such training roles can also be an opportunity for developing teaching modules for future trainers), and at the end of a 6-hour day, volunteers were invited to take what they could haul, leaving the rest to be stored for other uses.

Each individual was given a placard to write down how they would transform their reclaimed materials, were photographed with their materials and their placard, and will be photographed as they complete their artifacts (figure 5). While coordination of such harvest days, and donations of heavy equipment from local construction companies has already been arranged, the need for legal coverage has slowed us from carrying out another harvest day. We have several options for insurance coverage, and at least two more harvest days are on schedule for the coming 6 months.

One of many members who participated in the first building-material community harvest.
After working for a day, volunteers were invited to take materials they could use.

A community organizing tool kit has been created by several students in conjunction with a local environmental justice non-profit (Harambee House), an organization we continue to work with on projects such as lead poison awareness in low-income homes to EPA CARE grants for community garden projects. We are also working with Harambee House to coordinate green-jobs training on the Savannah Gardens site.

On another community level, The City of Savannah's Department of Cultural Affairs is working on a documentary history project of the area in which the neighborhood of Savannah Gardens resides, and we have already been working with the agency leader and the authors of a book that is being written on the history of this area. As they take oral histories and work with a local non-profit to create video montages for an interpretive center project, we continue to col

Pimprea Hiranprueck, a SCAD Photography student, visited Savannah gardens to document the condition of the interiors. A gallery show of her work will help to raise awareness and understanding.

Several artists have visited the site, and are in the process of creating art exhibits that have as their subject some facet of the Savannah Gardens neighborhood redevelopment. One photographer has already developed a photo essay on the abandoned interiors of Savannah Gardens, and we will help her organize a solo show of her photographs (figure 6). This kind of direct work with local artists is at the heart of this project. Artists have the ability to shift an audience's perception of a subject with their insights. We have also had a team work in public school classrooms to create a lesson plan on innovative re-use of old building materials. The lesson plan, which has already been taught to several grade levels and has been presented to the public school board for inclusion in classroom curriculum, makes use of pre-cut materials scaled to real materials at Savannah Gardens as the building blocks for creative thinking (figure 7).

FIGURE 7
SCAD Graphic Design graduate student Renee Malloy with one of several public school classes that engaged in the "Reclaimed Material" curriculum she developed with classmate Veda Nakpurkar.

Finally, as a way to keep momentum going, and to keep

awareness at a high level, in one 24-hour period, we will be coordinating a 24-hour barn razing that will be fully documented. Teams comprised of 8 individuals, working on 4 hour shifts will deconstruction one full house. This will continue throughout the night, with live music and food from local artisans, video projection artists and organic chefs. The entire 24-hour event will be filmed, and time-lapse videos will be disseminated widely. Embrace spectacle as a punctuation on the longer-term projects will provide yet another catalyst for a perceptual shift in the culture, and will keep the project fresh in the eyes of the community and the media.

Conclusion

The development of effective 'bottomfeeders' for the construction industry is a process that is ecological at its core. The Emergent Structures project is waste=food embodied, and it represents what is needed within all technological industries of our time in order for them to become more ecologically benign. This process not only significantly diverts waste from the landfill, but it turns this waste stream into a worth stream, in turn reducing the need for newly manufactured materials. Furthermore, it reduces fossil fuel consumption by minimizing the need for hauling materials to far off landfills.

The Savannah prototype is already 'out-of-the-box' in many ways, and we believe in the value of iterative development, where we learn from our own mistakes as we make them, duly note them, and adapt our strategies accordingly. We understand the need for a learning organism to have the opportunity to respond to negative feedback loops on its way to becoming a more finely tuned process. While barriers certainly exist to the wholesale execution of this project, it has been designed to promote 'modular successes.' A key objective is to help shift our culture's perception of and capabilities for 'harvesting' building materials.

All of these projects have been initiated by the Emergent Structures Project through advocacy via a combination of lectures, community meetings, public talks and aggressive, organizational capacity building on our part. Each project has its own unique attributes. While some will require constant facilitation, others will require a lighter touch. Similarly, while some will take only several months to develop and execute, others are more long term.

One of the many benefits to this process is the flexibility of scale in which it can be applied. The opportunity for 'a la carte' choices—for Savannah as well as for other cities in the future— in which communities can pick one or more of a selection of harvest strategies, can allow for various stages of success, rather than create an intimidating, 'all or nothing' approach. Whether it be a small neighborhood of 5-10 houses, or a large-scale public housing project makes not difference; it is the systems view approach to capacity building.

Notation

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Research on Intellectual Property Management for Social Ventures in Japan

A Tool for Social Innovation

Abstract

This paper explores intellectual property (IP) management and its consciousness of social ventures (SVs) in Japan. Traditional financing and marketing followed by new concept IP management is a key source in the organizations as a way to enhance competitiveness. In this paper's definition, IP is referred to as valued and wealthy information in the organizations. IP management may apply to SV, because it penetrates gradually from the big enterprises to small- and medium-sized enterprises (SMEs) to make them competitive. Surprisingly, there is no literature to refer to about the effects of an IP program for SVs. Therefore, we examined the SVs' awareness of IP and studied some cases. This will show how IP management works in the development of social innovation.

We found from the results of data collected from the questioning of five SVs that they were aware of the importance of IP and their rights. We also found that IP management can apply to SVs to some extent, yet the IP strategy differs from that of other existing entrepreneurs or authentic SMEs.

Keywords

Social Venture (SV), Social Innovation, Intellectual Property (IP) management, Scaling out, License, Franchise, Trade Secret

Numerous studies on social entrepreneurs or social ventures (SV) have been conducted in developed countries like the United States and those in the European Union. However, there are few research papers in English that focus on the development of their Japanese counterparts, partly because they are still in a rather unstable incubation stage and partly because Japanese researchers have a lack of English language motivation. Actually, Japanese society, which is stuck in a sluggish economy, is riddled with social problems that surfaced after decades of single-mindedly pursuing monetary profits and economic growth. This is also true in a global context.

The Organization for Economic Cooperation and Development (OECD) just released an innovation strategy (2010) that is subtitled "Getting a head start on tomorrow." It said that innovation drives growth and helps address social challenges. This means that social innovation precedes or absorbs product innovation and process innovation as implied in Figure 1. Hence, the idea of social innovation or its traction engine's SV is beginning to spread in Japan at a rather rapid pace.

This paper deals with the "Social Entrepreneurship" paper that Roger L. Marten, Dean of the University of Toronto's Rotman School of Management, and Mrs. Sally Osberg, President and CEO of the Skoll Foundation, released in 2007, as indicated in Figure 2. The successful social entrepreneur or SV takes direct action and generates a new and sustained equilibrium.

The motivation which made us interested in this study is this question: Why do promising Japanese youth get involved in social issues and become social entrepreneurs? For example, the "TABLE FOR TWO (TFT)" initiative was established in the spring of 2007. TFT is a Tokyo-based non-profit organization that recruits supporters at 200 cafeterias in Japan who agree to donate 20 cents per meal to the TFT for underprivileged African students when they choose a designated well-balanced meal with a criterion not to exceed 800 kilocalories. The TFT seeks to simultaneously address hunger in the developing world and combat life-style related diseases such as obesity in the developed world. The fact is, most THT members are in their 30s.

Thus, little is known about the status of social entrepreneurs or SVs in Japan. Using a theory from Abraham Maslow's hierarchy of needs, we believe this has much to do with "self actualization." Sometimes money does not matter if you get a sense of accomplishment through your chosen profession. Such entrepreneurs feel good when they contribute to society. It is noted that even a successful young worker with a good job and sufficient salary feels that something is missing in this developed and seemingly affluent society.

Subject of research and background of the study

The next question is, how should we decide the respective subjects? Should we see the apparently appropriate SVs as objective representatives? Unfortunately, we have to say such SVs are still poorly recognized in Japan, and few people can name any existing SVs. This paper sees the SVs as being less-than-10-year-long social enterprises or business-minded non-profit organizations that aim at both financial and social goals. The reason is, when you speak of the term "venture," you feel something new. For this reason, we decided to target relatively young organizations. Also, we chose ten organizations that are listed in a report on social businesses or SVs conducted by Japan's Ministry of Economy, Trade and Industry (2008). Their requirements were as follows:

1. Sociality : The mission of the business shall be to address social problems that need to be solved.

2. Viability: The entity shall convert the mission described above in Sociality into a form of business and the continuous run of such a business.

3. Innovativeness: The entity shall develop new social goods or services as well as mechanisms to provide them, and shall create new social values through the spread of its activities across society.

We added another condition, and that is whether or not they declare "double bottom lines" on their web sites or in some official interviews with them.

It is hopeful that some SVs are profitable when they cultivate hidden niche markets (covered social problems) or develop the competitive business methods. Figure 3 organizes the social issues they tackle or the fields of business. Figure 4 illustrates the relevance of four key players in social innovation. Because of budget constraints and lack of enthusiasm, the public sector has all but given up solving social issues. The other three players should support it to move it forward. As for "Citizen," we should note that they play two roles. One is as a supporter of SVs. They recognize SVs' social values or benefits and support them as human resources. Another is the role of the beneficiary through the purchase of SV products and services. SVs are seemingly considered to be far from Intellectual Property (IP) protection. As we observe, most SVs are lacking in the knowledge of IP, because they have to tackle other managerial issues or chores. In other words, IP management may be a lower priority compared with finance or marketing for the limited human resources SVs have at present. That will lead to my framework of hypothesis and the method of verification discussed in a later section.

Figure 5 indicates two categories of social innovation. We dare to divide social innovation into two categories for clarity. Technology-based infrastructure's innovation is apt to require IP rights (e,g. patent or design patent) like ordinary ventures. On the other hand, the human network's innovation (main player is SV) has much to do with trademarks or copyrights. In some cases, these two sets of innovations interlock each other. This is true of the Grameen Phone or Grameen Danone (Joint Venture).

By the way, what is social innovation? The Toronto-based Centre for Social Innovation (opened in 2004) defines social innovation as new ideas that resolve existing social, cultural, economic and environmental challenges for the benefit of people and the planet. A true social innovation is systems-changing – it permanently alters the perceptions, behaviors and structures that previously gave rise to these challenges. Even more simply, a social innovation is an idea that works for the public good.

You will see that it depends on what the SV finds in the social orientation. Natural-resource-lacking and technology-oriented Japan advocates intellectual property (IP) as a national strategy. This paper discusses IP management that may apply to a "start-up-stage" SV or a newly built hybrid small social business, because it penetrates gradually from the big enterprises (traditional for-profit business) to SMEs to make them competitive, as Figure 6 shows. It is the logical development for the SV to consider introducing IP management. People are apt to regard IP management as a lower priority compared with finance or marketing for the limited human resources SV has at present. We assume the next promising factor is IP for SVs in Japan. The reason is that IP consultant Light Years IP (U.S.A.) has already succeeded in raising African export income and alleviated notorious poverty through elaborate IP management. It is noted that in recent decades the intangible value is the value of non-physical characteristics of a product, such as its uniqueness, reputation or tradition. They skillfully make use of these elements. For instance, the Ethiopian fine coffee sector has been in the news over the last couple of years with a ground-breaking initiative that challenged the existing order in specialty coffee, and to date has brought more than 80 coffee distributers on board. Ogada Tom (2009) explains their IP-driven strategic approach in Figure 7.

Hypotheses Setting and Research Methodology

Thus, it was about time for SVs to apply the IP management. Methodology-wise, to verify this hypothesis, we conducted a one-week-long questionnaire via the Internet in May 2008 plus some follow-up interviews. Since a study of the application to IP management for SVs is quite unique and unprecedented, respective SVs is too specific to generalize. Using this reasoning, the case study method was considered most appropriate.

We asked ten SVs to answer our IP-related questionnaires under the above-mentioned conditions, and we received five replies. The two hypotheses we set are as follows:

H1: An SV is a "social-problem-solution-first, profit-second" organization, different from that of the ordinary "technology-push type" (patent right-oriented, profit-first IPO oriented) venture or SME. It is not aware of the importance of IP rights or IP management (namely, IP creation, protection and usage).

H2: Since an SV thinks highly of the "scaling out" of social business, which means a spreading impact to other unrelated communities or simply the notion of scaling horizontally, it is filled with compassion or magnanimity. If a scaling out or solution to the social problems by others is promised, the SV does not care about IP rights infringement or the presence of "copy-cat," me-to products or imitations.

Profile of the survey subjects (five organizations)

Before going into the substantial discussion, let us introduce the respective SVs briefly.

Motherhouse Company Limited (capitalization: 17.5 million yen, 150,000 U.S. dollars) was established in March 2006 as a fashion apparel maker in Bangladesh. CEO and designer Eriko Yamaguchi, 28 years old, registered Motherhouse in Japan. Currently, they manufacture jute goods in Bangladesh and sell them in Japan. Its products sell well, so this year's annual sales projection is surprisingly 300 million yen (2.7 million U.S. dollars). She found that jute fiber absorbs 5 to 6 times more CO_2 than ordinary plants, which makes it more eco-friendlier than any other natural fiber. Their social mission is to develop apparel products in developing countries and market them to developed countries as a high-quality fashionable brand (not as a subcontractor), thus creating jobs for underprivileged people. The goal is to find and maximize hidden potentials in developing countries and create a world-wide brand from developing countries. The next brand will be made in Nepal. However, the CEO said in May 2009 that even though the sales of jute bags were going well, they were suffering from IP problems, notably "dead copies" or imitations from big corporations.

Madre Bonita (Spanish words that literally mean "Beautiful Mother") was opened in Tokyo in September 1998 as a post-natal, self-care salon with a fitness room for mothers who have just given birth. It was Japan's first physical and emotional post-natal self-care program maker. The founder, Maco Yoshioka in her thirties, officially set it up as a non-profit organization (NPO) in February 2008. Among its clients is the NEC Corporation, which collaborated with Madre Bonita to assist NEC's working mothers. Seminars are aimed primarily at women looking to return to work after having started a family. A hundred women participated in a total of three consecutive specialized seminars that were held at NEC business sites. By leveraging a non-profit partnership to enhance their image, they are trying to increase consumer loyalty and build a positive reputation with prospective employees. In Japan, pregnant mothers are covered by the national care system, but post-natal stages are not. Quite often, new mothers are too exhausted to take care of their newborn single-handedly. In some cases, this can lead to post-partum depression, neglected babies, child-bullying and divorce. New mothers need a strong body and soul to survive. Maco Yoshioka found the mechanism to solve the problems through her experiences and developed an effective program at a reasonable price. As of May 2010, the total number of participants was more than 5,000 mothers. At this moment, Madre Bonita is in the process of training accredited instructors. There are twenty instructors at Madre Bonita salons in various places in Japan. They are all self-employed on the basis of a franchise system in a form of IP management. They currently published an investigation report "Postnatal 'White Paper" to ease mothers' anxiety. It can be called a social innovation.

Irodori (Color Scheme) Co., Ltd. (capitalization: 10 million yen, 90,000 U.S. dollars) is located in a mountainous village in Tokushima Prefecture. It is a seasonal decorative leaves provider that caters to high-end Japanese restaurants. It is significant that most of its 170 employees are elderly people. It gives them

a sense of accomplishment and satisfaction to do work like this. Moreover, it provides work for local senior citizens in the remote and lightly populated town (population: 2,000). It is worthwhile to create new businesses by satisfying urban demand for hard-to-find rural assets. That's why 4,000 people from 37 countries visited there in 2009 to see the operation first-hand. Irodori has registered trademarks, and has tried to get design patents, but in vain. Irodori's annual sales are 300 million yen (2.7 million U.S. dollars).

Tegatari, which means Hand Story, is a welfare business headquartered in Tokyo that is run by qualified professional massagers who cater to business offices. Tegatari literally means communicating with hands. The owner is Masaru Tanabe in his thirties. His social mission is to create employment for physically challenged people, especially deaf and blind people. The "Office Massage" business started in June 2006 as a place where handicapped and non-handicapped people can meet one another. The first company to implement this was e'quipe, a cosmetics manufacturer and sales company. Being able to receive consigned massages within the company as a welfare program, the massage service was warmly welcomed, and it was so busy that reservations had to be made in advance. Its services lead to increasing employee satisfaction and Corporate Social Responsibility (CSR) awareness. Tegatari has tried to acquire a business method patent (application status) and various trademarks to make the business sustainable.

Asaza Fund (Director General Hiroshi Iijima), located in Ibaragi Prefecture, is an NPO. It has eco-friendly multi-businesses like eco-tourism operators and organic vegetable producers. Asaza Fund is equipped with environmental technologies and engineering implemented by a partnership network of more than 110,000 people from public and private sectors. It has aquired some trademarks and patent applications to make its social businesses strong and smooth. Asaza is a brand. with good atmosphere.

Results of SV Survey and follow-up interviews

Table 1 shows the results of the questionnaires for SVs.

As for H1, which is described above, every organization acquired at least some trademarks (IP rights) like an ordinary venture. There is no big difference between SVs and an ordinary venture. Asaza Fund, which has environment-related technology, and Tegatari, which features delivery massage services, are going to get patents that have elements of technology. As stated, they are pursuing a business method patent. The other three SVs are also anxious to get trademarks or branding to make them sustainable businesses. In this way, H1 was clearly rejected when SV was a "social-problem-solution-first, profit-second" organization. In short, they are not managed naively. In other words, they are managers.

In regard to H2 above, the results show that four out of five SVs know the power of IP management that is needed to develop the social business. Some have acquired IP rights or IP management so as not to let a "copycat" competitor do the plausible business because adulteration often deteriorates users' reliance

or its brand identity. Four SVs will conduct concrete countermeasures against imitators. It is safer to say that the acquisition of an IP right is a tool for discretionary decision-making or social innovation. A genuine SV originally pursues "scaling out" rather than "scaling up" as a mission of social innovation. Logically, some social entrepreneurs are generous about a third party's scaling out, as seen in Tegatari's business methods. Others somehow want to get involved in the business directly by working in other areas to develop what they seek to popularize. What's matters is how you concentrate on the scaling-out business.

Madre Bonita has already introduced a form of franchise setup as an instructor's quality control. Motherhouse, Irodori, Tegatari and Asaza Fund hinted at the possibility of the introduction of licensing, franchising, or other strategic IP alliance.

Copycat or imitation competitors often betray their users' reliance or its brand identity. In this process, warnings against easy-going copycats, claims of IP rights or enforcement is possible. It can be said that H2 was also rejected.

Related and Further Discussion

When we discuss the relationship between an existing enterprise that goes social and three other players, we have to touch upon the Eco-Patent Commons, a first-of-a-kind business effort coordinated by the World Business Council for Sustainable Development (WBCSD) to help the environment by pledging environmentally beneficial patents to the public domain. See Figure 4.

Four Japanese corporations out of twelve selected ones, namely Sony, Fuji Xerox, Ricoh and Taisei Corporation, are members of the initiative. Availability of these patents will encourage a few technology or patent-oriented SVs, which are illustrated in Figure 5.

Existing big corporations implement IP management in accordance with the national IP-oriented goal, as Figure 6 shows.

A "Pro-IP right" policy is practiced nationwide, which is the standard in the business community sector. It has been a Japanese government effort to stimulate industry and strengthen the ability to compete by protecting inventors' rights and enhancing incentives to invent through the provision of stronger IP protections. IP management, like patent rights acquirement, protection, utilization and avoidance of conflict, is said to be effective in enhancing competitive advantages. This is becoming more important to SMEs of all sectors.

The idea has not yet penetrated into SMEs much less SVs. However, it is crucial without regard to the size of the organization. For instance, the Japan Patent Office is trying to implement IP management to small organizations like SMEs. It is on the way and is about to be applied to SVs. Therefore, neither researchers nor practitioners have discussed them to SVs so far. They are usually burdened with a lack of human resources, especially at the start-up stage, and have to do with other priorities like fundraising, marketing and labor-intensive chores. In other words, they tend to underestimate the importance of IP. However, when it comes to the diffusion (scaling out) of their products and services, licensing (franchising) of IP management seems to be

an effective issue. Christopher (2009) stresses the uniqueness, namely, the franchiser licenses for its IP, including its trademarks, copyright, know-how, trade secrets, business concept, and, if relevant, designs and patents to the franchisee.

Conclusion and Implication

The results of the questionnaire for SVs and follow-up interviews highlighted the following findings and implications.

First, every SV acquired at least some trademarks (IP rights) like ordinary ventures and was conscious of the presence of IP and its management. There is no big difference between SVs and ordinary ventures. And answers like "Why IP rights are needed" reflected their hope of competitiveness.

Secondly, four SVs will conduct concrete countermeasures against imitators or free-riders. It is safer to say that the acquisition of an IP right is a tool for discretionary decision-making or social innovation. An SV originally wants scaling out or diffusion as a mission of social innovation. Logically, some social entrepreneurs are generous about a third party's scaling out, but actually they are concerned about copycats, because they abhor betraying customers or supporters. It is not always for monetary reasons. They may respect their own brand or be inclined to keep the reliance that they embrace.

Madre Bonita has just adopted a kind of IP-driven franchising system with an officially qualified 20 instructors of IP management. It sells a franchise license at a reasonable rate in which the qualified instructor (franchisee) must follow all of their rules, including how to operate, how to advertise, what the staff say to customers, and other aspects of the business secrets. The franchise agreement often limits the franchisee's ability to change the nature of the operations under the franchise license agreement. It is seemingly severe, but a legitimate thing to keep the brand identity or the reliance.

Licensing , franchising and trade secrets may have good chemistry with an SV's business in that they can protect and promote the SV's social desires efficiently and effectively. In other words, it may be beyond the utility of the "right to exclude" a patent.

IP rights acquired by SVs may lead to favorable financing from banking or individual investors and improve the business as a by-product. In addition, SVs can leverage the right of exclusion to reinforcement of business, prevention from imitation and equal licensing with big companies. As an alliance tool, an SV can make use of franchising or licensing on IP management not to become the subcontractor of a big enterprises. The last benefit is that SVs can gather useful market information through IP rights negotiations with business partners.

In regard to IP conflict, Motherhouse, Madre Bonita, Irodori and Tegatari have already experienced some troubles with followers or competitors. IP conflict is not an unrealistic matter, but it may happen as an everyday incident.

Last, but not least, we do admit that this research does have its limitations as we have only covered five cases. In future work, we will have to increase the number that we cover. Otherwise, these data may be exceptional.

An SV consultant, "Endeavor (USA)," has invented a global impact metrics system for social innovation. It helps to measure the social impact of SVs properly in that they are invested socially (meaning donating to particular SVs). As an intellectual capital, it says 50 percent of SVs possess patents or have patents pending, and 80.8 percent of these entrepreneurs are financially giving back funds to Endeavor to help the next generation of high-impact entrepreneurs succeed. Thus IP and its management may contribute to develop social innovation. It is likely that SV and IP are interrelated. That is the next theme that we will conduct statistically.

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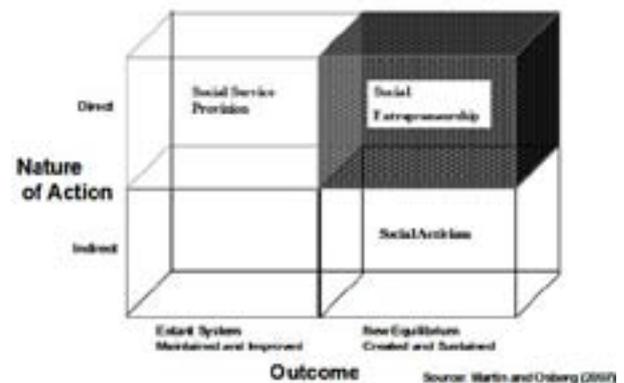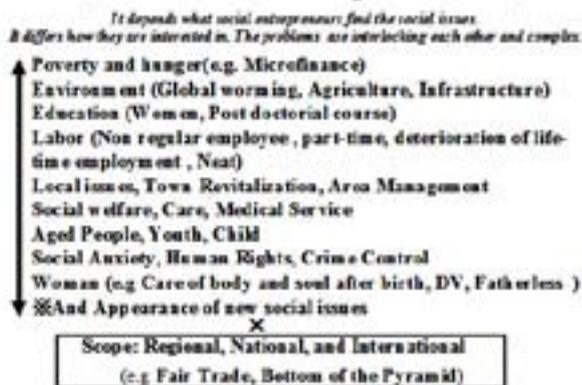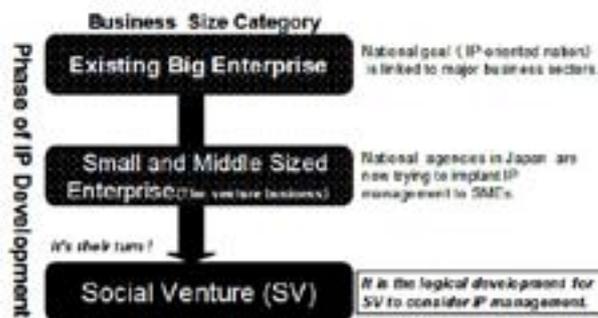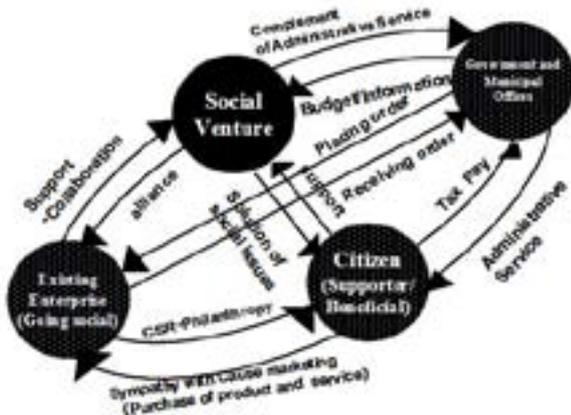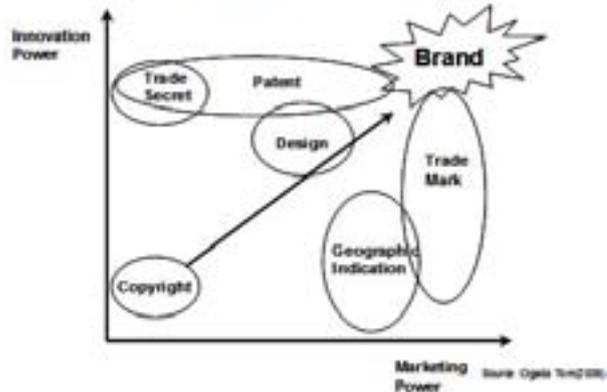
Figure

FIGURE 1

FIGURE 2

FIGURE 3

FIGURE 6
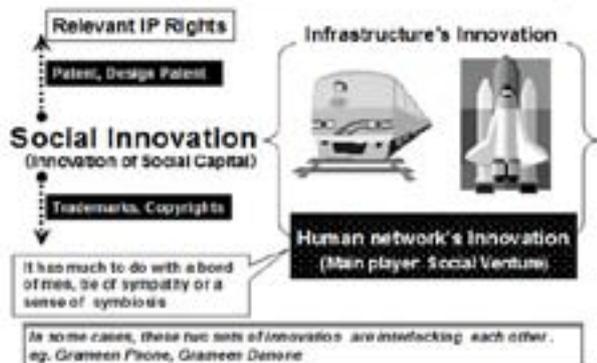
FIGURE 4

FIGURE 7

FIGURE 5

Summary of Survey Result for SV   (Conducted in May,2008)

	Mother-house	Madre Bonita (Beatiful Mother)	Irodori (Color Scheme)	Tegatari (Hand Story)	Asaza Fund
Business Domain	High-quality fashionable brand from Bangladesh and Nepal	After-birth care of body and soul	Seasonal leaves provider for the Japanese cuisine	'Office Massage' by qualified massage professionals	Multi-faceted local environment protection movement
Acquired IP rights	Trade mark (Brand name, Logo)	-do-	-do-	Trade mark Patent (Application Stage)	-do-
Why IP rights needed	No answer	The symbol of business should be protected fairly.	Protection of business to keep the value	It is crucial to conduct the knowledge management.	Connotation of the whole project should be reflected.
Image of scale out (How to expand the business)	When we feel the same philosophy with the partner, we will consider the feasibility.	Franchising: program development of promising talents	Direct or indirect concern to the followers	When we feel the sympathy, we will discuss the license.	It should be changed on the case-by-case basis.
Necessity of IP rights Claims and possibility of enforcement	It should be the same as the other business.	Some claims cannot be helped ,because the copy cat should be extinguished to protect the quality.	IP management (caution or enforcement)is indispensable.	New ideas are copied so favorably that diffusion will go on smoothly.	It depends. Enforcement is possible.

Table 1

Maíra Gomes Prestes

Social Innovation: an opportunity for Sustainable Design projects

Case of DESIS09 application in the Santo Antônio de Lisboa community, Florianópolis, Brazil

Abstract

Santo Antônio de Lisboa is a community of Azorean remaining in Florianópolis, Santa Catarina, Brazil which, like many others in the world permeates culture through generations. The organization of cassava flour production identified in this community involves social, environmental and economic aspects of a sustainable local development, which can be highlighted as a social innovation. This paper reports the application case of the DESIS09 tool inside the community of Santo Antônio, with the Center for Systemic Approach to Design (NAS DESIGN), whose activities are part of DESIS-BRAZIL, connected to DESIS-International network. In addition, it demonstrates the understanding of social innovation inside the creative communities as an opportunity to develop sustainable design projects and to constitute innovation process that can be applied to other organizations. Ultimately, it shows indicators of sustainability pointed out in the Santo Antônio's case as a result of qualitative research (interview and observation) and formulates a framework that explains the design process to extract products (tangible/intangible) of the social innovation.

Keywords

Social innovation. Sustainable design. Creative communities. Local development. DESIS.

Introduction

The term sustainability is increasingly regarded as strategic goal for businesses, organizations and governments. The aim is to tailor them to a world of constant change, seeking more favorable terms in the socio-economic environmental scope. Technological progress brings solutions to the economic-environmental interest, but seems to have difficulties in achieving the social level on a global scale. In parallel, the development of local communities has been gaining attention, because of its ability to involve people in a common goal. These creative communities (Manzini, 2008), mobilize their constituents around productive activities, what results in social innovation, by being able to bring improvements to the economic, environmental and social issues. Within this context, the design is "a powerful strategic tool that companies can use to gain a sustainable competitive advantage" (Stamm, 2008, p. 17), since their projectual knowledge permit an analysis of community organization and create, from this, new technologies and production techniques. The innovation becomes possible, according to Manzini (2008), through human activities within communities. Plus, design is able to boost the community development, through the understanding of its creative forms of organization/production, which enables the creation of knowledge, techniques and tools that can be applied to other organizations.

This article reports the application of the DESIS09 tool in the community of Santo Antônio de Lisboa, Florianópolis, Brazil, along with the Federal University of Santa Catarina and the Center for Systemic Approach to Design (NAS DESIGN), whose activities are part of the DESIS-BRAZIL, which is connected to the DESIS International network. Likewise, it describes, through a systemic approach, the understanding of social innovation within this community as an opportunity for innovation to other organizations, since, with design, it is possible to replicate methods, knowledge and techniques learned. Finally, it demonstrates indicators for sustainability withdraw from the case of Santo Antônio as a result of qualitative research (interviews and observation) and formulates a framework that explains the design process to extract products (tangible/intangible) from social innovation.

Context

The cassava flour is typically a Brazilian product found in the domain of Indians by the Portuguese who arrived in Brazil. The Azorean, the name of people from the Island of Azores (Portugal), who arrived in Florianópolis, became interested in the cultivation and consumption of cassava. To transform cassava into flour, the Portuguese adapted machinery of the mills moved by water and wind in Portugal, creating ox-powered machines.

Thus, the flour mill emerged. Today, the farinhada – as it is called locally the production of flour – no longer has strictly commercial value, but also cultural. It maintains the local traditions, continues involving community residents in planting and in the production of cassava flour, besides being subject of festivals and social gatherings of Santo Antônio de Lisboa. The benefit of the flour is generated by a social organization that lasts for generations, permeating throughout the local indigenous culture - the consumption of cassava - and the Portuguese culture - the use of the mills and cultural festivals. It involves people of all ages of the community: adults (men, women), elderly and children.

Creative communities

The social entrepreneurship around the production of flour, source of cultural and economic benefits, involving the residents of Santo Antônio de Lisboa in the search of common purposes, makes this community a creative community. According to Meroni (2007, p. 14), "creative communities are deeply rooted in one place, making good use of local sources and directly or indirectly, they promote new forms of social exchange". Manzini (2008) argues the form of social organization which values creative initiatives, highlights skills and the intrinsic knowledge of people, is increasingly valued in the search for sustainable development. Santo Antônio de Lisboa indicates that the value of the cassava flour co-creation is strengthened not only by the economic advantages, but also by the emotional involvement, which stimulates the creation of meaningful and memorable stories for these people. This becomes an important differential for this kind of community, which seeks in the traditions of their culture a inspiration source to move a production cycle. "Networking relational strategies have the dual advantages of being able to produce positive, meaningful experiences both for the community and for the individual" (Meroni, 2007, p. 10).

The organization around the productive system of cassava flour identifies the residents of Santo Antônio as social actors; men plant and harvest cassava, women peel and grind the plant, elderly dry the flour and make food, children participate in the whole process. Within this context, emphasis is given to the psychological gain acquired by these people and the dissemination of morality within the community, what transpires cultural, historical and pedagogical ideals between adults and youths. The division of labor within the creative community is identified according to Durkheim (2008) and has the role of developing different activities (specialization), that meets the needs and individual adjustments of each social actor. Durkheim (2008) advocates morality as an integrating factor for a community, generating solidarity and making the men help each other.

"Man is only a moral being because he lives in society, since morality consists in solidarity with the group, and varies according to that solidarity. Cause all social life to vanish and moral life would vanish at the same time, having no object to cling to" (Durkheim, 2008, p. 421).

This consideration is highlighted, since what keeps the creative community alive and pulsating are the people who constitute it. The individualization and specialization of activities within the community, which shares the same morality (integrator factor), generate a feeling of respect and individual value, what strengthens the group, which is identified as a provider of individual and social satisfaction. From this analysis, it is possible to say that the pleasure associated with the work is a source of social integration and results in a better quality of its development and production. Peter Hancock (2005) introduces the concept of Hedonomics, in which he defends to be possible to achieve inside work systems their pleasurable features, which favor to a better group performance.

"When the system has achieved functionality and usability, it then can be designed to fulfill users' more fragile psychological and sociological needs, such as their need to belong, to achieve, to be competent and independent, thus making interaction a fully pleasurable experience" (Hancock et al., 2005, p.4).

People more involved, satisfied, and ultimately, happier, positively influence a chain of events in their own environment. The experience of social interaction within the community of Santo Antônio de Lisboa stands out as a motivational key for these people, which seek in daily interaction source of knowledge and entertainment.

Communities involved in their division of labor, which share a common morality, provide a source of social relationships that fortify the emotional and significant involvement among people, becoming difficult targets for a globalization that prefers to see individuals as global citizens. Stamm (2008) identifies the considerations of Rugman (2000), which argues most of the commercial activities operate on a regional scale in comparison to the global. Thus, organizations should move their focus of attention to what generates success in a local development, rather than an acceptance of global scale.

The local sustainable development

Today the local and endogenous movements of change and development are emphasized, confronting an accelerated globalizing and economic integration. "One of the many paradoxes which faces our interesting historical time is the relaunch of the 'local' in the era of global" (Castells, 1998, p. 9 apud Buarque, 2002, p. 25). According to Buarque (2002), local development is an endogenous process of change, which provides economic dynamism and improves quality of life in small territorial units and human groups. The definition of sustainable is related to the possibility of continuity of economic, social and environmental aspects within the human society, preserving viable and dignified conditions of survival for future generations.

"Economic activity, environment and society well-being form the basic tripod on which rests the sustainable development idea. Sustainable development can only be achieved if these three axes were harmoniously evolved" (BCSD, 2007, p. 3).

Santo Antônio de Lisboa indicates a local sustainable development case. This "depends on the actors capacity and on the local societies to organize and mobilize themselves, based on their potentials and cultural matrix, defining and exploring their priorities and specificities" (Buarque, 2002, p. 30). In the case of Santo Antônio, Djalma Theodoro Dias, owner of the flour mill, is a social actor identified as a Social Entrepreneur, according to Schwab (2008), since he uses his business and his leadership as a contribution for the local development. His actions to motivate and move the group of local residents in the production of flour is an innovative initiative, which articulates the local potentials and express social, cultural and economic results. "The contemporary proposals of development – as the sustainable development – tend to increase the importance and necessity of planning as an instrument key to guide the future" (Buarque, 2002, p. 23). Thus, it is identified the importance of planning (afterwards discussed as design) and a process of innovation in the community, where there is a social organization around a production system, which also generates economic and environmental benefits.

Social innovation: opportunity for sustainable design

The Santo Antônio de Lisboa community shows a social innovation with its organization centered around the production of cassava, reflecting in economic, cultural and environmental benefits. Creative communities, which have a sustainable local development and turn it into a social innovation, deserve to be highlighted, because they may come to be great social models of how to develop organizational processes. The design has been integrated to the growing concern about sustainability issues and participates as an effective value of social, economic and technological development. In agreement with Bonsiepe (1997, p. 15), "the term 'design' refers to a potential which everyone has access and which is manifested in the invention of new practices of everyday life". The perception change of society on sustainability issues is also reflected in the design practice that, according to Manzini (2008a), must also enter in a stage of change. The concept of sustainable design, then, emerged with the pro-sustainability movement, which includes not only environmental aspects, but also

the consumers condition of life, from the perspective of social justice of well-being, should have access to products economically affordable and safe to their health, fulfilling a function of planetary and humanist motions: bring well-being and satisfaction to those who use them" (Mau, 2010, p. 118).

Thus, design is a powerful tool for sustainability, as a competitive strategy to companies that can achieve not only the development of new products, but also the adequacy of them with the environmental, economic and social reality where they are inserted. The innovation process takes place when the creativity generated by a community is explored: examine their ideas, forms of organization and, then, implement and put into practice the products generated, which can be adapted to other cases.

Systemic approach to design and DESIS09 application

The designer establishes the interface between market and community, in which "appropriates and incorporates new technologies to his projects as a way to offer them to society" (Muniz, 2008). The inverse is more suitable for the perspective of social innovation, where the designer directs his focus for society and notes, from solutions born in its core, possibilities to offer technologies and techniques to support the development of solutions. The DESIS09 tool allows the register of social innovations from different parts of the world, since it is "a network of design schools and other schools, institutions, companies and nonprofit organizations interested in promoting and supporting the design for social innovation and sustainability" (DESIS, 2010).

The DESIS tool application project was coordinated by the Center for Systemic Approach to Design (NAS DESIGN) of the Federal University of Santa Catarina (UFSC). Its application is divided into six stages: (1) it starts with a first contact with the community, usually sought by the Social Entrepreneur, who sees innovative potential in his area; (2) the research group visits the location, taking pictures and gathering preliminary information; (3) it is signed a Consent Agreement Model, which clearly states the intentions and is allowed the publication of the social innovation identified; (4) the community leader is interviewed, in order to know the initiative and the social, economic and environmental perspectives of the community; (5) the full register of the social innovation and of the creative community is ultimately made, (6) it is organized in a digital file all the photos that express the activities developed by the community.

In this case, it was used as a design strategy one that could handle all the complex interactions performed by the community. It was opted for a systemic approach to design, in other words, an approach in which design is used as a holistic process. Within this process, the focus shifts from the product to the system. Were analyzed all the factors which described significant influence on the local development. About the role of design in creative communities, Manzini (2008) proposes three forms of interaction: (a) Bottom-up: by active participation of interested persons; (b) Top-down: by the intervention of external institutions; (c) Peer-to-peer: exchange of information among peers. Thus, it was started the first form of interaction, "top-down", in which NAS DESIGN (UFSC) went to the external organization and had intervened in the community. Afterwards, the NAS DESIGN exercised a second interaction, "peer-to-peer", a situation in which its team went to the region of Santo Antônio de Lisboa to know its situation in loco. In this degree of interaction, both the community and the laboratory team were at the same level. This permitted the information exchange among peers more direct and effective. The new identifications were boosted by the third degree of interaction, "bottom-up", in which the region's population had an effect on the external entity (NAS DESIGN) through their activities. The latter situation demonstrates that there is a reversal on the tendency 'local is influenced by global': the results of the flour enterprise's work and the skills of certain people in the creative community – which has a know-how, different ways of thinking and also put different forms of organization in action – generate

interference to the organization that is doing the analysis. This constitutes a innovation process and, therefore, contributes to the creation of scientific knowledge and management tools.
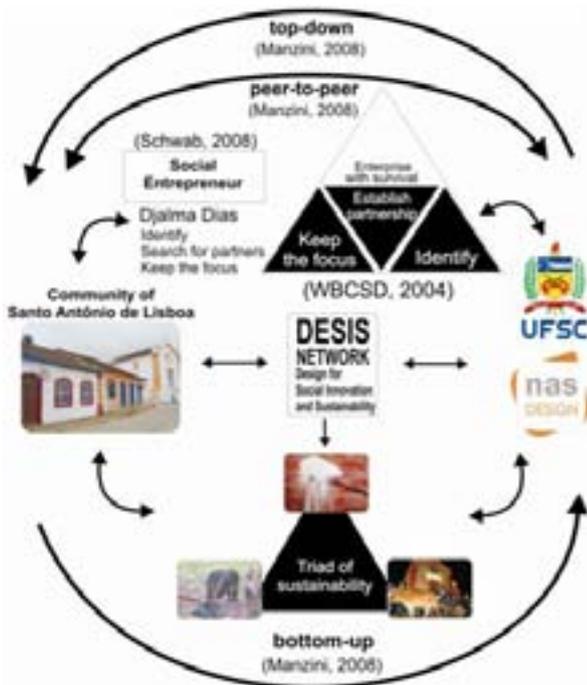
Fig. 1: Systemic approach to design

The design process applied to social innovation

The project had the participation of the scientific research group NAS DESIGN, in collaboration with the community of Santo Antônio de Lisboa (social entrepreneur and social actors). The design knowledge and the results (tangible/intangible) from its process, allow understanding the case as a set of actions, which can be divided into five stages of a structure. The design process for social innovation can eventually become a methodology, that allows the conception of products from a social innovation through the management of sustainable design.
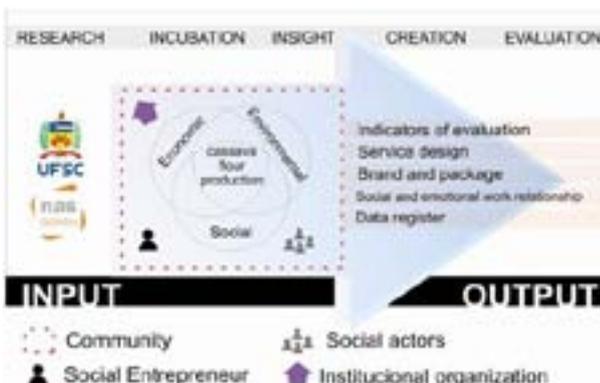
Fig. 2: Design process for social innovation

There is a preliminary at the University, which allows visiting the community with a planned idea of how to act and gather information. Within the community, researchers experience social interaction, exchange of information and insights emerge as a response to problems identified. Then, it is identified design products as possible solutions. The process terminates with the evaluation of the results.

The collection and registering of data were done using the DESIS tool and systemic approach. A qualitative research was also used: an interview with the Social Entrepreneur and observation of local conditions and their perspectives, in order to develop assumptions within the social, environmental and economic spectrums of a possible social innovation. Based upon the confirmation of these assumptions, indicators emerged, which allows seeing the innovative force in this community.

Fig. 3: Indicators of social evaluation

Fig. 4: Indicators of environmental evaluation

Fig. 5: Indicators of economic evaluation

These conditions, it is emphasized the designer importance, that through service design could develop interfaces for the community activities and insert technologies into its processes. This paper does not intend to deepen issues about the service design; it identifies it, however, as a possible product of a design process turned to social innovation, by being able to "designing the interactions between users and the touch points (people or objects) that represent that service" (Goye, 2007, p. 4). The project also envisioned the opportunity to create a brand and packaging for the cassava flour, in order to give identity for the production and make it more visible to other people who visit Santo Antônio de Lisboa.

Fig. 6: Brand and packaging of cassava flour

Conclusion

Local development is gaining ground, suggesting it is possible to seek sustainability in local activities, which benefits everyone. The case of the cassava flour production in Santo Antônio de Lisboa, as their evaluation indicators show, brings the positive example of how a community can organize itself and reflects results on social, environmental and economic gains. The division of labor according to individual capabilities is a prominent factor, because it values social actors as individuals and allows the union of the group, through bonds of friendship, commitment, learning and meaningful experiences. There is a decrease in violence and crime rates in parallel to the increasing of knowledge exchange and the use of practices that allow creativity and individual expression. Design distinguishes itself through a systemic approach, because it is able to create projects that enhance local development pro sustainability and that seek factors to better people's quality of life. The innovation lies in observing how these creative communities are organized, and the economical, cultural and environmental consequences that arise from there. It allows, thus, realizing the vision of how to establish a growth focused on sustainability, where people, environment and society evolve together.

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Theresa De Lobo
Directing Sustainability through Higher Education in Architecture

Abstract

The role of higher education in creating a more environmentally sustainable future is irrefutable. However, there is currently no clear evidence of definitive framework in training the professionals to be environmentally literate. The article is an extended analysis of a survey conducted to assess the level of integration and implementation of sustainability issues in the curricula of higher education at the schools of architecture in Portugal. It looked on the level of awareness and training background of educators on sustainability and the sustainability content in studio projects and related courses. Based on the earlier findings, this paper recommends the organisation of more training programs related to sustainability, the revision of existing curricula to inculcate sustainability awareness at lower years and the incorporation of humanistic aspects of sustainability into architectural education.

Keywords

sustainability, higher education, integration, curriculum.

1. Introduction

The importance of teaching sustainable design to architects is conclusive. Agenda 21, the United Nations Programme of Action from Rio de Janeiro, identifies environmental education as one of the catalysts for sustainable development [1] . There is a growing recognition that sustainable development policies, plans and actions have more chance of implementation when they are supported by an educated, informed public [2] . Environmental education provides recipients with an understanding of the key environmental issues facing the world today. It presents an outline of the issues, the scientific background and the role that humans play in both exacerbating and minimizing negative environmental impacts. It also introduces the concept of sustainable development.

The need to introduce issues of sustainability into an architectural curriculum has become critically important. The year 2005 marks the commencement of the United Nations Decade of Education for Sustainable Development, which is an opportunity as well as a challenge for educators of all stripes to reorient their teaching, research, and community outreach towards sustainability through higher education. Since architects play a vital role in the creation of a built environment, then it is imperative that students, who are the future architects, be aware of how their attitudes, behaviours and actions will impact our future natural environment and the health of people. There can be no responsible design without a responsible designer [3].

Hence design education should be redirected to the development of an ethical designer, one who could think and radically "design out design that delivers environmental problems" [4] . Indeed, design education for sustainability now can help usher a promising future by transforming the future architects.

So how has the Portuguese architectural education community responded to this challenge for responsible and sustainable solutions? Are academics adequately informed of strategies for environmentally oriented building development? Are students provided with opportunities for imagining solutions that foster sustainable behaviours of building design?

Are environmental aspects considered along with traditional design criteria in assessing student works? These and other related questions are the focus of this paper. It further recommends some future strategies to improve the integration of sustainability in Portuguese architectural education

2. Architectural Education in Portugal

The Board of Portuguese Architects (Ordem dos Arquitectos-OA) and Universidade da Beira Interior- UBI, are two organizations that play varying roles in architectural education in Portugal. The Ordem dos Arquitectos is a

statutory authority responsible in determining the standard for entry into the architectural profession and the accreditation of study programme in architecture. For this purpose, the Centro Nacional de Arquitectura em Portugal was formed under the auspices of Ordem dos Arquitectos to regulate all matters relating to architectural education. The Ordem dos Arquitectos (OA) is an architectural organization representing architects in Portugal with over 17000 corporate members. The (OA) has a standing committee on education and takes an active role to coordinate, facilitate and advance the pursuit of higher education in architectural education in Portuguese institutions; and to educate the future architects (student/ graduate members of OA) in preparing for professional practice and the building industry [5] .

The curriculum for Portuguese schools of architecture is generally based on the Bologna Process (is to create the European Higher Education Area by making academic degree standards and quality assurance standards more comparable and compatible throughout Europe, in particular under the Lisbon Recognition Convention).

Among the aspects of architectural knowledge concerning sustainability indicated in Bologna Process Policy and Procedure for Accreditation of Architectural Higher Education that is recommended to be included in the programme of study is:

"Ability to create architectural designs that will satisfy both aesthetics and technical requirements and which aim to be environmentally sustainable; and an adequate knowledge of the means of achieving environmentally sustainable designs" [6].

It can be concluded that regulators of architectural education recognize the importance of sustainability. There remains the question of how to achieve integration of sustainability into the framework of the architectural curriculum.

3. Current ideas in Sustainability Teaching

Despite the obvious need for more sustainable design education in schools, many architecture schools have not developed a clear idea on how to integrate these issues into the curriculum [7,8, 9] . Most programmes tackle the problem by offering targeted electives on energy efficiency, or by adding more information to already overburdened studio pedagogy. Some students still argue that it is only a fad and it will go away sooner or later, like many others before. Architects are not scientists or engineers and should not concern themselves with energy and environmental issues. Evaluation of the environmental impact of their architecture is not part of the design process. However, many fail to see that environmental design has true relevance to architectural design, that it is a mechanistic process and the domain of the specialist. As a result, various design education surveys and studies done in the disciplines of architecture[10,11] ; engineering [7- 12] interior design [8,9 -13,] and mixed design disciplines [14] have generally shown that sustainability issues are hardly penetrating into core design programmes.

Figure 1: The students organizing their work

One of the pertaining issues in architectural education is to strike a balance between humanistic issues (social, cultural, economic and spiritual) and environmental and technological issues. This is reflected in a report by the Sustainability Special Interest Group [10] , who researched the learning and teaching of sustainability across the curriculum in European schools of Architecture. They laid out several necessary changes to ensure a sustainable future such as:

(i) considering a holistic or systems thinking;

(ii)understanding the interdependence of environmental, technological, social, cultural, economic and spiritual issues in design;

(iii)integrating design which features interdisciplinary collaboration along with user and community contributions;

(iv) recognizing and acting upon our responsibilities to humankind and the planer over and above those required through codes of conduct and legislation and

(v) critically questioning the values which influence our decision making, and asking ethical questions such as: What is the social, ecological and environmental 'good' towards which built environment designers and decision maker ought to strive for?

Similar concern is expressed by Edward [15] who insists that:

The Challenge is how to incorporate these (sustainable) requirements into the methods and content of architectural education, and more importantly how to do this across the curriculum, in theory, history, technologies, humanities etc, and in the design project, so that sustainability knowledge and skills become natural component of the architect's mindset and underpin their value system [15].

There is also a need to inculcate sustainability awareness at foundation level of architectural education. Acknowledging this need, the Royal Institute of British Architects (RIBA) has initiated "Criteria for Validation" which specified the need to develop basic sustainability knowledge and skills as early as its Part 1 curricula [16] and several Schools of Architecture in UK are already working towards achieving this. Some of these schools even plan to go beyond the point of simply 'making the students

aware'. Starting at undergraduate level, they plan to introduce more sophisticated sustainability issues such as sustainability benchmarking, indicators and other tools as a 'measuring process' during design stages [17].

Similar argument is proposed by[18] who discerns three levels of educational objectives, namely, in ascending progression: (1) "Creating Environmental Awareness", (2) Understanding Building Ecosystems, (3) Ability to Design Sustainable Buildings. They argued that it is much easier to instil an environmental consciousness at the formative stage of education than in later stages. The later stages merely deal with students' application of skills and knowledge of sustainable design by exploring various technical methods and techniques.

In conclusion, we illustrate that efforts are being taken to integrate sustainability in building education in many universities in Europe. The next section explores the current state of sustainability teaching in Portugal.

4. Current Practice in Portuguese Architectural Education

The current practice in teaching sustainability in Portuguese architectural education is being investigated. The discussions in this section are based on the survey conducted by Universidade da Beira Interior- UBI (2008) to assess the level of awareness and training background on sustainability; and sustainability contents in studio projects and related courses in Portuguese schools of architecture. This section summarises issues of importance and areas of improvement in integrating sustainability in Portuguese architectural education. New recommendations are being proposed on top of the previous the findings of the aforementioned study.

4.1 Study method

This study (2008) involved a questionnaire survey sent to seven (7) public universities and two (2) private higher education institutions that offered undergraduate diploma and degrees programmes in architecture as listed below:

i. Universidade do Minho

ii. Universidade Técnica de Lisboa - Faculdade de Arquitectura

iii. Universidade Técnica de Lisboa - Instituto Superior Técnico

iv. Universidade do Porto - Faculdade de Arquitectura

v. Universidade de Coimbra - Faculdade de Ciências e Tecnologia

vi. Universidade da Beira Interior

vii. Universidade de Évora

viii. Universidade Lusíada

ix. Universidade Lusófona

The questionnaire was divided into quantitative and qualitative parts.

The quantitative part was structured to establish the training background of educators with regards to sustainability, to seek their views on sustainable design approach and ascertain their current teaching practice in green design. The qualitative part

was aimed at identifying obstacles in promoting sustainability in architectural education; and to suggest initiatives that can be adopted to guide and support educators to enhance the delivery of sustainability in educating future Portuguese architects.

Statistical analysis on the quantitative data was done using SPSS Version 11.5 software. Of the 135 questionnaires sent, 67 academics (response rate of 50%) replied, and all 9 schools have been represented by at least 3 respondents.

4.1 Sustainability Training Among Educators

In order for sustainability to be successfully embedded in architectural education, it is only logical to expect the educators to be adequately informed and knowledgeable in sustainability themselves. This section examines issues of training initiatives among educators with regards to sustainability knowledge. It found that most educators obtain their knowledge through their personal initiatives (see Table 1). Their initiatives include browsing through the internet, reading related books for information, etc.

Source of information	Frequency	Percentage
Personal initiatives	41	25%
Co-worker	21	13%
Media/ article	53	32%
Course/ training	27	17%
Workshop	22	13%
Total	164	100%

Table 1: Percentage of respondent's main sources of information on sustainability issues (Universidade da Beira Interior -UBI, 2008)

Attending programmes i.e. courses, trainings, seminars, workshops, symposia, conference or other modes of continuing education, are still not the prevailing means to increase respondents' knowledge on sustainability.

A possible explanation could be that there is a scarcity of such programmes in relation to sustainability being held in Portugal as suggested by a few respondents (see section 5.2). Therefore, our first recommendation is for the government and universities to organise more continuous and systematic training programmes to increase the sustainable literacy among architectural educators.

The Universidade da Beira Interior –UBI (2008) also investigated the levels of concern with sustainability issues among educators. It found that there is a correlation between their levels of concern with their level of education (refer Table 2).

The result shows that the 'highly concerned' group is predominantly those with masters- and/or PhD-degree holders. Therefore, our second recommendation is to increase the level of sustainability awareness among educators with first-degree qualifications.

Education level		Level of concern			Total
		Little	Moderate	Highly	
Educa-tion level	Degree	2	10	6(20%)	18
	Masters	0	5	14(47%)	19
	PhD	1	1	10(33%)	12
		3	16	30(100%)	49

Table 2: Relationship between respondent's education level and their level of concern with sustainability issues (Universidade da Beira Interior -UBI, 2008)

4.2. Sustainability in studio teaching

Upon investigation of sustainable design strategies implemented in studio teaching, (Universidade da Beira Interior -UBI, 2008) found that the top four strategies are "Exploitation of natural ventilation", "Emphasis on passive solar design eg. orientation, exploitation of daylight and shading", "Preservation of natural elements on site (trees, slopes)" and "Emphasis on Low Energy Design eg. energy-saving lighting, insulation and glazing type" [19].

Meanwhile, the bottom three strategies are "Community Building", "Low maintenance materials" and "Waste Recycling" (see Table 3). This finding indicates that sustainable design strategies implemented in Portugal design studio are more concerned with energy and environmental issues.

There is an apparent lack of attention to the social (i.e. human health, comfort and convenience, safety and security, culture and heritage etc.) and economic dimensions (i.e. functionality and efficiency, flexibility and adaptability, affordability, access to resources etc.). This argument is supported by the fact that no respondent was able to come up with any alternative strategies. This run counter to what Edward (2002) and Fowles (2003) suggested that a balanced holistic approach of sustainability must be taken in architectural education.

Sustainable design strategy	Mean	SD
1. Natural ventilation	4.16	.875
2. Passive solar design	3.98	1.068
3. Preservation on site	3.91	.960
4. Low energy design	3.66	1.163
5. Community building	3.57	1.171
6. Low maintenance materi-als	3.48	1.112
7. Waste recycling	3.03	1.242
8. Others	0	0

Table 3: Mean scores of integration of sustainable design strategies in design studio (Source: Universidade da Beira Interior -UBI, 2008)

The mean scores of sustainability integration in design studio are shown in Table 4. It shows that even though sustainability is introduced since Year 1, the level of integration is still considered quite low. However, the situation improves as student's progress into the upper years. A significant number of respondents seem to disagree with the trend and suggested that sustainability teaching must also be emphasized during the foundation years. This suggestion is in agreement with Fowles (2003) and Wright [17] who argued for sustainability awareness to be inculcated as early as first year. Therefore, our third recommendation is to formulate a strategy on how we can increase the level of sustainability awareness among lower year students in Portugal as early as in year 1 or year 2.

Design Studio Year	Mean	SD
Year 1	2.72	.972
Year 2	3.24	.916
Year 3	3.73	.877
Year 4	4.12	.766
Year 5	4.37	.711

Table 4: Mean scores of sustainability integration in design studio teaching (Source: Universidade da Beira Interior -UBI, 2008)

4.3 Sustainability in non-studio teaching

In analyzing non-studio courses, the research (2008) found that "Technology courses" are more embedded with sustainability issues compared to "History and Theory courses" and "Practice and Management courses" (refer to Table 5). This could be the reason why technology and environmental issues of sustainability are more emphasized in design studio as had been discussed earlier. This is not dissimilar to what is happening in the UK as reported by Fowles (2003). They found that 22 out of 36 architecture schools in the UK have detailed courses on sustainability but little attention is paid to social and economic sustainability and the major emphasis has been on energy conservation in buildings. We concur with Edward (2002) that this can be a problem since it needs to encompass other aspects of sustainability such as philosophy, economy, ecology, culture and social issues in order for sustainability to be successfully integrated into the curriculum. From the analysis of sustainability integration in studio and non-studio teaching discussed above, our fourth recommendation is that a more balanced approach towards sustainability in architectural education should be taken.

Courses	Mean	SD
History & Theory Courses	3.47	1.028
Technology Courses	4.02	.812
Practice & Mgmt Courses	327	.990

Table 5: Mean scores of sustainability integration in non-studio teaching (Source: Universidade da Beira Interior -UBI, 2008)

The research (2008) have also found that Portugal educators tend to integrate sustainability into their teaching

based on their own initiatives without clearly spelling it out in the curriculum (see Section 4.1), hence, our fifth recommendation is in line with Fowles. (2003) and Wright's (2003) recommendation on the need to emphasize the importance of integrating sustainability in an architectural programme with sustainability components explicitly stated in the curriculum.

5. Identification of Barriers and Suggestions to Move Forward

This section presents the qualitative data of the perceived barriers and recommendations provided by the respondents on how we can further promote and develop the engagement of sustainability in Portuguese architectural education.

5.1 Barriers

A total of 109 barriers were identified and then categorized into 8 different categories: Educator, Resource, Government, Student, Public, Subject, Curriculum and Monetary Factors. Table 6 shows the ranking of these factors.

Rank	Category of barriers	Frequency	Percent
1	Educator Factors	49	45.0
2	Resource Factors	16	14.7
3	Government Factors	11	10.1
4	Student Factors	8	7.3
5	Public Factors	8	7.3
6	Subject Factors	7	6.4
7	Curriculum Factors	6	5.5
8	Monetary Factors	4	3..7
	Total	109	100.0

Table 6: Ranking of 8 categories of respondent's perceived barriers in promoting 'sustainability' in architectural education (Source: Universidade da Beira Interior -UBI, 2008)

Table 3 illustrates that the most cited barriers fall predominantly under the category of 'educator's factors'. Among the specified barriers under this category are lack of exposure or knowledge; lack of training/education in sustainable design/ construction; lack of awareness; ignorance and negative attitude towards sustainability; and lack of interest and enthusiasm. Here, the research (2008) argued that these barriers are caused by poor dialogue and co-ordinations, leading to a lack of commitment from everyone in developing a sustainable agenda. Studies by Yang and Giard [20] and Metropolis (2002) state that the lack of academic staff training as well as the lack of time for education are two frequently cited obstacles against integrating sustainability themes into design education.

The second most cited category of barriers falls under 'Resource Factors'. Among the barriers identified by the respondents are shortage of sustainable building literature in local libraries and the scarcity of successful sustainable building examples in Portugal.

Thirdly, the respondents list barriers related to 'Government Factors' as an impediment to the adoption of 'sustainability' in architectural education. Some respondents feel that the lack of act and enforcement by the government regarding any issues of sustainability as well as the lack of agencies promoting the issues are among the barriers to promote sustainability in the architectural education.

Next, under 'Student factors' category, the barriers are related to attitude and linked mainly to the lack of interest and understanding on the issues of sustainability. Under 'Public Factors' category, several respondents state that the problems are inherent in the building industry itself. The drive to achieve value for money and competitive procurement (through large and remote contracts) are all perceived as barriers in achieving sustainability.

Further down the list, under the category of "Subject Factors", several issues relating to the subject matter of sustainability itself were identified.

One problem expressed by respondents is that the breadth and complexity of sustainability issues is beyond their understanding. Taking a wide view of related comments, there is a possible inertia among educators due to the difficulty in trying to make sense of the 'abstract' and then moving to 'doable' projects. Some respondents even considered that sustainability is merely 'fashionable'. Others regarded sustainable development as 'specialist', 'multi-layered' and 'complex', requiring expert knowledge to make good decisions.

Another toughest barrier is under the category of "Curriculum factors". It is often described as being saturated already with little scope for additional content. Some respondents referred to courses where it was difficult to embed sustainability into their teaching in which, due to their existing content and purpose. This issue is complex but there seems to be evidence that some academics are already incorporating sustainability in the teaching of a wide range of subjects, as well as institution-wide developments in this area.

Finally, barriers under the 'Monetory Factors' category were also identified. Among the barriers identified is the lack of funding facilities for research. Some respondents have argued that the extra costs incurred when implementing sustainability in a development project do hinder sustainable practice in the building industry. This is compounded by an issue raised by some respondents that the energy cost in Portugal is still cheap, hence the motivations to adopt sustainable practice is low.

The results of the research (2008) study support Shafii and Othman's [21] argument that the major barriers holding back the development of building and construction of sustainable buildings in South of Portugal are the lack of awareness of sustainability issues in related professions; a lack of research and professional networks; a lack of political motivation and incentive; and a lack of well documented references, tools, techniques, case studies and demonstration projects which are relevant to local conditions. Their surveyed respondents indicated these barriers clearly in the study (Universidade da Beira Interior -UBI, 2008)

5.2 Recommendations

Figure 2: A building with sustainability improvements

In response to respondent's opinion on how to promote 'sustainability' in Portuguese architectural education, 60 suggestions were obtained and categorized into 6 categories (see Table 7). Overwhelmingly, 45% of the respondents suggested that existing curriculum in their schools should be reviewed and revised in order to promote 'sustainability' in architectural education. The respondents recommended to fully integrating the subject into all course works. This suggestion supports Wright's (2000) claim that for sustainability to succeed it must become the binding element of the architectural education and practice. It must not be strongly identified with a particular area of architecture, such as environmental science. Nearly half of the suggestions recommend the incorporation of sustainability at the earliest stage possible in architectural programmes. The respondents also suggested more 'continuous educational programmes' i.e. seminar, conference, training, courses and etc. to increase awareness among students and academics on issues of sustainability.

Category of suggestions	Frequency	Percent
1. Curriculum review	27	45.0
2. Educational programs	13	21.7
3. Research requirements	8	13.3
4. Public & private support requirements	6	10.0
5. Regulatory requirements	4	6.7
6. Publicity requirements	2	3.3
Total	60	100.0

Table 7: Categories of suggestions to promote 'sustainability' in Portuguese architectural education (Source: Universidade da Beira Interior -UBI, 2008)

Researches that address the issues of sustainability are to be given more emphasis by universities. Research funding

agencies are also mentioned as an enabler. Respondents suggested that regulatory institutions should be more open towards public participation in local and regional development whose action supports the sustainability agenda implementation. Government's step to develop more real life sustainable projects is also highlighted as an effective move towards enhancing public's awareness on the importance of sustainability in the built environment. On the regulatory aspect, respondents suggest that explicitly embedding sustainability requirements in by-laws would govern more practicing architects and educators to instil sustainability in their projects and teachings. Lastly, a small number of respondents even recommended the local media to play a role in generating more public awareness towards environmental sustainability.

6. Conclusions

Figure 3: A sustainable wall decoration.

The paper is an extended analysis of a survey conducted by the research department of Universidade da Beira Interior -UBI, (2008) to assess the level of integration and implementation of sustainability issues in the curricula programmes in schools of architecture in Portugal. A set of additional recommendations is proposed to assist in the process. These recommendations are based on both the quantitative analysis of the current status of sustainability teaching in Portugal and the qualitative analysis of the survey. The extended analysis found that the results of the qualitative study correspond positively to the earlier quantitative results, hence cross-validating this study. The paper summarise the main recommendations as follow:

•Organise more training programmes to increase the sustainable literacy among younger generation of architectural educators;

•Increase the level of sustainability awareness among educators with first-degree qualifications.

•Revise the existing curriculum to fully embrace the construct of sustainable design as well as to inculcate sustainability awareness among lower year students in Portugal. Efforts should be made for non-technological courses—such as philosophy, economy, ecology, culture and social issues—to be integrated with other aspects of sustainability.

•Emphasis funding by universities and research funding agencies for researches which address sustainability issues.

In conclusion, we believe that sustainable building

design has the potential to become a standard practice if the education industry continues to find ways to incorporate some of the recommendations outlined in this paper. It is hoped that the relevant agencies and parties could implement these recommendations as a guide in promoting sustainability in architectural curriculum through higher education and indirectly in the building industry in general.

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Design Power and Social Innovation

Exploring Design Practice Method Based on

Network & Community

Abstract

In this study, we observed people in the context of communities instead of people as individual. In reference to research methods and results in sociology and anthropology, we took Pingtan Village in Tongdao Dong Minority Autonomous County as the research object, and carried out a rural community transformation practice using design-team participatory approaches. We aimed to explore proper approaches for designers to participate in social innovation and possibilities for designers with different backgrounds to work together efficiently.

According to the "power theory" of Michel Foucault and the "local knowledge" discourse of Clifford Geertz, we argue that designers need an appropriate structure (design power or ability to drive social innovation) in the process of social innovation. Relatively, the construction of "knowledge platforms" and "organizational design" is much more important than the actual design outputs. Design will use a more tensional structural form and social identity power (innovation networks, design networks, social networks, etc.) to participate in community social innovation, making web-based and sustainable harmonious community possible.

Keywords

social innovation, design power, knowledge platforms, organizational design, community

1. Introduction

Pingtan Village in Tongdao Dong Minority Autonomous County is filled with wild life and historical artifacts. However, it is one of the poorest places in the country due to its lack of economic development. How to access to development opportunities with its cultural and resources strengths under the premise of maintain the harmonious life of local residents is the goal of social innovation in this area. Hunan University and Beijing Nokia Research Centre launched "New Channel" Design & Social Innovation Summer Camp there in the summer of 2009. "Channel" is the English translation of the Chinese word "Tongdao". We gave the name "New Channel" to refer to the hope that our design would bring new opportunities for the area, and also the new approach for design to participate in rural social innovation.

2. Social Needs

The Young Foundation defined social innovation as "new ideas that work to meet pressing unmet needs and improve people's lives" (Mulgan, 2006). The description of social needs contents is the starting point of rural social innovation. Eduardo and Simon argue that social innovation should benefit to the majority (Pol & Ville, 2009), which became one of our major standards to filter social needs.

Participatory Rural Appraisal (PRA), Social Impact Analysis (SIA) and methods in field study, including direct observation, participant observation, unstructured interview and focus group, were used in defining social needs contents in New Channel practice. We summered these social needs in two categories.
(1) Lifestyles and ways of living
Landscape: protect as well as develop landscape and architecture;
Furniture: enhance with local products and traditions;
Culture and nature as business resources for the local benefit.
(2) Way of connecting

Families - how to maintain connected the families when some goes to work far away or move to the city;

Economy - connect the rural with the urban capital;

Culture - how to use local traditions to continue the harmonious cultural ecology.

3. Participatory Approach

\According to the social praxeology of Pierre Bourdieu, power analysis of Michel Foucault, and local knowledge theory of Clifford Greetz, design can be considered as social practice or actions of creation, which needs a combination of a structure

(power, which Michel Foucault sees as "a complex strategic situation in a given society social setting".) to implement. So, we also need to consider the relationship in sociology between structure and action, the subject and structure, social and individual, social cultural and social practice.

In essence, designers' role is still random when involved in the process of community transformation. In the complex relationship among community institutions, designers are just a grassroots force, and most of the time, are actors of servicing. So, it is worth considering the fundamental methods for designers to involve in social practice.

On one hand, designers often participated as "outsiders". In the confrontation movement of various kinds of unbalanced "power" and "capital", they cannot obtain an essential structure form to involve. Therefore, in the process of community-based design practice and social innovation, "construction of knowledge platform" and "organization design" might be a viable approach for designers' participation.

On the other hand, how can designers get the "local knowledge" and creatively promote social innovation in a native's point of view with a different "paradigm" from other subjects? It also calls designers to re-examine the working methods fundamentally.

Post-structuralism assumes knowledge to be a kind of power. We can't avoid introducing new design knowledge when involving in social innovation. However, when we intervene as bystanders, we cannot try to change the local residents' collective memory according to our own preferences. As Geertz described, we can use thick description to interpret other's interpretation, to get local knowledge and achieve a deep understanding of the cultural phenomena. Only when the overall local "Grammar" is got and understood, designers can avoid bias and promote social innovation in the native's point of view.

In all these process, designers can get the right power through construction of knowledge platforms and organizational design. Meanwhile, the using of participatory methods, such as PRA (Participant Rural Appraisal), will reverse the power between designers and local residents, which means enabling people in the social innovation process.

4. Knowledge Platform and Organization Design
4.1 Knowledge Platform

The construction of knowledge platform is the power gaining process for design, and also the basis to involve other creative forces and enable interdisciplinary cooperation. In our design practice in New Channel, the knowledge platform contains both all forms of local assets and our interpretations on local knowledge. Network is an important tool for building knowledge platform.

John Kretzmann and John McKnigh argued that only asset-based community development could help us escape from the needs-driven dead end (Kretzmann & McKnigh, 1997). David Boyle, Julia Slay and Lucie Stephens also emphasized the importance of building on people's existing capabilities (Boyle, Slay & Stephens, 2010). These ideas inspire our innovation

practice in rural communities in two aspects: on the aspect of concept, we should not be limited by the social needs, but create from the asset-based point of view; on the aspect of practice, building knowledge platforms is an effective basis for social innovation. We defined local assets as three types: cultural assets, natural resources, behavior resource.

4.2 Organizational Design

When it comes to organizational design, we have to face one question: who are the social innovation actors?

In the report of Danger and Opportunity, Robin Murray pointed out that new social economy would appear in four sub economies: the state, market, the grant economy and the household; and more social innovations would straddle the boundaries between sectors and disciplines (Murray, 2009). In his description of social innovation, Ezio Manzini mentioned that "social innovation is a process of change where new ideas emerge from a variety of actors directly involved in the problems to be solved: final users, grassroots technicians and entrepreneurs, local institutions and civil society organizations" (Manzini, 2009).

According to these ideas, we summarized actors in rural social innovation as the government (state), NGOs (the grant economy), companies (the market), local residents and other grass roots institutions (the household).

Government: the Young Foundation called big organizations, governments, companies, or big NGOs, as "trees" as they have the resilience, roots and scale to make things happen (Mulgan, 2006). In rural social innovation, government has capital and power of policies to create a tolerant environment and scaling social innovations. However, in case government is involved in social innovations, participatory approaches need to be more seriously emphasized to guarantee innovations from the beneficiary point of view, and avoid the traditional top-down concept of community development.

NGOs: Non-governmental organizations have the same organization and financial advantages as government. But the problem for NGOs social innovation is that it is very difficult for regions that need help eagerly to access the information because of their extreme lack of linking social capital. The capability to get that information has limited the communities that are able to obtain the support. Those far remote rural areas that need their help most have the weakest capacity to get these resources. Thus, connecting NGOs and the rural communities becomes an important social innovation content.

Companies: Companies participate in the social innovation process through corporate social responsibility and providing innovative products and services that meet social needs. Social enterprises are an effective organizational form of social innovation, and also important actors to apply social services.

Local Residents: They are the ones who are enabled with power and information and determines to what extent social innovations will be successful.

Grassroots Institutions: Design is one of the key parts. The Design Council argues in Transformation Design, that designers are uniquely placed to solve complex social and economic problems, not only to design products and services, but more impor-

tantly to use design knowledge to integrate variety of sources to form an effective outcome (Burns, Cottam, Vanstone & Winhall, 2006)

Partners			
Local Government	Company: NRC Beijing	Local Residents	Grass Roots Power - Design
>Local Knowledge	>Information Design Knowledge	>Local Knowledge	>Design Knowledge:
>Power of Scale	>Funding	>Power of Creation	Architecture,Movie,Music,
	Local Wood Related Companies		Industral Design,Graphic,
			Enviroment

Fig. 1: partners in new channel design & social innovation summer camp

5. Design Contents

Social needs and knowledge platforms determine the organizational structure of social innovation and design contents.

In New Channel Social Innovation practice, we tried to combine "planning and architecture design", "industrial design" and "information service design" to make out a collaborative approach to participate in social innovation. The entire group was split into four different teams: sociology research, environmental & industrial design, interactive, and communication design. Sociology research team carried out studies about population structure, production patterns, consumption patterns, social associations and other organizations, all of which would be used as reference knowledge for other teams while doing design. Environmental and industrial design team handled social needs mentioned in "Lifestyles and ways of living". Interactive design and communication design team aimed at solving problems mentioned in "Way of connecting". All these teams were not totally independent from each other. They collaborated on some overlapping design contents.

Fruitful design results were gathered during the camp. Typical design contents in previous three fields are selected to introduce our outputs.

5.1 Planning and Architecture

Architecture styles in Tongdao are very special. Public architecture such as the drum towers and the roofed bridges are selected as Key Cultural Relic Units of the state or province. Local residences are made of local wood and stone, which integrates with the nature harmoniously and forms the special landscape of Dong Villages.

Chen Zhihua (2008), who is a professor at School of Architecture Tsinghua University, mentioned that "Settlement is an organic system, whose historical and cultural significance and function is much higher than the total of all of its buildings. Local architecture conservation should protect the village or the town as a whole." Public architecture in Tongdao has already been under protection of the law. What we've been worried about are the local residences. From 2006 to 2009, we've witnessed the destruction process of local landscapes.

The villagers don't recognize the value of their landscapes. They saved up for years to change their wooden houses into cubic cement and blocks decorated with white tiles. These houses are not esthetically beautiful and do not fit the environment. What makes the problem so difficult is that the villagers' willing choices

and our objectives to maintain the overall landscape are contrary.

Most of Dong villages in the area are located along the Pingtan River. The water quality is still clean up till now. But we have found the increasing signs of contamination in the past three years. More and more solid trash and sewage is directly dumped into the River. If we do not take actions as soon as possible, the pollution of Pingtan River is only a matter of time.

In New Channel Social Innovation Practice, we tried to face these problems in different aspects.

From the perspective of protecting landscape of local villages and architecture, environmental & industrial group surveyed the current status of local villages, landscape and resources, and made Ancient Village Protection Guidelines and Pollution Control Guidelines, which were presented to the local government as policy making reference. The contents of Ancient Village Protection Guidelines includes the identification of ancient architecture, restoration and transformation methods, material and styles requirements on newly constructed buildings, issues related to protection and tourism development, the rights and responsibilities of relevant stakeholders, and propaganda approaches to enhance public awareness and self-confidence on local architecture. The Pollution Control Guidelines, which takes Gaotuan Village as an example, discussed methods to deal with daily garbage, waste water, ways to reduce agricultural pollution, as well as viable models of Ecological Agriculture. A brief sanitation regulation is also suggested in the report.

From the construction point of view, in order to help villagers to find a reasonable balance between new housing building and the protection of ancient villages, we designed new folk housing prototypes that meet the needs of local residents and are compatible with the existing landscapes. Based on the traditional ones, the new folk housing prototypes have improved to be more reasonable and comfortable, especially in ventilation, protection against the rain, fire, noise, strengthening the weak structure and reconsidering some functional layouts for health reasons. These advantages would help to attract local people to choose the recommended housing style willingly, so to achieve the goal of protecting landscape indirectly.

To benefit from landscape protection is another important incentive to stimulate the villagers to take conscious actions. Therefore, we also developed a local tourism planning for the village of Hengling to promote cultural resource utilization. This is also in line with local government's future economic development plan, to promote the local economy by tourism. We selected the appropriate sight spots after a survey in the village, and planned service area, distribution area, and tourist routes accordingly.

Fig. 2: traditional public architecture, local residential housing, new folk housing prototype

5.2 Industrial Design
5.2.1 Furnishing service design.

Our survey found that Tongdao has rich forest resources of very good quality. But most of the timber processing factories are very small in scale and work with poor equipment. Their products are limited in kind and lack features. The industry chain is very short and local, thus has low added value on wood products. Many forest products are sold at a low price with only primary processing.

From the perspective of the traditional skills, Tongdao has excellent skills in using wood materials, which can be proved by the local public buildings and furniture. But as the demand for constructing traditional buildings is decreasing, local carpenters prefer to go out to seek for better opportunities as their income becomes instable. In the long run, here comes the problem of losing traditional skills.

We also found that the income growth and the pursuit of a better home life have brought huge consumption potential for local furniture market. There are three kinds of furniture consumption patterns at present, including local furniture, imported furniture from big cities and home-made furniture. But local residents can't find a balance between price, quality, function and aesthetics in these existing trade models.

We also found that government takes multiple roles in the local poverty reduction work, such as supporting local business, job training, and subsidizing the peasants to drive market demand. But all these efforts are independent to each other, and have not formed an effective force.

Facing problems and opportunities described above, we designed this local furnishing service system. The new service re-designed the relationship among local residents, local carpenters, government, forestry, furniture manufacturers, and other stakeholders.

The core measures are as follow: the government helps local small factories purchase wood processing equipments to improve their product mix. The small factories buy local forest timber and make it into plank stuff with different specifications, which can be directly used for building houses and making furniture. The local carpenter will be organized into a local association. Local residents purchase the standardized plank stuff and contact the local carpentry association for assembly and customization services. The furnishing design innovative mechanism comes from three ways: firstly, design institutions who take part in government projects aimed at rural areas; secondly, local carpenters create design solutions with the help of some special training; thirdly, cooperation with local design schools. As an example of furnishing design innovation, we've made the interior design with furniture and decoration matching the folk housing prototype done above in the guideline of low-cost and high-quality.

The new services make up the defects of the original three kinds of furniture trading models, and help the local residents enjoy furniture that in low in price, high in quality, functional in usage, and good look in aesthetics. The operation of the service unites the efforts of government in poverty alleviation and economic development to form a virtuous cycle of investment and income. It stimulates the prosperity of local furniture related companies and forestry by consumption pulling, and ensures the new furnishing is consistent with the original cultural tradition. Carpenters association is organized in this service as a key part to provide furnishing service collaboratively, which stops the loss of wood craftsmanship by enhancing carpenters' livelihood capabilities and guarantee the continuity of local building and carpentry techniques. The service meets the economic, environmental and social criteria in sustainability.
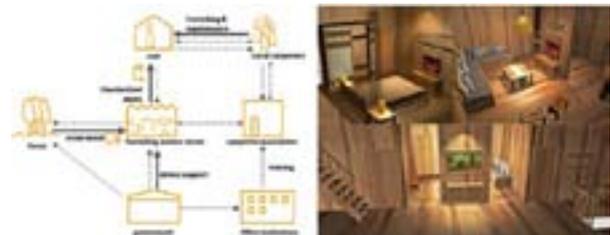
Fig. 3: local furnishing service design

5.2.2 Products & visual design.

Design for local residents.

Local women have very low level of education and they have no other source of income in addition to farming. But we found most of them master a variety of handicraft skills such as self-made fabric, ornaments made by cloth, and Dong brocade. We also found there are only few souvenirs for tourists. And most of them are imported from China's coastal areas, where they were mass produced without any distinction. They don't have attractive local features. So we designed home textile and decoration products derived from the local fabric Dongjin. Local women could make these products in their free time and earn extra income by selling these products to tourists.

In addition, we also observed a number of delicious and unique local products, such as Dong Wang wine, red bayberry wine, snacks and other local products. We made some commercial designs for these local specialties, such as wine bottles, packaging, posters and so on.

Design for outsiders.

This series include three themes: First, visualize local architecture, which aims to present the most valuable cultural heritage and the local landscape to outsiders. Second, study and modernize Dongjin (traditional local fabric). Third, using graphic design to manifest local texture and communicate local features.

5.3 Information Service Design

We found that cell phones have been quite popular in rural areas. It has become an important tool for communication and entertainment. We made in-depth studies on rural information needs and found some opportunities worthy further design. For example, we studied patterns and habits of villagers in finding working opportunities and designed a phone-based job hunting service.

Though computers and internet are not common there, residents can access the web in the Local Cultural Center of each village. Like most of other rural areas, a large number of young adults work in big cities and leave behind many children

and elderly people. Family members are separated and cannot meet each other all year long. Phone is their main tool to keep in touch. But in order to save on phone costs, the frequencies of calls are very low, once a week or even once a month. Migrant workers living in far away cities want to know more news and changes about their hometown. But the information that the phone could bring is very limited.

For these reasons, we think the Internet can also be used to link migrant workers and their family members. Most of the young migrant workers have the experience of using the Internet. They can talk on QQ, browse the web, and use forums sophisticatedly. However, children and elderly people in rural areas have few chances to access to a computer. So their computer's operating capacity is relatively low. They cannot handle the complex registration process and use the online video chatting on QQ or Skype.

Taking ful consideration of these characteristics, we designed the local web tool as simple as possible. Through the site, migrant workers can learn all the news from their hometown. And children and elderly people can use the video chatting function easily after a simple training process.

Fig. 4: local web tool

6. Communication
6.1 Participatory Communication

Movie design is an important work content of the communication team. We partly used the method of Participatory Video. We played the unedited video fragments taking during the day to the villagers on an open basketball court every night during the camp. These video clips were warmly welcomed by the villagers and stimulated lively discussion among them. Then they recommended us with contents they thought worth shooting and actively helped us to find out people, custom and special ceremony worth recording, and organized to perform local music for us. In this way, the villagers participated in the movie and music design process actively. This interactive process helped us collect the most real and vivid life and entertainment scenes in a very short time. The recommended process also helped the villagers to rediscover their most precious traditions, customs, skills and architecture, which would enhance their local culture pride and community cohesion.

After the summer camp, we reorganized these contents into five movie clips in the theme of Dong Landscape, Lusheng (reed-pope wind instrument), Dong People, Local Handicrafts and Left-behind Children. Two local music albums were produced using the local original music and ecological sounds as materials. These movies on one hand recorded the local immaterial culture in a digital way, and on the other reflected some existing social problems in Tongdao. These movies and music albums will serve as medium to connect and communicate with the outside world, using the excellent cultural traditions to attract more social

resources and getting the problems recognized and solved.

Fig. 5: movie design

6.2 Innovation Diffusion Communication Model

Social networks and media were used to amplify social innovation, stimulate more creative ideas and practices on rural community. The process would also attract other social power to join in, thus adding more linking social capital to the community, which might bring in information, source and development opportunities.
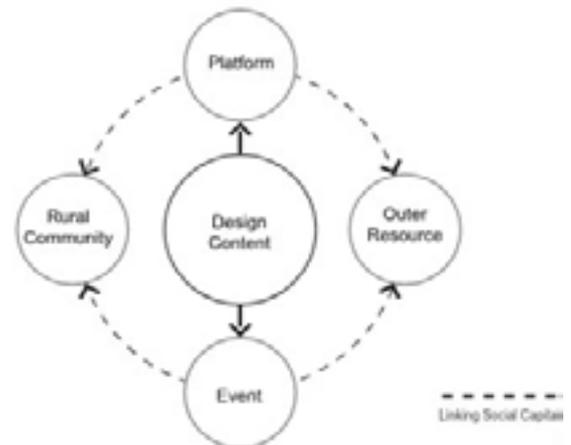
Fig. 5: movie design

In New Channel design practice, we carried out communication in two ways, joining events and create an enabling platform. Here, "event" refers to the public activities such as international video festivals or competition, the mainstream media activities, exhibitions, tourism promotions and other public events. "Platform" refers to the knowledge platform for the region.
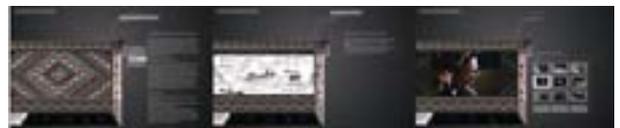
Fig. 7: knowledge platform (www.mypingtan.com)

Through these means of communication, we have established connections between the NGO Right to Play and Tongdao County. The former will provide training support for the latter on early childhood education.

7. Conclusion

Designers, if only carrying out "design services" in the form

of social force, will not obtain substantial structural power in community transformation practice. Therefore, "construction of knowledge platform" and "organization design" may be a viable design method to involve. In this practice, we have identified the needs of social innovation in the region through the participatory approach. By taking the natives' point of view, we tried to construct the "local knowledge platform" that meets the local demand, and established organizational network consisting of the local government, external business, local residents and cross-disciplinary design team. Through these means, we have changed the former participatory approach, in which designers serve in an uncertainty and individual "business needs" oriented way (user-centered design), into a new method that integrates design resources as a power of network, and promote social innovation that meets common social needs (community-centered design).

Fig. 8: social innovation platform

Design based on networks and communities may become a new paradigm of social innovation. Knowledge platforms, organization design and social learning and other sectors are all dependent on the building of network platforms and cross-disciplinary collaborative design in the process of social innovation. Networks and virtual communities will make design participate in community social innovation in a more tensional structural form and social identity power (innovation networks, design networks, social networks, etc.) making a web-based and sustainable harmonious community possible.

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Anna Zandanel
The use of household appliances:
designing to support sustainable behavior

Abstract

It's deeply known and shared that users should be educated to energy saving processes.

The most important phase of the appliances life is the use one, at home.

The aim is to analyze the information connected with product in quality and quantity, thinking about their capability to suggest the best of the behaviors, to let the products bought for their efFrom the information available from the product itself to the collateral communication (manuals, brochures, websites), to transversal sources about environment, the goal will be showing how messages are not clear, once the new product has been brought.

Information to users help a correct appliance use, not just to let them act in the right way, but also to influence their behavior, making it sustainable in different situations.

Can we solve the problem making the product able to communicate itself in a very clear and efficient way, or will a revision of the collateral communication be useful? In which way should designers act for the system revision, not just to create the best product, but also the best use of it? And which should be the role of technology (in the maximum or minimum application) in this challenge?

Introduction: communicating energy usage to people

The problem of energy waste is well known. Institutions agree in the importance of educating people to be aware of their behaviors and the implications for energy use: European Community (2005) .

european energy label

But is awareness enough? Can it really affect behavior? Perhaps knowledge and understanding is not enough. Perhaps we must modify the technologies, perhaps through automation.

In this paper I examine these issues, focusing upon the home where, after home heating and cooling, the highest energy consumption is connected to appliances.

Today, especially in Europe, the efficiency of an appliance is conveyed through labeling. Studies show that labels are seen as a clear and truthful source of information of efficiency. Twenty percent of people who were surveyed state that energy labels are the first thing that they take into consideration when purchase an appliance. As a result, it is estimated that when labeling became mandatory in Europe, the energy efficiency average of refrigerators, freezers, washing machines and dryers increased between 20 and 35%.

People are willing to pay extra to purchase more efficient products . The label communicates the energy class and the potential money savings in energy cost. Although labeling may help in the choice of appliance, it does not appear to impact usage. Choose, but not in the phase use.

Approximately 90% of the total environmental impact during the life of a product from the white goods industry occurs during the utilization of the product. The impact in this phase of the life cycle of the product is in part determined by the performance of the product, which is specified during the design and product development phase. But most of the impact during this phase is determined by how the consumer actually uses the ap-

pliance, since our products are to a very high degree interactive. (Campello, 2000, p.7)

Once the product is brought, the best way to use it and useful suggestions for a better sustainable behavior are not clearly communicated.

Users and products: info around and through the appliance

My PhD thesis at the IUAV University of Venice examines the use of appliances, with a particular focus on the kitchen and white goods. The goal is to develop design guidelines that help the designer to change the usage behavior.

From an analysis of existing products, it is clear that once at home, the product is neither easily understood nor easily usable in the best way.

To explain this, consider several factors.

1. People
2. Appliances
3. The interaction between people and their appliances

households frequent tipologies
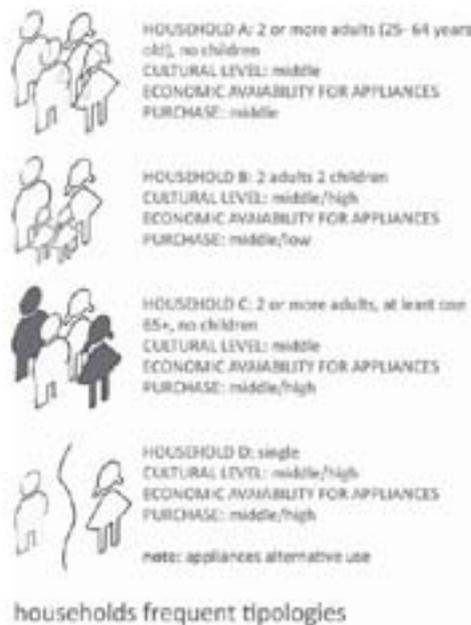
For convenience I reconstruct the history of a dishwasher after purchase. Consider four Households :

HOUSEHOLD A: Composed by two or more adults (25- 64 years old), no children. Middle cultural level. Middle economic availability for appliances purchase.

HOUSEHOLD B: Composed by two adults and one or two children. Middle/high cultural level. Middle/low availability for appliances purchase.

HOUSEHOLD C: Composed by two or more adults, at least one 65+, no children . Middle/low cultural level. Middle/high availability for appliances purchase.

HOUSEHOLD D: A single person. Middle/high cultural level. Middle/high availability for appliances purchase.

Sample scenario

Consider Linda, a 45 year old woman living with a partner in the household described as "A." Linda has purchased a new dishwasher, taking energy considerations into account. The dishwasher is classified by the EU as the most efficient: Energy Class A. The company labels it as ECO, for ecologically efficient. So far so good: the purchase was informed by the highest principles of energy conservation. But now let us look at how it is used.

Most people never even read their manuals, but let us suppose that Linda, being concerned with the environment, does read hers. What will she find?

Her manual is not just for her machine: it covers a number of different models, each with different features. Linda is not sure which model she has, so first she has to figure that out. The manual says it is on the packaging, but that was thrown away by the installer. It is on the nameplate, so she has to find a flashlight and peer all around the machine to find it. With this information, Linda is now confident enough to read the manual.

What does it tell her? Very little of interest. The manual explains how to install the machine and how each control works. The last chapter of the manual is about "environmental concerns," but its focus is on proper disposal of the packaging material . Linda wants to understand how she should use the dishwasher in the most effective way, but the manual does not cover this. This is because, for convenience, companies use the same manual for multiple appliances.

Linda gives up trying to find useful information from the manual. She puts it with her collection of manuals in the bottom drawer (where it may never be looked at again), and turns to the internet. Here, she finds a large number of websites, all eager to provide environmentally friendly behavior. Many of the suggestions are useful, but all suffer from one major problem: None deal specifically with the dishwasher model that Linda owns.

For example, it could be that the washing cycle labeled "ECO" on her model is efficient only with a light load. Not having this information could lead Linda to try to wash ECO with a heavy load of pots and plates, which would not achieve the expected results. As a consequence, Linda might conclude that the ECO program is not really efficient, so she would never use it again. But if the manual had explained ECO appropriately, she would understand that efficiency at full load would not be reached, thus avoiding the consequent lack of confidence.

Linda needs to know what her preferred behavior should be. She does not necessarily want the most energy efficient because that might not be best for cleaning the dishes. She wants the preferable settings that balances effectiveness with environmental effectives: Let me call this "environmental preferability ." This is what the manual should be explaining. What Linda needs is a good conceptual model of how the dishwasher is efficient. If she had an understandable mental model, she would know how to use the controls (see Norman). In other words, the manual needs to communicate the proper interaction strategies. The user of the washing machine needs to understand proper usage, and the best way of communicating

this is through the product itself. The product should communicate how it works though the interface design. The interface is the key to understanding not just what each control does, but the preferability of the settings: which settings are most preferred for the circumstances.

Information can be transmitted in two different ways: by advertising, brochures, catalogues, websites, etc **(communication around the product) and by the product itself and its interface (communication through the product). At present, any of this way is sufficiently developed to permit the user to avoid doubts, or to help him/ her to adopt** the best sustainable behavior.

Observational studies. Video recordings for deepest analysis.

To underline the different behaviors in term of interaction, environmental preferability solutions and mental schemes, people- appliances interactive attitudes have been - and still are- subject of tapings. In particular, regarding this thesis kitchens and white goods, tapings deal with interactions with dishwasher, hob, oven, refrigerator, sink and washing machine. I analyzed the patterns - and often heard the natural comments of people filmed during their actions- watching different interfaces and different habits connected with them.

Users mindsets are typically found in how people interact with the device. So, if a person is deeply convinced of one thing, his or her conviction will be part of the interaction with the appliance, also if the required action does not correspond to the frame of mind.

Let's take some examples.

In a case study video a woman loads the dishwasher detergent and leaves the door open, with the belief that this allows the machine to "wash better" everything.

The belief that the "most powerful" washing program is the most efficient and therefore should always be used indiscriminately (regardless of the level and type of load) is recorded as a quite common idea.

I also observed the certainty that less pollution comes from an half dose of detergent (but applied to the most powerful program).

There are a lot of different appliances, different interfaces, different behaviors. Commonly, appliances like the dishwasher can be built in or free standing. The built in ones (incorporated in the kitchen and hidden by a panel) have the controls on the top of the door. This ensures that, once opened, the buttons - and any display- are visible by the user.

From the interactive point of view the different washing programs are connected with different buttons or different positions on knobs (and just sometimes the water temperature is communicated by prints).

If present, the ECO function is often emphasized by a different color or a marginal position, declaring in this way a "special" attitude.

In any case, currently, interactions and functions describe an "half-automation" situation.

Automatic or manual solutions?

As claimed by Norman (2008, p.110): "we are in a dangerous no man's land, either fully manual or fully automated".

The machine – man relationship is the highest obstacle, and it causes difficulties in reading and understanding the appliances behavior.

Technology is the name of the problem. It's not user-centered (but it should be) and it's not going to be corrected or put in the right trend, as claimed by Norman.

"When technology is not designed from a human centered point of view, it doesn't reduce the incidence of human error nor minimize the impact when errors do occur". (Norman, 1995, p.11)

It's not a human mistake. It's not the user that doesn't care to find sustainable aspects. It's the technological product attitude (or perhaps the designers one?), which hides its potentials putting them on a second level not just in order of appearance, but also in importance at users' eyes. (Let's suppose that this happens because some users knowledge are given for granted).

So, a flexible hierarchy of the possible applications of the product is necessary (and the models available today have a range of cognitive functions hierarchically arranged –but not in a flexible way-.)

The lack of a clear, detailed explanation of the product important aspects creates a basic problem in the user- machine relationship.

Carli (2000) calls "scripts" those aspects that a lot of advertisements try to define with a few lines, explaining the main features of the product. Each script is divided into sub programs, all classified in order of importance, according to a precise hierarchy. But functions are arranged in a sequence that is always the same for different people and different minds.

The hierarchy is determined in advance by the designer. This is necessary because information are too many for anyone to assimilate them all. (Norman, 2008). The problem is represented by sequences, information and the arrangement of these elements.

For this reason, the affordance concept is crucial.

The affordances of an object refers to its possible functions. [..] In design, the critical issue is perceived affordances: what

people perceive the object can do. We tend to use objects in ways suggested by the most salient perceived affordances , not in ways that are difficult to discover (hence the that many owners of electronic devices often fail to use some of their most powerful features- indeed, often do not even know of their existence). (Norman, 1995, p.106)

Hierarchy arrangement is planned for a big variety of users, so the rule cannot be to find out the solutions that are supposed to be the most important: not all the people would agree on the same "most important" function.

Design a more adaptable, plastic appliance to give the user the possibility to choose would meet individual human needs in a better way.

I mean that, depending not only on who should have access to information, but also on what people need, the appliance must be ready to respond in a quick and easy way.

Since users have different needs at different times, the interface structure and the information organization must meet these needs, without take in consideration technological limitations. Appliances should be able to be shaped as the best of plastic materials.

But the current situation is represented from a partial automatization. For this, interaction is actually a crucial point. User should be able to understand when it's better to trust object autonomous selections and when, instead, it's better to take charge of the choices.

This issue is even more sensitive if related to sustainability.

Ethically, the question is if it is better to leave the user unaware of the actions (giving the appliance the possibility to be more sustainable) or if it's better to leave the person the opportunity to learn and be aware of his/ her actions. Shortly: if it's better give people the possibility to choose or not. Not every person has the same attitude towards the same product. Someone prefers full automation (and this will avoid many blunders, such as the selection of the "maximum" for every wash of the dishwasher), others want to have the full control of their actions. But there are others, inspired by sustainable purposes, that want to make good choices for precise savings.

In terms of production, it's not possible to have a single specific product for each one of these attitudes.

Conclusions
Guide lines proposal: suggestions for a different design attitude

So: which are the possible solutions?

If people are expected to use their appliances efficiently, several design principles should be followed.

First, the user must be able to form a good conceptual model of the operation, the best to select the settings that are environmentally preferable. Second, the communication of this information is an interface design responsibility.

Three important design principles can be used to communicate effectively: feedback, customization and tone.

Feedback

The amount of water used for washing could be communicated through sound, giving the consumer the idea of the difference between a full cleaning efficiency and one with water saving property. Similarly, energy usage could be communicated through naturalistic sounds, providing an effective but non-intrusive indication of energy uses (see Gaver). The traditional sounds used for feedback are counterproductive. Buzzes and beeps are difficult to interpret and discriminate from one another. So too with the normal use of lights through simple red, green, or flashing lights. Simple sounds and lights simply interfere with normal activities and convey little information. However, through careful, naturalistic design, ambient design, this information can be conveyed more naturally, more effectively, and less intrusively.

Customization

Customized controls gives people both freedom to chose their preferred styles and also simplification of use. For example, some choices in terms of software (such as font selection - body and type- , colors, sounds, etc..) can construct a more user friendly interface, as for mobile phones.

Then, let people choose between automatic and manual operation, giving the machine operator the choice between more or less awareness of their actions.

Functions hierarchy can also be customized, to let the user construct its own sequence of controls.

Proper feedback would allow people to know the implications of their choices, assigning a score calculated from the energy provided by the selected function. These scores could even be used in a social network to make the savings of energy into a friendly competition. Challenges could encourage people towards a more sustainable behavior, in view to win the competition.

Tone

Today, the tone of the communication from machines to people is often rude, abrupt, and impersonal. The machines buzz, hiss, and beep. Error message scold. People are blamed for their actions. Good communication needs to be shared, friendly and comforting, and polite (Reeves, B. & Nass, C. I., 1996). In the end, effective communication requires all these principles: a friendly, supportive tone, useful feedback, and customization.

Next steps

We must also keep in mind that also the product collateral communication needs to be reviewed. From user manuals (where should positive to find detailed advice on the use), to brochures, to the joining with the direct communication of the product through the interface, we believe that margins applications of the proposed solutions are more than ample.

That is why the subsequent phases of this thesis will regard the test of the guidelines, to make them valid or not, depending on the results with users.

Next step will be to build a prototype that embodies the guidelines set out above and subject it to several people, asking

for feedback to correct any errors, achieving results deeply shared.

The review for a clear and effective communication is therefore required on several fronts. Give the user a realistic chance to act in the best way is a designer's aim, who should seek to go beyond standard thinking patterns, as well as the need to include as many functions as possible for a greater service for the person.

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www.electrolux.com
www.bosch.com
www.ge.com
www.whirlpool.com
www.aeg.com

Notation

1. These campaigns provide clear information on saving energy and urge consumers to act, can be effective in changing perceptions and encouraging action virtuous. […] Should not be difficult to convince consumers that, with relatively simple measures, the average European household can save a significant proportion of its costs, particularly important for households for which energy expenditure is an important item of their budget. Education and training can contribute significantly to strengthening a culture of energy. […] (European Community, 2005. p.13, translation mine)

2. In particular, as reported by the Energy Information Administration (2005) the consumption of kitchen and laundry are on average one third of total energy consumption of a household.

3. 47% of respondents believe, in fact, that an independent energy labeling scheme is the main source of information for choosing an efficient appliance in terms of energy, compared with only 14% for material made available by the producers at outlets. The labeling efficiency has also influenced an increased energy-efficient appliances, confirmed by the survey (Jenny Yates, 2007)

4. 70% of respondents considered that at the time of purchase, consumers are willing to pay a surcharge of 5% for more energy efficient televisions. (Yates, 2007)

5. Analyzing households through statistical surveys (Energy Information Administration; 2001) I notice that in the early 2000s the trend indicated a reduction of households size and, contemporary, an increment of households number. Shortly, Families have increased, but with fewer components inside.

6. In the analysis I made fifty user manuals of various brands and models have been examined. It could be inferred that environmental considerations are always placed at the end of the manual, covering only packaging and appliance dimensions information. In other words, environmental considerations appear into manuals, but do not go beyond what is required from them. A distinction should be devoted to Bosch, whose appliances are often equipped with good manuals, with entire sections devoted to energy saving and advices - even if generic- for a sustainable behavior.

7. Rather than green, we will speak about […] environmentally preferable products, or "preferable" to others in the same conditions. The difference is not only terminological, but structural. In fact, a product, a method, a system cannot be considered as absolute because this ecological absolute quality is deeply variable. It's better to talk about preferability, a term that relates that at that time, in those specific conditions, both for the environmental and the economic points of view, that particular product or service is better than another. (Badalucco, Chiapponi 2009, p. 43, translation mine)

8. The concept of natural sound has been treated by Norman (2008). He laments the massive presence of artificial sounds related to home appliances. The artificiality of the acoustic signal can misled concerning the allocation of the sound itself: the risk ultimately is to be not able to distinguish which appliance is communicating and what is communicating. Natural sounds are the ones related to the normal operation of the appliance (i.e. water noise in a dishwasher program communicates the process)

9. User should not feel "wrong" or unsuitable, neither with the game. A good feedback should encourage a behavior improvement. For example, if an Eco wash gives 100 points score, while a maximum only 20 (load sensor would be necessary, of course), a speech communication could tell: "Tom, the nearby scored 1000 points this week! Win on him adopting more eco wash loads like this!" or, even, "Tom you scored 300 points last week. Reach 500 points this week by preferring full loads washing! "

Ulla Johansson

Reality Studios:

A Combined Device for Education, Research & Social Change

Abstract

A "Reality Studio" is a pedagogical device for design & architect students making their thesis work in a real life project in Africa. The studios have been practiced in collaboration with Maseno University in Kisumu since 2005 and in other parts of Eastern Africa since the end of 1970s. The focus is on everyday life and sustainable urban development and uses a trans-disciplinary approach. The studio is based on a longer field study, and builds upon the intensification, development and implementation of small-scale design, which is more adaptable to local situations, thus lowering the threshold towards reaching sustainable development. It is, as the name indicates, both a pedagogical model and a way of accomplishing change in real life. It also blurs the lines between education and research.

The "Reality Studio" resembles Business and Design Lab's (BDL) approach to education, research and development and what is so far has been labeled a "Workshop semester". The workshop semester also deals with real life projects, though mainly for designers and management students rather than architects and has so far been conducted in Sweden

Both Reality Studio (RS) and Workshop semester (WS) are interested in blurring the lines between their different activities. Both aim to work with ethical dimensions and a sustainability perspective – and both work with different sorts of creative experiential approach in master courses and Ph.D. education. We now want to merge these two names as well as the activities and find a joint platform.

In this paper we want to conceptualize and narrate the concept Reality Studios, and make clear what we mean by that. We also want to make a theoretical positioning versus action research as well as collaborative research.

The concept Reality Studios – its history and context

The Reality Studio has its history at Lund University, Architecture and Development Studies (Ark3) where the pedagogy was developed in the 1960s. The late Professor Torvald Åkesson introduced the philosophy and the studios abroad, and in 1967 studios with field studies started in developing countries, first in Tanzania, then continuing in several countries in East Africa.

The concept "Reality Studio" comes from Professor Maria Nyström, first at Lund University and now a professor at Chalmers and HDK/University of Gothenburg (GU), who further developed the studios in Kenya where they have now existed for 5-6 years. The Reality Studio runs annually and is well-known within the Kisumu Municipality, Maseno University, and other related organizations.

"Reality Studio" consist of a group of students (15-25) from different nationalities and subjects (so far mainly from architecture, planning and design) working on their master's project or thesis. The group forms a fictitious creative architecture studio within the Department of Architecture, Chalmers University of Technology. It is a full-semester project based on a two-month field study in East Africa (mainly Kenya and Tanzania) and deals with questions about development from architecture-, urban planning- and design perspectives. The label "Reality Studio" conveys some of the aims for the students' work: that it should contribute to real life changes for the people where the studios are set up, to date mainly around Kisumu, Kenya, where an ongoing cooperation, since two years, exists with Maseno University. One aim is to contribute to specific improvements in everyday life; another is to continually work with a sustainability framework. These conditions place the Reality Studio in the border between education, development work, action research, entrepreneurship, and sustainability work. The combination of education, research, and real changes is a significant part of the Reality Studio and what attracts students. The collaboration between Chalmers and Maseno University also implies that students and teachers from both universities have the opportunity to participate in the studio and thereby Reality Studio also involve building and development of networks on different levels between students, teachers and the universities as a whole.

The Reality Studio takes its departure from the current urbanisation processes, with the vision to increase health and enrich the quality of everyday life on Earth. The immediate goal is to find new design and planning strategies for urban areas, villages, neighbourhoods, and for the built environment in general and architectural conservation and transformation.

Because sustainable development is a global issue that needs to be managed with care in each locality, each site needs careful analysis and locally specific solutions. But these sites also face problems that they share with many other cities of the world, such as threatened cultural identity and increased tourism, population growth and poverty, urban expansion, pressure on resources, climate change, declining markets and growing slums.

A basis for the Reality Studio is the belief that we need new strategies for urban design and planning that can meet the challenges of fast growing mid-sized cities of developing countries. Such areas are complex, with conflicting interests of various groups and the interaction of social, cultural ecological, technical and economic pressures; thus strategies involve an integrated systems design approach to urban development, taking into account various preconditions and including a long-term perspective on resource-efficient urban management. We need to mobilise expertise from different sectors of society in a trans-disciplinary knowledge development processes placed in real world urban development. Points of departure are social-cultural transformations in the everyday lives of people as well as architectural conservation and transformation of the existing built environment, organisations, and enterprises. Such processes have to be understood, designed, and facilitated in ways that promote the integration of relevant leading-edge scientific knowledge with place-specific experience-based knowledge. The design disciplines, such as architecture and design, use a problem-oriented and synthesizing approach that addresses and communicates the increasing complexity that designers, architects, planners, managers, politicians and others must cope with in society.

Reality Studios are simultaneously student projects at the master level and "real projects" where the students act as consultants and researchers to improve the quality of daily life. The key concept is mutual learn¬ing and the Reality Studio becomes a capacity-building project for the students, teachers and the local partners. Two important pedagogical goals are to make the students aware of the social context of their future work and to make them capable of analyzing that context as a necessary point of departure for their work.

The students are taught to use research methods for systematic investigations, to formulate questions and define problems to solve. Project design is central and the students are trained to develop their own projects through interaction with local stakeholders. The design project must in some way support and improve the everyday life of the local people. However, the project/product should also be realisable without any extra resources (material and human) from the outside; the resources used should be found in the local context. Accordingly, the field studies have the following stages: 1) "Read and Discover," which is a systems thinking survey of the local situation and context from micro to macro levels, 2) Project Area Definition (PAD), including strategy and programme design, 3) Project Design, formulating the issues of study and their boundaries, and 4) Exhibition and Communication. The concluding exhibition and communication with local people serves as an input to the final stage 5) proposed design solutions, the elaboration of conditions

necessary for the successful survival of the design solution, and reports and projects at the home university.

We believe that students as a group have important roles in defining and starting projects that lead to development of future research projects. We also believe that students constitute one important target group for capacity building. First, they are a resource for data collection, idea generation, and communication with local people. Second, student projects have proved to be useful "neutral" tools for communication between researchers and practitioners, experts and laymen. Third, students are the practitioners and leaders of the near future and, as such, the best disseminators of research results and normative guidelines for practice. With the approach that programs for higher education should be experience-based learning, students can play important roles in the development and implementation of locally grounded vision, policies, strategies, and action plans for sustainable urban development. Moreover, through increased options for continuing education and support of networking activities, these young future practitioners play significant roles in a longer-term perspective on urban development.

The workshop semester in Business & Design – history and context

The workshop semester in Business & Design Lab (BDL) is, compared with the Reality Studio, a new phenomenon. The planning of a 2 year master program in Business and Design started in 2007, the first students were accepted in 2008 and the first graduation took place in June 2010. The master program is part of a broader investment in cooperation in research, education and cooperation with the surrounding society, between School of Design and Crafts (HDK) and School of Business, Economics and Law that started in 2006. The idea behind had been discussed by the deans and other people in a couple of years and could be described as follows: We want to create an education that blurs the lines between design and management but also between research, education and practice (defined as what is outside Academia).

This master in Business & Design within University of Gothenburg belongs to a stream of universities that the last years have started courses and/or programs where students with different backgrounds in design, business and technology can study in an interdisciplinary and integrated manner. The most renowned one, the D-school at Stanford University, has only short courses where students combine training in design methods with their basic subjects, up to a maximum of 1-year. Students at the IBDM-program at Aalto University Helsinki combine studies in technology, business administration and design with a common project as a part of their master exam. As far as we know, to now there is only IDBM and Business & Design Lab (BDL) that has a cohesive and 2-year master program with a common exam at an advanced level open to students from various disciplines.

The Business & Design master program is designed for students and professionals with different educational backgrounds but a common interest in working strategically with design. Every year about 10 students with design background

and 10 students with management background are accepted. About 4-5 students with great interest and relevant background in other subjects (like communication, engineering etc) are also accepted. The students start with a specific background and what happens during the 2 year program is that they both confirm and broaden their capacity into an individually formed blending. They all learn "design thinking" but they do not all of them design any artifacts or sketches – even if they all get familiar with the design tools and process for problem solving.

The first year of the program consists of a number of shorter courses that cover different areas in the intersection of design and management: Design and society, Design and accounting, Design and marketing (with focus on branding), Design strategy and innovation (including service design). The students also read introductory courses like "Design for non-designers" and "Management for non management students" as well as a course in research and philosophy. In the end of the first year they have a 10 weeks course with applied integrated work in groups. Then they act like consultancies for a company or a community with the difference that they do have more freedom and are able to be more critical than most consultants do have.

The second year has only two courses. The first one is the "workshop semester" that resembles the Reality Studio and the second one is the thesis work – that often is a continuation and theoretical reflection around the work done in the workshop semester. The workshop semester runs in close co-operation with the regional trade and business companies and organizations. In the course, students cope with different roles (as design students, management students etc.) as well as their individual profile of knowledge's and interest. They contribute with their various expertises.

The program is manned by teachers from the two schools together with professionals from surrounding companies and other organizations. All are very enthusiastic and devoted to the idea of an integrated program.

The primary purpose of the program is to prepare the students for careers in the arenas of business development, marketing, branding, and product and service development on a strategic as well as on an operational level. More specifically, they will also use design and design thinking as instruments in these endeavours and be able to work with different people, perspectives, and interests throughout the process. This includes the ability to use innovative and creative thinking combined with the capacity for a down-to-earth implementation of ideas and a readiness to continuously acquire and apply new knowledge.

The Business & Design master program foster aimed-for attitudes and behaviours through pedagogy of problem-based learning (PBL) (Savin-Baden & Howell Major 2004). Students formulate questions, problems or cases to explore in connection with different subject areas or topics in order to learn, but also to produce new knowledge. They work in small groups consisting of representatives from the different disciplines. The role of the faculty in this PBL setting is to facilitate this exploring process rather than to teach a certain amount and a certain kind of knowledge and to dissolve the borders between teaching and practice. In other words, to form all learning processes around

common activities.

The most central part in the program is a vivid cooperation with the external environment working with open cases and problems anchored in current needs. This entails lots of opportunities and interesting works but also a lack of control. (Opposite to the Harvard method with well defined old cases, well-controlled but also with a high risk of just re-cycling earlier knowledge). Earlier experience shows that it is important to take measures to avoid some particular problems which can show up during such operations.

An important feature of the program has been to get organizations or companies that are interested in acting as real partners for the program. In order to get a group of students to work with them they must act as if the students were their own paid consultancies – only with the difference that the students are not obliged to follow all the restrictions normally given to consultants. Here, the students can act more freely and stretch their capacity to create a more visionary solution. Yet they learn how to act in a real case situation. The aim is that the students should get experiences from a working process and knowledge about how to use and stretch their own capacity at the same time.

The first examination and presentation of the final thesis work from the students took place only a week before this paper was written. It was obvious that neither the problematization nor the suggested solutions could have been created if the group had not had access to both management and design knowledge and insights. The students have through the program learnt how to improve their ability to communicate and to take advantage of each another's expertise.

Interesting is also that the projects not only span between design and management, but also between quite diverse industries (from Volvo AB to small companies) but also between commercial companies and local communities.

Conceptualizing the similarities between the two concepts

We see three different levels within both of these student projects (RS and WS), that partly overlap and in different ways support and benefit to each other. The methods, content and lay-out of the projects are not the same but have several key-elements in common. By fusing the projects together (partly or as a whole), we are convinced that the possibilities for achieving a more grounded and at the same time dynamic knowledge base within the two projects, will be greater and that the results thereby will have more impact and relevance to the actual stakeholders and the problem areas in general. The different levels are education, research and practice, and the key-elements that to a great part will constitute the association between the projects are described and discussed below.

In academic, research and education are intertwined. Few people would deny such a statement. However, the relation between education and research is mostly thought of – and practiced – as one where the result of research is presented to other academics or to students. The espoused model for master

education is for the researcher to present his or her own results to students. In practice, this model is infrequently realized; at best professors use results from the work of colleagues or published in academic sources. If the education is restricted to what is already known through research, the effect will be limited and irrelevant education.

The structure of learning in RS as well as in WS implies that the students need to orient themselves in "the reality" (real world projects). The basis and start of the projects starts is the student's active participating in the defining and formulation of a problem area, in other words the pre-design process of the project constitutes an important part of the learning- and project-process. This initial phase of the project is conducted in close contact and cooperation with the company or organization connected to the project. In most cases, this approach makes the stated issues and produced knowledge up to date, meaningful and useful. It also gives an incitement for the students, teachers and involved organizations to build further on previous work.

Many problems in both the management and design areas are of a kind that yield quite diverse knowledge depending on whether the research starts from an analysis of academic perspectives or whether it starts by listening to what is said and practiced in the market and reflecting on that. Reflexions, defined by Alvesson and Sköldberg (2007) as a matter of stepping back and critically analyzing one's own interpretations of the situation or text, are probably one of the most important characteristics for research in the emerging area of design management and the design area as a whole. Building on this idea, we believe that intellectual dialogue and cooperation between academia and the world of practice should take place at all levels, between students, teachers and researchers, and everyone should be seen as resources in the exploration of the design possibilities for organizational and societal change.

Both of the projects take departure in problem-based learning (PBL). These are projects where the students work and study in close connection with an existing organization or on a societal level in Sweden or abroad. The purpose is to, under supervision; make use and test abilities and theories. The work of the students result in a direct application "in reality" on the basis of previously acquired skills, theories and information. For the students this seems to lead to a more active definition of one's own professional role and thereby wider conceptions of possible areas for future work. This is also further emphasized by the studio set up, with students from different backgrounds and educations forming project groups, practicing and experiencing group dynamics, project management etc. One interesting observation with this project set up is also that the students seem to a larger extent be more aware of the time component in more complex project work, in other words consciousness about how to handle short-term and long-term solutions and the connection between them.

The propeller metaphor
Source: Malbert, B. 2008

Conceptualizing the differences towards action research and collaborative research

Collaborative research is characterized by a close and ongoing dialogue with the companies. In that way we are entering a dialogue with the companies and communities that we collaborate with in the workshop semester. We are already in the phase of planning the third workshop semester and find ourselves in a situation with a dialogue with a number of potential organizations – some of them might be selected for a workshop semester others might be better for the applied work of 10 weeks in the springtime. Further more might find that they can be partners in research projects or participants in single courses or workshops arranged by Business & Design Lab. The ongoing conversation that can result if different actions initiated either by the company or the university makes the workshop semester resemble collaborative research.

However, in collaborative research there is often a distance between the researcher who takes care of the material and information in their own way. This is something that differ collaborative research from the tradition of action research where the researcher mostly is engaged in an organizational change or societal change that he or she aims at.

Regarding these two characteristics Reality Studio are definitely more of action research while the workshop semester so far could be either or. Also, as said before, both the workshop semester and the reality studios are a combination between education and research.

Summary

Management studies and design studies do have quite different traditions and it is not easy to make a joint master program with multidisciplinary groups consisting of both design and management students. An interesting way of such multidisciplinary groups is the so called "Reality Studios" developed during a number of years and the "workshop semester" than has been developed the last years at University of Gothenburg.

Both programs let the students start with defining real problems in an organization (Workshop semester) or a life context (Reality Studio). In both cases the formulation of the problem is as essential as the solution presented (that in turn of course depends on how the problem is formulated).

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Teresa Franqueira

Creative Places and Strategic Design for Sustainability

Abstract

This paper aims to present an emerging phenomenon based on social innovations, which is striving to associate sustainable social, economic and cultural behaviours to the prevailing unsustainable socio-economic model. This emerging phenomenon has been designated as Creative Places, i.e., urban spaces where people collaboratively promote and manage a mix of creative initiatives that foster social innovations and the emergence of a more sustainable development model.

To address the research question "How to facilitate the implementation of Creative Places in the urban territory by means of design?", it was important to articulate an in-depth understanding of these places, how they work, the motivations and drivers behind their implementation, how they are organized, which kind of activities they develop and their impact in their surroundings, and crucially, how they can be replicated and diffused across the city.

Based in a case study methodology, the research has analysed cases in European cities, taking into consideration the interactions between three main areas of activity (Culture, Knowledge-based enterprises and Social initiatives).

It will be described their features as small and local entities, open and connected in their organizational systems.

It will also be presented a set of strategic design guidelines to bridge local top-down initiatives with bottom-up ones, and a set of tools for citizens to collaborate, create, and contribute in the process.

1. Introduction

There are a growing number of people, organizations and institutions behaving in a creative way in the contemporary knowledge society (Giddens, 2001; Ray and Anderson, 2000) and according to the Young Foundation Report (Mulgan, 2007) social innovations have been moving from the margins to the mainstream. From the EMUDE research (EMUDE, 2006), conducted at the Politecnico di Milano with the European Commission's support, emerged that all across Europe ordinary people are making the extra-ordinary happen, expressing a diffused creativity put co- operatively into action by "non-specialised" people, embodying a significant expression of contemporary society (Manzini, 2006).

From observation and desk research, it became apparent that those clusters of creativity, or Creative Places, are mostly found in cities, as the result of a special urban creativity deriving from the problems and potential of cities and the special response they require. Characterized by specialisms and niches as well as an innovative mix of ideas, these places are the result of urban life itself in the sense that they result from a set of conditions only found in cities - optimal dimension or critical mass, cultural and ethnic diversity, universalism and large fluxes of exchange and interaction (Landry, 2000). Also worth considering was that the shift from a period of industrial prosperity to a post-industrial one left behind abandoned industrial sites and unemployment, transforming booming neighbourhoods into rundown ones. This reality opened unforeseen perspectives, as some of those abandoned places were re-occupied and converted to new uses. The "available" architectures of those buildings, open-ended in their essence and with no predetermined role, welcomed new experiences and were open to various re-interpretations.

Those renewed and converted places upgraded the urban environment of entire neighbourhoods - they became spaces where groups of people could put in practice urban regeneration through, namely, a focus on culture and creativity as means of generating wealth, jobs, identity and active citizenship. They encourage people to get involved in civic initiatives and to get together to back common causes; they provide emotional and intellectual outlets in creation and in doing so they help people to form a better relationship with their environment and their lives; they promote social cohesion and inclusion and become active agents of a participatory democracy. They form the backbone of what we consider, for the purposes of the research conducted, Creative Places.

2. Creative Places. An emerging phenomenon

Creative Places are a new type of urban spaces where

groups of people collaboratively promote and manage a mix of creative initiatives in the fields of art and culture, economy and production, social services and urban regeneration.

They are very diverse but, at the same time, they have some strong common denominators, the most evident of which are that they are deeply rooted in their own city, but also open and cosmopolitan; and even though they are self-standing initiatives, the are also highly connected and depending on a complex interplay of top-down, bottom up and peer-to-peer interactions.

Creative Places gather 3 phenomena that are steadily gaining momentum: artistic and cultural production; knowledge-based enterprises; and social initiatives. But the existence of those 3 phenomena, does not, by itself, define a Creative Place. It is their simultaneous mix and confluence that is its defining characteristic. By amassing those 3 areas, Creative Places work as incubators of novel developments, as well as launchpads for what may be a more socially sustainable future.
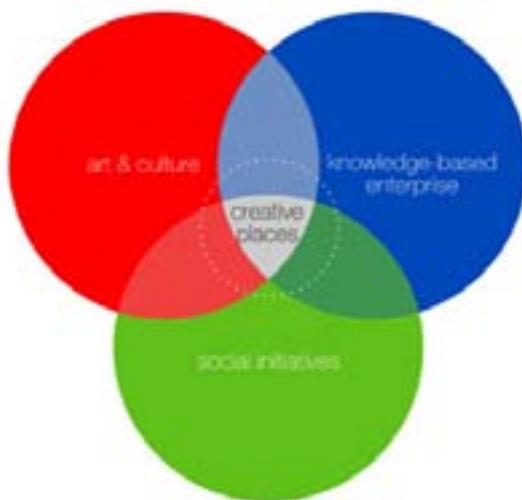
The propeller metaphor
Source: Malbert, B. 2008

In order to understand this phenomenon it was important to articulate an in-depth understanding of these places, how they work, the motivations and drivers behind their implementation, how they are organized, which kind of activities they develop and their impact in their surroundings, and crucially, how they can be replicated and diffused across the city. That was done through a Case studies methodology, carried out mainly through desk research. 13 cases were identified and between those, 4 were singled out to be analysed in-depth: UfaFabrik in Berlin (Germany) ; Grote Pyr in The Hague (The Netherlands); Republikken in Copenhagen (Denmark) and Fabbrica del Vapore in Milan (Italy). For this in-depth analysis, field research (through ethnographic methods) was applied.

Landry (2000) refers that cities need "platforms for delivery", as creative people and projects need to be based somewhere to develop entrepreneurial activity, to test ideas, pilot products and services. But they need them at an affordable

price, reducing financial risk and therefore encouraging experiment and innovation.

At the same time, the evolution of new governance dynamics, new planning and policy development paradigms and new organizational structures are also needed. Greater collaboration, cooperation and communication across and between governments, and public/private and non-profit jurisdictions are urgently required. In order to do this, it is necessary to develop innovative governance tools targeted at facilitating the very existence of innovative communities, a cultural and legal framework capable of dealing with the demands arising from new ventures (Jégou and Manzini, 2008), and a culture of collaboration.

Collaboration (or collaborative work) implies having a shared purpose, high-level of commitment, trust, flexibility, adaptation to change and clarity of objectives (Parker, 2007). It is the capacity to solve problems or open new possibilities collaboratively among different actors.

Those are the characteristics of the individuals or groups of individuals who are behind Creative Places. If governments cannot manage more innovative and collaborative approaches to social problems, their citizens can. This perception is to become central in shifting governance paradigms in order to include those most affected by problems in their solution, since they are best positioned to understand the context within which their communities exist and the problems they face.

As Landry (2000) puts is, some of the most forward-looking creative work occurs at the grassroots level, where ideas can flourish, experiments can take place, and creative activity is less constrained by institutional bureaucracy and market imperatives. And local organizations not only respond more effectively to local needs than larger, top-down structures, but can also better focus and connect community resources to enable latent collaborative talent.

3. Creative Places' Features

The essential theoretical findings extracted from the research conducted and from the in-depth analysis of case studies characterise Creative Places as incubators of knowledge based initiatives; new organisational models; sustainable lifestyles and a new civil society, all of which are necessary elements towards sustainable growth.

3.1. Incubators of sustainable lifestyles

One of Creative Places' features is that they challenge traditional ways of thinking and doing and introduce more sustainable ones, proposing themselves as free spaces, where socio-technical experimentation is possible (Warnke and Luiten, 2008 in Jégou and Manzini, 2008).

They generate and put into practice ideas of wellbeing that are based on a set of "sustainable values" (related to the ideas of community, locality, common goods, care, slowness, etc.), where not only new artistic expression becomes possible, but where also more everyday life ways experiences can be tested and more sustainable ways of living can be experimentally invented and explored.

3.2. Incubators of knowledge-based initiatives

A crucial precondition for the successful transition towards a knowledge intensive economy is the ability of all actors of the innovation system to learn and react to change. As innovation studies have long been pointing out, it is the quality of the whole system of innovation, and no longer the excellence of single elements, that determines success within a knowledge-based economy (Warnke and Luiten, 2008 in Jégou and Manzini, 2008). And for a knowledge economy to flourish it needs a wider knowledge society - knowledge-oriented companies need well-trained knowledge workers and dynamic, stimulating social contexts (Manzini, 2008).

The emergence of Creative Places is offering a potential to exploit this pathway towards sustainable knowledge-based competitiveness. They offer a favourable background for creative innovation and can become both the fertile ground for new knowledge-based enterprises to germinate and breeders of well-trained knowledge workers. In their almost "laboratorial"-like settings, Creative Places could become facilitators of that transition by acting as interfaces between innovators and users and enabling joint learning and customising of innovation; and at the same time they could help companies to orient their innovation activities towards future demands.

3.3. Incubators of a new civil society

The transition from the industrial age to the age of knowledge brought about diverse changes in the way we live, and the progressive meltdown of the welfare state and globalisation have created new problems and, thus, new needs (McLaughlin and Davidson, 1985; Beck, 1999; Giddens, 2001).

The initiatives promoted by these groups of citizens, congregated in specific places, are a response to everyday problems and to the needs arisen by this new reality, working in a radically different system to the traditional one. These citizens do things themselves, to help themselves. Unlike the mainstream vision of social services where the predominant figure is someone who provides things for others, the characterising aspect here is that everyone concerned is directly and actively involved in achieving the result that the enterprise itself sets out to reach (Manzini, 2008).

Creative Places seem to have a great aptitude to reconcile distinct but complementary objectives, like economic development, social inclusion and sustainability. Because they appear as communities capable "of producing information, knowledge, and culture through social, rather than market and proprietary relations—through cooperative peer production and coordinated individual action—that creates the opportunities for greater autonomous action, a more critical culture, a more discursively engaged and better informed republic, and perhaps a more equitable global community" (Benkler:2006:92).

3.3.1. Active citizenship. Creative Places can be regarded as social laboratories where a new more integrated citizenship can be forged, with the risk of fragmentation and pulverisation being reduced. These are places where diverse local communities contribute actively to the formation of a new and shared sense of citizenship, increasing participation to social life through everyday activities, while promoting local economic development and cultural production and consumption. Because collaboration is also about empowering people to shape their own lives and participate in the construction of the res publica.

3.3.2. Social cohesion and active welfare society. Creative Places can be seen as the seed of a new active welfare society. That is, an intelligent active state where public authority continues to play a key role but where citizens also participate in an active way, exercising their citizenship. In fact, in this perspective, Creative Places may offer an entry point into such a society as they signal a new kind of active and collaborative engagement of people. To counteract social exclusion means working to ensure that everybody is 'included' in the benefits of living in a well-organised society. It also means creating strong and cohesive communities which support people, and people contribute to. In this setting Creative Places may offer an alternative pathway for social inclusion beyond classical employment schemes and become core elements of an "active welfare society", i.e., a society better suited to address the enormous challenges to our welfare state system, that we know is ill-equipped to deal with many of the modern social problems it has to confront (Leadbeater, 1997).

3.4. Incubators of innovative organisational models

These places may be seen as new, open and flexible institutions operating in a world of fast paced change, partially assuming many of the functions traditionally assigned to the old, closed and rigid institutions of the industrial society (Toefler, 1984; Giddens, 2001; Beck, 2004).

3.4.1. Nonhierarchical organizations. Collaborative work implies an approach different to the one seen in the traditional hierarchical pyramid-based system, since all actors are involved in the co-design and co-management of the organization, sharing more or less the same degree of responsibility.

Simultaneously, they are the producers and the users of their services, creating also a different economic model based on a combination of self and mutual-help, of barter and gift, market and non-market economies (Manzini, 2008).

These different patterns of organisation, and management, flourish where there are diffused skills and distributed competencies able to put forward such organizational and management models, that is, different and new ways of doing things.

3.4.2. Culture of Trust. These organisations acknowledge that their distributed and collective know-how, creativity and ideas, collaborators and users are their most important resources and to rely on them and to work based on peer-to-peer collaboration calls for trust, without which there is no room for collaboration, nor creativity or innovation (Leadbeater, 1997). What we have seen is that Creative Places generate large reservoirs of trust, without which the collaborative services produced would not take shape.

3.4.3. Size matters. The Web 2.0 phenomenon makes it possible for millions of people to belong to a community, collaborate and share the contents produced in its midst. In virtual

communities size is not a problem, in turn it's an opportunity for ever increasing the wealth of contents and broaden its scope of influence and reach. In fact, one of the decisive factors for P2P networks to work is its size: the bigger they are, the bigger the contents produced and shared, and the bigger their attractiveness to a wider audience. This "mass-innovation", as Leadbeater (2008) puts it, is the characteristic of the XXI Century: more ideas being shared by more people than ever before, with the help of technology.

Regarding Creative Places, this relationship is not the same. In fact, most cases are small entities, with small-enterprises and small groups of people, even if they are connected with several similar places, thus creating a diffused knowledge. As they work based in physical peer-to-peer interaction and local collaborative relationships, the bigger they are, the more unmanageable they become as the number of links between people rises much faster than the number of people themselves.

Through the Birthday Paradox (Shirky, 2008) engine, it is easy to see that the complexity of a group grows faster than its size:
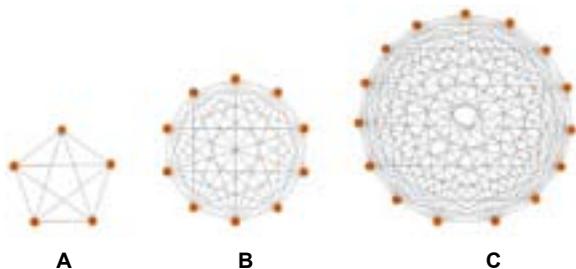

Figure 2. Three clusters A, B and C, with all connections drawn. The cluster A has 5 members and 10 connections; the cluster B has 10 members and 45 connections; and the C has 15 and 105 connections

So, as groups grow it becomes impossible for everyone to interact directly with everyone else. This problem can never be solved, only managed and in modern life the solution has been gathering people together into organizations (Shirky, 2008). But the typical organization is hierarchical with members answering to a manager that, in turn must answer to a higher manager and so on. This simplifies communication, by avoiding each member having to communicate with everyone else. And to do this, traditional management needs coordination and needs to simplify it; otherwise the costs of directing the members can be higher than the potential gain from directing them. This is why Shirky (2008) refers that certain activities may have some value but not enough to make them worth pursuing in any organized way.

However, the emergence of new social tools is lowering the costs of coordinating group action (Shirky, 2008). These tools are widespread in the Internet, and are mainly used there, but the concept of sharing, working together, collaborating and participating are happening in Creative Places as well, where they are reinvented and complemented by physical peer-to-peer interaction and local collaborative relationships, as mentioned above.

Working together takes time, effort and know-how, and balancing all these is the cornerstone of Creative places, as its effectiveness is largely conditioned by the relational qualities of each concrete initiative, which cannot be dissociated from their size.

3.4.4. Flexibility. Managing such type of organization requires flexibility. And being flexible means being open and adaptative. This implies a system with an openness quality, the capacity to welcome change and diversity, and implies an adaptative quality (or resilience), the capacity to absorb change, the ability to change and adjust to changes in the environment where they evolve.

Adapting to change, building creative capacity and establishing positive new directions requires a culture where people are encouraged to revolutionize approaches, reform processes and policies, rethink measures and outcomes.

Creative Places are incubators of these new types of organisation – open, flexible and adaptative - where new patterns of management that can be implemented at both corporate and government levels are trialled in order to respond to future (and present) demands.

4. Strategic design guidelines for Creative Places

If the contexts where innovative communities exist cannot be designed, some of their characterising elements can be conceived and implemented. It is possible to identify and develop material and immaterial elements that work together in a given context to enhance its chances of becoming a fertile ground for creative, bottom-up initiatives. That is to say, it is possible to improve a context's capacity to support innovative communities, and to enable a large number of potentially innovative citizens to move in the same direction (Landry, 2000 and 2006; Leadbeater, 2006; Manzini, 2008).

In order to do so it is necessary to actively promote a dialogue that will enable the convergence of groups of people and organizations, optimising and potentiating their resources, skills and ideas. Namely by suggesting the tools that will facilitate/support stakeholders in the process of promoting radical innovation and providing a platform for collaboration, co-creation, and participation.

Figure 4. Visual representation of systemic collaboration

Given the possibilities for collaboration between multiple actors, as presented in figure 4, and assuming the premise that the optimal conditions to work are in place, design may have a role to play in the enhancement of the efficacy and efficiency of the system.

A draft of a possible system to assist in the convergence and sharing of ideas between citizens and urban authorities was designed (figure 5), followed by a possible set of strategic design guidelines with practical examples of the tools and skills needed to orchestrate the challenge of creating an enabling system that stimulates the appearance, preserves and replicates Creative Places. If the pre-required conditions for the system to work are available, then it becomes possible to promote a fruitful dialogue between different actors and deliver the outcomes envisaged by them.
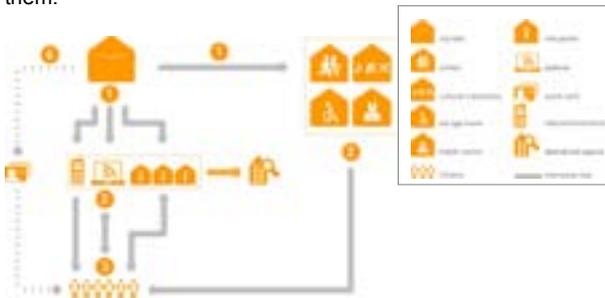
Figure 5. Actors and Interfaces' System Map

The system map presented above shows a possible configuration for a platform that enables communication between diverse actors interested in finding/reusing abandoned spaces.

Employing a design approach brings multiple benefits, such as mechanisms for placing the user at the heart of a solution and for experts to collaborate equally on complex issues; a rapid, iterative process that can adapt to changing circumstances; and a highly creative approach to problem-solving that leads to practical, everyday solutions.

Phase 1.

Considering that a multidisciplinary group of experts, in which the designer is integrated: observed the urban territory and the emergence of social innovations and creativity in diffuse and unconnected pockets; acknowledged its potential for strengthening the socio-cultural and economic fabric of the city; identified as essential the existence of places where spontaneous and "de-localised" creative initiatives (existing and future) can find space to develop innovative socio-technical experimentations; recognised that the benefits of social innovations, which can be cascaded to the wider community given the right amount of support, can be potentiated if the Creative Places where they are developed and the social entrepreneurs behind them are backed

by the right enabling system. Then proposes to the relevant local authorities: the survey of all abandoned / available spaces which can be reused by groups of citizens to develop creative activities; to develop an effective communications channel to disseminate that information between the citizens and that welcomes and fosters their contributions and participation, i.e., to create opportunities for mass participation; to engage in discussions with groups of citizens interested in promoting creative activities and regenerating specific spaces, neighbourhoods or areas, i.e., to foster bottom-up creativity and collaborative services; the study (for future adoption) of policy measures to enable the appearance and diffusion of Creative Places and for their connection into a citywide connected network, i.e., to promote the emergence of connected kernels of creativity and collaboration constituted by a mix of social services, cultural and economic activities. Here the designer should help to design the interface of and for the interactions to take place and to propose policy-orienting scenarios targeted at facilitating political decisions. Besides endowing it with a holistic strategic vision, he could also design tools such as: concept sketches, representational diagrams, scenarios, storyboards, plans, visual frameworks and models, in order to promote meaningful dialogue between all stakeholders.

Phase 2.

In a second moment, through the use of communication skills that are in the field of his expertise, the designer should help to communicate the project to citizens, as well as to the administrative structure that will support its success. The key aim is to mobilise citizens and raise their awareness to the active role they can play in the construction of a more liveable, sustainable city, and at the same time foster the emergence of a socio-cultural, political-administrative ground favourable to creative initiatives. In this phase it is important that information is widely accessible, and this should be made possible through the active involvement of local institutions/places citizens have more direct contact with (schools, healthcare centres, public libraries, local theatres, local businesses, etc). It is also important that the designer can highlight and communicate best practices and successful cases and their positive outcomes, so that they can act as attractors and thus stimulate interest in their reproduction and adaptation, always focusing on the importance of place and local impact.

Furthermore, and as in these cases creativity and technology play a crucial role and Web 2.0 technologies have made possible the convergence of communication, grassroots creativity and active citizenship, the designer should help with specific advice when new procedures and/or new technologies have to be integrated, involving the relevant experts whenever required.

New media can foster the 'ephemeral' practices of cultural citizenship to enhance social networking, community building and emplaced definitions of new sustainable solutions for everyday urban living.

Designers' inputs at this stage can be made tangible through the creation of various instruments (like the ones presented

in the figures) such as: a Web platform; telecommunications; communication elements as flyers, posters, outdoors, advertisements; a citizen's scorecard, etc.

Figure 7. Scenario Building for strategic discussion
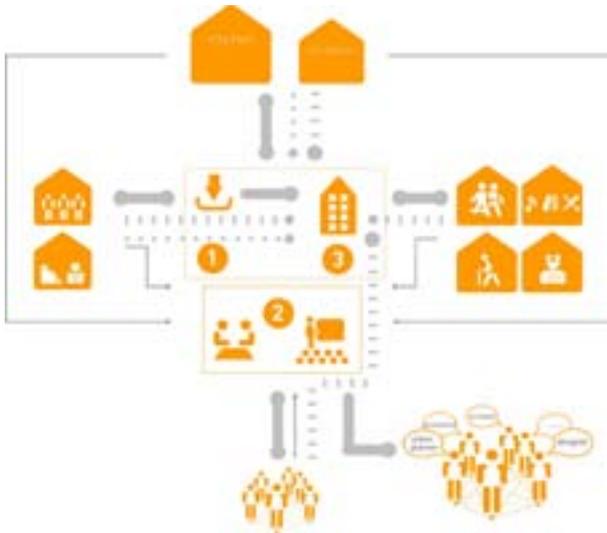
Figure 6. Actors and Interfaces' System Map for decision-making

Figure 8. Storyboard. (Source: www.sustainable-everyday.net)

His role is not to act as a conflicts mediator or negotiator (these roles should be played by experts in those fields), but to deliver tactical outcomes – communications, tools, products, environments - through design orienting scenarios, conceived as tools to be used in the process of designing the creative place. This scenario building has to convey visions based on considerations that the scenario builder (designer) may share with, and ideally build with, the potential scenario users, proposing them as an integral part of the scenario itself (a collectively imagined scenario).

Phase 3.

In this phase, the convergence between citizens with related interests has been achieved and the space in which they have shown interest in regenerating and dynamising identified. To foster participation and collaboration and to discuss the ideas uploaded onto the ideas pool database (that functions much like a crowdsourcing process) so as to reach a common ground, an open debate should be organised between all stakeholders: citizens involved in the starting-up of the Creative Place, representatives of local authorities and organisations (such as schools, libraries, health centres, local businesses, relevant public offices, etc.) and a multidisciplinary team of experts to help them in the strategic design of the process (designers, urban planners, architects, sociologists, economists, etc). Here, designer should act as an interface between these different actors, acting as a facilitator of others' ideas and of interrelations, capable to bridge diverse points of view and facilitate collaboration through his specific set of design skills and instruments - to help clarify and visualise different and comparable visions, propose possible alternatives or scenarios and illustrate potential results arising from best known practices.

Phase 4.

Once citizens with similar goals have been matched, the space has been allocated, and a strategy for the setting-up of the creative place has been agreed upon with the stakeholders involved, the designer will have to collaborate with a variety of interlocutors, stepping forward as expert, i.e. as design specialists interacting with diverse actors who design without being designers, i.e. design amateurs, participating in the construction of shared visions and scenarios and combining existing products and services to support the creative community they are collaborating with (Manzini, 2008).

This phase is the unfolding of the preceding one, with the designer introducing enabling solutions, that is, activities and artefacts that support the service, both at its start up and in its day to day management, while raising the level of socialisation among participants making them produsers of the value generated by the service.

These enabling solutions consist of: communication tools to publicise the service; organisation and management tools; tools to foster a sense of identity and belonging; items that foster cost reduction and fidelity ; the outline of catalysing events.

Figure 10. Examples of enabling solutions

They can be developed through the usage of plans, visual frameworks and models or physical mock-ups, and storyboards that show the interaction between the members and the system, introducing a timeline that will account for the unexpected evolutions in the service and in the system itself.

Figure 11. Example of scenario building/storyboard (Source: Sustainable Everyday, 2003)

Figures 5 and 6 illustrate the emergence of a platform for interaction, in which there is a transition in the relationship behaviours amongst the parties. In this framework, design should act as an interface between two levels (top-down and bottom-up initiatives), for top-down initiatives are strategic whilst bottom-up ones are more tactical or operative. Having the ability to dematerialize, simplify and make sense out of very complex systems, designers plays a key role in the system's structuring, by identifying different actors, their possible interactions and the necessary interfaces for the whole process to work smoothly.

5. Conclusions

It is important to underline that the contexts where innovative communities exist cannot be "designed", and that that is not the aim behind this research. The purpose of this research was to observe and understand its dynamics and to extrapolate ways of further enhancing them and allow for their replicability within different contexts, not to undertake (or promote) what could be regarded as "social engineering".

From the case studies we have concluded that collaboration changes the way people and enterprises organize themselves. The services they provide are based on the efforts of a local network of creative user-producers. These "produsers"

of services within creative networks are the real promoters and managers of Creative Places initiatives. If these places are to work, collaboration always has to be at their core; it is a necessary element, almost a prerequisite, for their creation and without which they could not exist or function. And even if they are very diverse regarding their business and organisational models, they have a common denominator to develop collaborative services based on the efforts of a local network of creative users-producers.

Creative Places are rooted in their own neighbourhood or city but at the same time they are linked with a wider global network of similar places around the world. They are expressions of an emerging urban culture, identity and citizenship and, at the same time, they are social laboratories where these urban culture, identity and citizenship are actively and continuously produced and reproduced. By enriching city life, promoting an active citizenship, improving cultural diversity, and generating a system of relationships with the neighbourhood and the city, the places studied have enriched the area where they are situated, renewing it and revitalising its community, social and cultural life, widening local boundaries and connecting them to the rest of the city and the world. To intervene in this complex fluidity demands a holistic approach, a level of systems thinking and the orchestration of a wide range of different design inputs. And the designer, operating in very complex systems involving multiple networks of actors and in a setting where there is no-obvious client, has to make use of the strategic design instruments available to him in order to facilitate and support the ongoing diffuse design activity that characterises such systems so as to give them perspective and endow those singular, individual design flashes with an organic unicity oriented towards ensuring long term positive results and sustainability. Employing a design approach brings multiple benefits, such as mechanisms for placing the user at the heart of a solution and for experts to collaborate equally on complex issues; a rapid, iterative process that can adapt to changing circumstances; and a highly creative approach to problem-solving that leads to practical, everyday solutions. As such, this is a highly transferable process.

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MetaboliCity: How can metadesign support the cultivation of place in the city?

Abstract

The sustainability agenda has inspired a growing interest and re-valuing of localized food production in cities such as London. This paper presents the findings from a one-year (October 2008 – October 2009) participatory design research project entitled 'MetaboliCity' (www.metabolicity.com). The project explored how designers can intervene sensitively within local urban food growing communities by providing a design thinking and crafting to help to sustain these initiatives and catalyse larger positive changes in the surrounding environment. The project was based at Central St. Martins in London, UK, facilitated by the design research group Loop.pH and funded by the Audi Design Foundation.

The aim of the project was to create, test and adapt tools and services for collaborative food growing in challenging city spaces. These included community workshops, urban grow-kits and an online collaborative network. A team of designers guided local participants through a set of envisioning, crafting, planting and documenting processes. This paper will introduce the project's socio-ecological approach to revaluing 'awkward spaces' (Jones, 2007) in the city to create places that are at the heart of local communities.

Metabolicity is the first applied design research project to test and adapt collaborative tools and processes that were developed as a part of the 'Benchmarking Synergy Levels within Metadesign' project. This project was funded by the Arts and Humanities Research Council (AHRC) and the Engineering and Physical Sciences Research Council (EPSRC) and based at Goldsmiths, University of London (2005-2008). Metadesign is a systemic, inter-disciplinary and emergent design process aimed at transcending existing specialist boundaries to create more joined-up solutions for the benefit of society and nature.

Keywords

Metadesign, 'knowledge ecology', localized food production, urban grow- kit, participatory design research, urban resilience

Living in the city

This research was driven by the need to radically and creatively re-envision how we use and experience space in the built environment. It is predicted that by the year 2050, 75% of the world's population will be living in cities (Burnett and Sudjii, 2007). The MetaboliCity project takes place in London, at a time when the population of the city is approximately 7,500,000 (http://www.london.gov.uk, 2010). As our cities continue to grow, there is an increasing demand on infrastructures, resources and public and private space. We also face a new found uncertainty as to how we will be living in cities in light of emerging global issues such as climate change and economic instability. At a time when we are beginning to witness a collective change in the public's awareness of issues such as food production, energy providers and transport, how can design think ahead and think inventively about how we want our 'creative cities' (Landry, 2000) of the future to be?

The metabolic city

This project approached the city as a complex and emergent living system where growth patterns and life cycles are an important part. One of the key figures of the 1960's Metabolism movement in utopian architecture, Kisho Kurokawa, described the city as a living organism, an evolving system that is being produced from the bottom up, rather than from the top down. Each part of the city has its functions and sense of locality, and it integrates the whole in its own terms (Kurokawa, 1992). MetaboliCity is the name for a vision of a city that metabolizes its resources and waste to supply its inhabitants with all the nourishment they need and more. The Metabolists worked with the idea of the 'city as process', stating that

'We regard human society as a vital process – a continuous development from nebula. The reason why we use such a biological word, the metabolism, is that we believe design and technology should be denotation of human vitality.' (Lin, 2007)

These architects rejected the modernist view of the city as a mechanical object viewing it instead as an organic process. This challenged the traditional notion of the master plan as a fixed and predetermined construct. In a recent article in 'Seed Magazine' exploring the notion of 'urban resilience', the metabolic flows of the city is made more tangible

'A city's lifeblood is a continuous flow of stuff—fuel, consumer products, people, and services that enter it either actively, through human effort, or passively through natural processes like solar radiation, atmospheric currents, and precipitation.' (Montenegro, 2010. p2)

Design is often planned, predetermined and fixed,

whereas biology is evolutionary, adaptive and emergent. MetaboliCity was the outcome of a two-year (2007-2009) design and science collaboration between Loop.pH and the Nobel-winning molecular biologist Sir John Walker. Sir John Walker is responsible for the discovery of the rotary mechanism of ATP (adenosine triphosphate) that powers all biological processes, and is fundamental to all life. (See Fig. 1) Energy from the sun captured by plants through photosynthesis becomes the fuel for our metabolism. The MetaboliCity design team questioned whether a more synergistic relationship between structure and energy could be applied to urban design to create a connectivity and bio-integration between the built environment and the surrounding ecosystems.
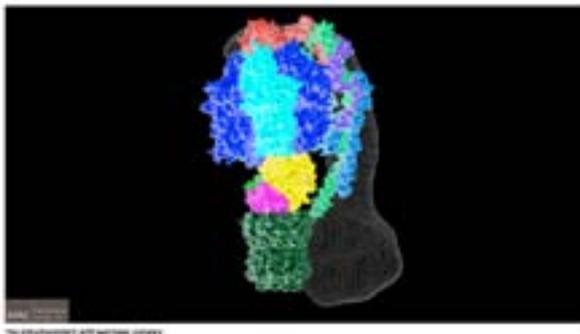
Figure 1. An image of ATP (adenosine triphosphate)

A socio-ecological approach to place-making

The MetaboliCity project advocates a joined-up approach to mapping the social activities that take place in the city and the ecological cycles that are inherent in the urban environment. This approach is guided by underlying principles from resilience theory that highlights the inter-relationship between people and their environment. These principles state that 'humans and nature are strongly coupled and co-evolving, and should therefore be conceived of as one "social-ecological" system.' (Holling cited in Montenegro, 2010, p1). Rather than researching the social context and the environmental context as separate entities, the project focused on the relationships between the collaborative aspect of the food growing activities and these small pockets of urban ecology as one whole. Could there be a direct relationship between urban community collaboration and the cultivation of green places? Ecologists have discovered that 'Shanghai…had just 900 hectares of green space in 1975. By 2005 it had 27,000. So despite the city's tremendous growth, its proportion of urban nature is actually increasing.' (Montenegro, 2010). For this city, this indicates a positive relationship between a growing urban population and the growth of urban ecological habitats.

The city and an emergent role for design

The co-design process was intended to encourage people to take ownership and pride in their local environment. We are beginning to experience a change in the way we regard the spaces of our everyday environment. 'MetaboliCity' explored the potential use of challenging spaces in the city for localised

food production. There are various other examples of public and private space in the city being used to seed local, bottom-up, social activities. In the book 'Architecture and Participation', the architect and theorist Doina Petrescu refers to these activities as 'discrete spatial interventions' that 'open up unexpected possibilities of thinking and acting in the public realm.' (Petrescu, 2002, p85). This highlights a potential new role for design in the city.

Designers as urban interventionists

The design critic John Thackara notes how 'Too much of the world is just too designed. Too much control over networks is detrimental to the social innovation upon which our future fortunes depend.' (Thackara, 2005, p94) In each of our cases, the amateur cultures of food production are self-initiated, emerging in between that which is designed and functional. Thackara discusses the importance of protecting design-free zones in the city where these bottom-up initiatives may flourish.

design-free situations, or free zones, in which planning and other top-down, outside-in improvements will be kept at bay to make space for the kinds of experimentation that can emerge, unplanned and unexpected, from wild, design-free ground.' (Thackara, 2005, p94)

The role of the designer is to become a guardian of sorts within an urban context and to nurture spaces that are relatively design-free. Design as a final product is replaced by design as an ongoing forming process with emergent and partially unpredictable outcomes. These design-free spaces in turn welcome 'informal teams, self-managed organizations, small institutions, alternative spaces and individuals themselves' to take part in new creative practices. (Petrescu, 2005, p.88) How can designers and developers become more supportive of these attempts at reclaiming place?

Each of the project sites acts as an urban catalyst, stirring up interest within the local area that in turn creates a positive ripple effect in environment beyond the site. For example, the allotment scheme that is taking place at St.Luke's community centre, one of our participating sites, has attracted amateur growers from housing estates in the nearby area as well as companies who send their employees for a voluntary day growing food and tidying the space. (See Fig. 2).

Figure 2. The participants at St. Luke's community centre

Cultivating place - the importance of urban agricultural

The role of design in the context of MetaboliCity was one of cultivation. Cities have a high metabolic rate and can be experienced as unbalanced sites of vast consumption as opposed to sites of production. Our current global food system is highly volatile and methods of agriculture are dependent on energy intensive processes that can no longer support the increasing population. The importance of localised food production is now widely acknowledged and urban areas can play a significant role in contributing to the production of its resources.

Urban agriculture can increase food self-reliance and security in cities, be environmentally sustainable and increase the democratic control of the urban poor in meeting their basic needs. It represents a practice that can be connected with 'resource recycling and conservation, therapy and recreation, education and safe food provision, community development, green agriculture, and open space management' (Mourgeot, 2006, p. xiv). This study focused on the transformative power of design to reinvigorate and inspire urban communities to take ownership of under utilised space for small-scale food production.

Methodological approach

Using qualitative research methods such as semi-structured interviews and informal, on-site design workshops, the social, spatial, ecological and technological potential for producing food at each site was assessed. This process was guided by four key research questions

1. How can we grow food sustainability in urban spaces with limited resources, and how can design thinking facilitate such a production?

2. What is the role of the designer in agricultural initiatives? How can design be used to generate local participation and engagement with urban spaces?

3. How can a communication platform for experts and non-experts be created to share best practice, disseminate information and network with a wider community engaged with urban agriculture?

4. How do people experience the role of technology and innovation in the context of ecology and agriculture?

A systemic approach to researching the city

The research questions were intended to cover a broad scope of issues. The research aimed to develop a deeper understanding of systems thinking to help map transitory urban environments and the bottom-up activities that take place there. To investigate the research questions, four case study sites were identified in the city. We aimed to build a holistic picture of each of the sites. This included for example, the politics of the spaces in terms of ownership and land-use and the use of social networking technology by each of the communities. We approached this research project with the ambition to create a large-scale positive transformation in the city by supporting small, bottom-up interventions. This transformation can only be achieved with a strong collaborative effort and a holistic

appreciation of the environmental context. Montenegro, is his article about urban resilience notes how

'From a systems standpoint, what cities are doing is creating a network—which in itself could strengthen resilience. Knowledge generated in one place could be used in another, and experiences and best practices could be shared.' (Montenegro, 2010, p4)

To achieve a positive systemic transformation in the built environment MetaboliCity harnessed the knowledge of a resilient design network.

A diverse group of researchers and designers

The project aimed to create a flat platform for amateur food growers and experts in the field of agriculture and urban design to share knowledge and contribute new insights into the use of challenging city spaces for local food production. A design and research team facilitated this interdisciplinary and participatory process. The project harnessed specialist knowledge from a range of advisors from the fields of plant science, permaculture, cooking, farming, wildlife and eco-architecture. The open and action-orientated nature of the research was informed by the notion of 'co-operative inquiry' (Heron and Reason, 2006). Co-operative inquiry is defined by the action research experts Heron and Reason as

'a way of working with other people who have similar concerns and interests to yourself, in order to: (1) understand your world, make sense of your life and develop new and creative ways of looking at things; and (2) learn how to act to change things you may want to change and find out how to do things better.' (Heron and Reason, 2006, p144)

The design and research team facilitated a group of 'co-researchers' at each of the case study sites and became 'co-subjects' in the research themselves. They found themselves taking an external, strategic and facilitation role in the design process as well as an internal, collaborative role within each of the project workshops, sharing the same platform as the other participants. The design theorist Ezio Manzini defines this dual role for design as 'design in the designing networks' where designers are engaged in peer-to-peer participation and 'design for the designing networks', where designers become 'system enablers'. (Ezio Manzini, 2007, http://sustainable-everyday.net/manzini/?p=17)

The research framework and project methods

The project context, structure, outcomes and methods and processes have been holistically mapped using a tetrahedral structure (See Fig. 3). This is a non-hierarchical and relational concept model developed by Professor John Wood at Goldsmiths, University of London to help designers to structure written proposals. Wood describes how 'The tetrahedron affords parallel, self-reflexive, relational representations. It provides an almost ideal basic format for representing a manageable set of relations.' (Wood, 2005) The tetrahedron helps to define each of the four key areas of the research project which are the role of design, the environment, the participants and the grow kit and guidelines. The tetrahedron also enables the relationships
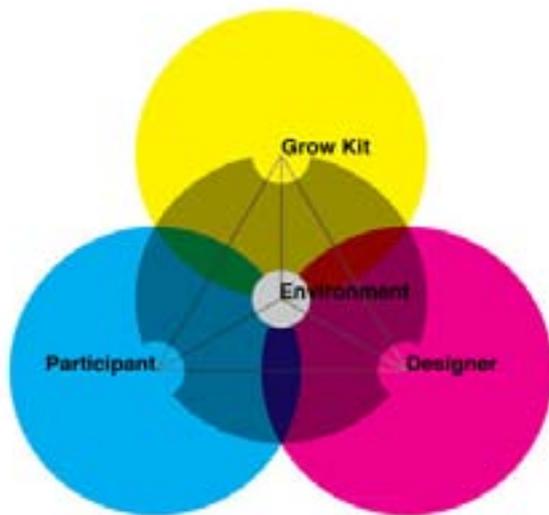
Figure 3. Tetrahedral project structure

The project employed ecological metaphors to describe the design and research process, moving away from the mechanistic and static metaphors that are usually assigned to the industrial design process. The structure of the research was defined by an ecomimetic 'grow framework' that both charted the progress throughout the project whilst reflecting the lifecycle of growth that occurred over the twelve months. We began the project with a seeding process, carrying out semi-structured interviews with each site that encouraged the participants to plan what they needed and dream about the best outcomes for their environments. At the mid-phase of the project or the nurturing stage the design team facilitated grow-kit workshops, where participants co-crafted with the design team their plant growing installations and the plants themselves were introduced to the sites. Feedback from the mid-phase participant interviews helped to adapt the design of the grow-kits for each site, attending to any problems that emerged. Towards the end of the research process there was a knowledge ecology workshop with all of the participating sites. At this workshop we harvested ideas and food from each of the sites. The final phase of the research was a last round of evaluative interviews with the participants and the design team before each of the sites entered a winter, reflective period.

Figure 4. Case study sites

An overview of the four case studies

The design team identified four case study sites in the city of London. The case studies tested the feasibility of urban food production at a variety of locations. (See Fig. 4) These were a
- Restaurant
- Community/ public space
- Workplaces/ Office
- Housing

A diverse sample of sites were chosen to recognise that a diverse and adaptive portfolio of grow-kit solutions were needed to reflect the unique social, physical, ecological and climatic conditions at play in the city. (See Fig. 5)

The example of a workspace that was chosen was NFP Synergy, a research office based in Spitalfields, East London. They had already started to experiment with growing herbs in their kitchen and tomatoes in their front window. Jamie Oliver's restaurant Fifteen took part which is coupled with the Fifteen Foundation that co-ordinates the young chef apprentice scheme. The restaurant has fine dining downstairs and an Italian restaurant upstairs. There are also two floors of offices above the restaurant. The community space that volunteered was St.Luke's community centre. They had a collection of small allotments in their car park and some leftover space behind the building. Finally, as an example of housing, the Haberdasher Housing Estate in East London took part, where there is a strong tenancy residency association (TRA) and gardening group.
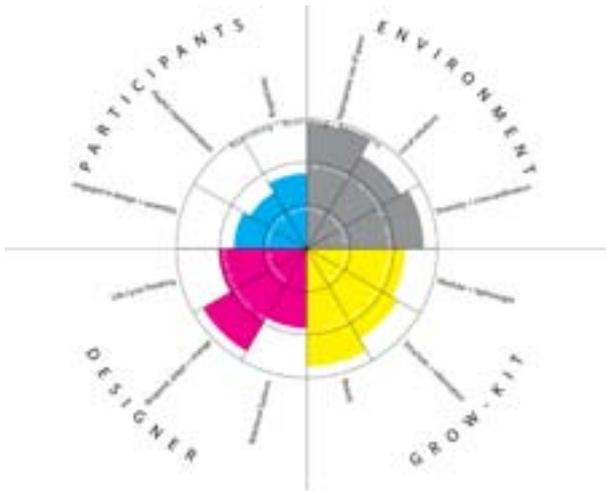
Figure 5. St.Lukes - Site diagnostics

MetaboliCity Project Criteria and values
The design team developed the following criteria to guide the interventions made at each of the sites.
1. ENVIRONMENT
Appropriate use of space and least intervention at each site (appropriate technology)
Local solutions wherever possible (seeds, skills and resources)
Design for diversity and cross-pollination in all aspects of the intervention.
2. GROW-KIT
–Modular & Lightweight - to allow for flexible configurable space that's easily disassembled.
–Grow-Kit Resources:
–No waste - cyclical systems (energy, water & materials - reuse, recycle or degrade safely)
–De-Materialise - Less and fewer combinations of materials sourced ethically and environmentally.
–Low energy or renewable energy
–Low toxicity and pollutants
–Understanding of Life Cycle Thinking for all aspects of design, manufacture, distribution, use and take back.
–Transparency - in practice, method and dissemination. Allow for an inclusive open platform. (Open Source, Creative Commons)
3. DESIGN TEAM
–Relational Systems Thinking: Look for on-site and cross-site connections and synergies (recognising patterns of tending, resources)
–Regularly reflect and evaluate the system to allow for adaptability and resilience that nurtures ability to respond and change.
–Optimised design through an understanding of structure and geometry on every scale. (from material composition to social structures)
4. PARTICIPANTS
–Participants actively engaged in the design, assembly and monitoring of the grow-kits.
–Playful experimentation to cultivate spaces of wilderness and delight.

Storytelling at each phase of the project to create a unique urban mythology around each intervention.

Design process
Using metadesign tools and principles
    Designing at an urban scale calls for designers to move beyond specialist boundaries (i.e. product design, interior design etc…) to work across disciplines, often forming unlikely partnerships (i.e. textile designers working with biologists). Metadesign, the design of design, offers a framework to work beyond the constraints of conventional design practice. Some key attributes of Metadesign are that it is in nature 'participatory', 'emergence aware', 'self-creative' and 'flexible' (Wood, 2008). (See Fig. 6)
    Metadesign is a self-reflexive mode of design where designers need to become 'specialist-generalists', moving inside and outside of the process to gain multiple perspectives of the task at hand. It can be described as 'a shared design endeavour aimed at sustaining emergence, evolution and adaptation', and 'open-ended and infinite interactivity capable of accommodating always-new variables' (Giaccardi, 2005). The metadesign theorist Professor John Wood coined ten principles for metadesign (http://en.wikipedia.org/wiki/Metadesign). Four key principles were chosen to guide the MetaboliCity research.
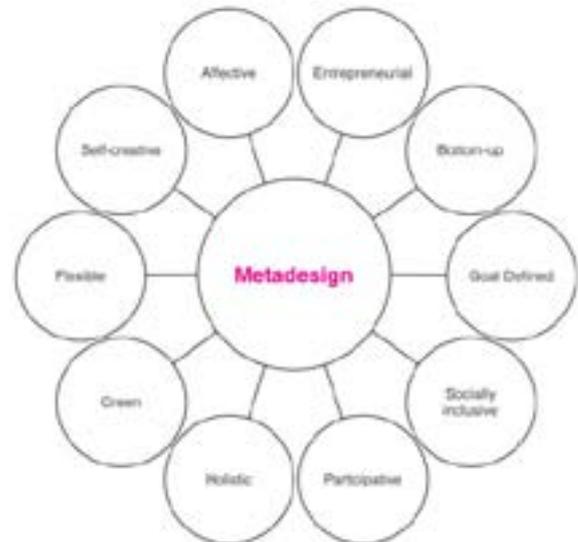
Figure 6. A diagram mapping the qualities of metadesign

1. DESIGN AS LANGUAGING
    The Metabolicity project explored the notion of 'designing as languaging'. Our use of the verb 'languaging' originates from the work of Maturana and Varela and defines how we collectively create and negotiate value and meaning in everyday life, a kind of sense-making process (Maturana, and Varela, c1987, c1992). On the Haberdasher housing estate, a hostile and neglected space that was originally introduced by the people who lived in the area as the 'den' went on to become the 'courtyard' and is now known as the 'garden' (See Fig. 7)). The process of

renaming signified a process of revaluing the awkward space as a green and celebrated place in the community.

2. NUTURING SYNERGIES

The designer and design theorist Buckminster Fuller defined synergy as 'the whole is greater than the sum of its parts' (Fuller, 1970). The notion of synergy was used to assess the connectivity of the participatory design network and to facilitating flows between the grow sites.

3. TEAM KNOWLEDGE

No one person involved in the Metabolicity project can tell the whole story. The knowledge that has been generated through this collaboration is held within the whole group. Therefore the design service that we have developed is a team-orientated service rather than a service aimed at an individual consumer.

4. MULTIPLE-INNOVATIONS

The project aspired towards creating design solutions that maximized the use of resources on each of the sites and across the sites. The waste earth from one site could provide much needed top-soil for another site. At Fifteen restaurant the old crockery was re-used to create a hydroponic growing solutions.

Figure 7. The garden at the Haberdasher estate

The urban grow kit is part of a bespoke design-led ecosystem service that shape-shifts for different city contexts. The approach to the grow kit celebrates divergent and plentiful solutions, inspired by scientific innovations in botany, where plants are grown and studied in soil-free laboratory conditions and long practiced land management systems such as forest gardening and permaculture. The pioneer of biomimicry (nature inspired design), Janine Benyus, observes how

'As a biologist, the question for me is not whether our technology is natural, but how well adapted it is to life on earth over the long term. And as designers, I think we are realising that perhaps our designs are not that well adapted yet.' (Benyus, J, 2002)

MetaboliCity embraced science and new technologies in the design process, exploring a mixture of clean environmental technologies (ET) with information (IT) and communication technologies (CT). In a paper discussing 'Smart metabolism for a green urbanism' the author Bogunovich proposes that 'eco-tech design' will set us free from the binary of the Natural verses the Artificial (Bogunovich, 2002). The components of the grow kit consist of a lightweight archilace construction kit, an irrigation system, a rainwater collector, nutrients, water pumps, various growing mediums and local seeds.

The use of technologies

The approach to growing at each of the sites was highly experimental, utilizing both high and low tech solutions allowing communities to develop and adapt their own growing methodology. Both traditional and hi-tech agricultural techniques were integrated into the fabric of the built environment, with hydroponic, solar powered window farms, vertical green cladding that clings to facades to organically grown vegetables climbing up street lamps. Growing in under privileged urban spaces required an innovative approach and new agricultural solutions for these environments. (See Fig. 8)

Figure 8. Hydroponics design solution

Hydroponics is the term used to describe a number of techniques for growing plants outside soil, supplying the nutrients to the plants via water. Some of the advantages for growing hydroponically in the city are that it allows for the growth of plants in limited spaces, optimising vertical and spatial potential.

The grow-kit provides 'agri-tecture solutions' that embed living organic matter into the fabric of our built environment (Diller Scofidio + Renfro, 2004) to address some of the most challenging urban spatial conditions. The grow-kit facilitates an ongoing process whereby the city is in a state of constant repair. The core component of the grow-kit is a simple method to construct and intervene with space. This construction technique is particularly interesting as it breaks the rectilinear geometry of our built environment with a non-Euclidean geometry made from curved structural elements tangentially joined. The technique, which is defined as 'archilace', allows for configurable space, flexibility, adaptability and repair-ability.

The unique combination of geometry and technique is a new point of enquiry in the field of design and textile architecture and offers numerous urban applications from lightweight vertical farming systems to emergency shelter relief and temporary green architecture. One of the core advantages of this building technique is the ability to construct any imaginable surface from a small number of lightweight parts. Recently discovered structures that were previously unbuildable can now become fabricated by hand using a modular, curvilinear approach. (See Fig. 9)
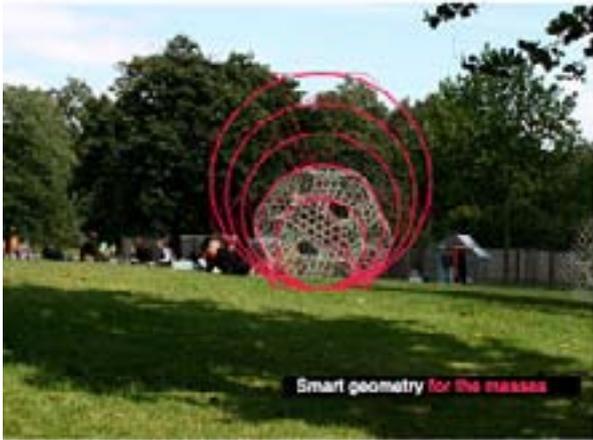
Figure 9. Smart geometries for growing

The archilace provides a framework for community members to construct growing spaces according to their needs and reflects the thinking of architect and pioneer of the Megastructure movement Yona Friedman who believes that

'Architecture should only provide a framework, in which the inhabitants might construct their homes according to their needs and ideas, free from any paternalism by a master builder.' (Friedman,http://www.megastructure-reloaded.org/yona-friedman/)

MetaboliCity has developed design solutions to craft urban space. The act of coming together and engaging in 'making' allows participation in a place to happen on many levels.

Role of social networking

The project catalyses an online social network, linking up the sites and providing a dynamic space to document the activities taking place at each site. The website also provides a library of resources for participants, a store of information on the grow-kits and guidelines and supporting discussions. This is intended to encourage a 'knowledge ecology' to evolve between the sites. (See Fig. 10)

Creating smart places

Alex Steffan of World Changing talks about the need to create smart places for sustainable cities. Online digital tools are turning once solely consumers into producers and publishers. A unique 'qrcode' (a mobile tagging image code) was assigned to each growing site linking the online knowledge ecology with a physical place. This allowed people with smart phones to access different layers of information about the site. This included what food was being grown, when it had been planted and by who and when the produce was ready. This is part of an ongoing body of work looking at the role of technology in creating sustainable cities.

Figure 10. The role of social networking

Project outcomes and case study findings

Knowledge ecology workshop

A knowledge ecology workshop was designed to explore the project findings, celebrate the process and create a shared platform for the participants to exchange experiences and identify future opportunities. This workshop was held as a part of the London Design Festival. The workshop took place in September 2009 at the Waterhouse Eco-conferencing centre in Shoreditch, London.

The workshop process took the participants through a series of evaluative, future focused and experiential exercises to reveal the opportunities available on each site and generate a shared vision for the network. (See Fig. 11) The workshop began with a 'potential mapping' exercise where participants presented each grow site to a small team of designers and special advisors. The purpose of this exercise was to elicit grounded knowledge about the sites and enable the participants to present their experiences. This was followed by a walk and talk around the sites, where each group of participants were able to experience each of the food producing grow-kits. After visiting the sites we conducted a 'collective story telling' exercise where each group made an account of their experience from the walk, collectively mapping their experience at a sensual, factual, relational and future focused level. The participants where then encouraged to create wild future scenarios for food production in the city. Finally we ended by mapping a time cycle and creating practical next steps for the project.

Figure 11. The Knowledge ecology workshop

Grow-Labs – distributed community-based knowledge hubs and places for experimentation

The principal outcome of the research project was the blueprint for a network of community-led Grow-Labs. Grow-Labs are proposed as de-centralised, design-facilitated laboratories for the urban environment, with the aim to build tools for replicable, open source, resilient communities. The aim is to localise research and experimentation into communities, celebrating embedded experts and providing the tools to find expertise outside of the community. They are temporary places for experimentation and training with the potential to act as a platform for the creation of sustainable social enterprises. Grow-Labs can enable citizens to engage with a scientific discourse. The labs could be equipped with observational capabilities through distributed IT, sensors, and networking technology, allowing communities to participate in mass crowd science, collecting data that is fed back to a The focus of the Grow-Lab is catalysing near-future visions, locating stories and visions within place and providing practical solutions for sustainable urban living. Grow-labs enable communities and individuals to observe, learn and engage with their local ecologies and may take on many forms, from underground mushroom farms to high-rise hyperbolic greenhouses and vertical farms. The final form and function of the Grow-Lab would emerge from a community-facilitated workshop. At the Haberdasher Housing Estate one of the ideas from the knowledge ecology workshop was to use the underground sheds for composting organic waste and cultivating high-value mushrooms. These near-future visions need piloting on-site before being up-scaled. It is this kind of place-based experimentation that is needed to transform the city bottom up.

MetaboliCity has seeded a diverse network of community led Grow-Labs, providing a place for people to come together to imagine, dream and experiment within a well designed and facilitated agenda.

Grow kits and guidelines

This project has explored a new role for design that focuses on social innovation and offers tools for thinking beyond the possible (Wood, 2003) combined with practical solutions that empower and re-skill local communities. The outcome of the project is a detailed map of stages for cultivating urban transformation presented as a blueprint for other community groups. One of the design outputs and components of the grow-kit is a set of method cards and web based facilitation seeds to trigger and guide urban transformation.

Stages of the grow framework:
1. Cultivating & Organising
2. Visioning & Dreaming
3. Design Seeding (Germinating)
4. Planting Intervention
5. Tending & Propagation
6. Harvesting & Digesting

Facilitation seeds allow community groups to assess their site and put together a team of people. (See Fig. 12)

Towards new social interest business models

What are the new enterprise opportunities for designers wanting to engage in transforming the city, leaving behind the old consumerist client model? There are cost benefits of locally produced food from reduced transport costs to growing-your-own, not only could this type of industry reduce associated costs but also create jobs and employment. MetaboliCity is now developing a new model to harness the potential of businesses and landowners to support the growth of healthy urban habitats, through partnering business with strong corporate responsibility with local community driven growing sites.
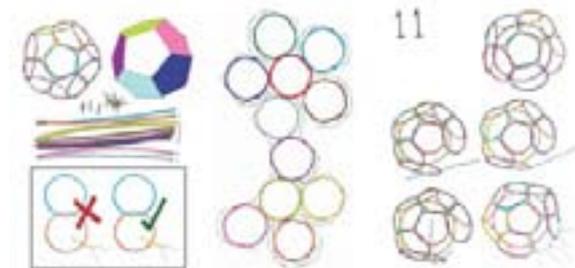
Figure 12. Grow kit method cards

There are a few good examples of social enterprises and new businesses being born from community-led initiatives such as the Able Project in Wakefield, UK whose business tagline is 'from cardboard to caviar'. They are paid to collect cardboard waste from restaurants to feed an ecosystem that produces caviar sold back to the restaurants. There is also Aquaponics UK and Growing Communities in East London, UK providing training, services and urban grown food as box schemes. In London, UK, Local boroughs are funding allotment schemes and new enterprises are emerging such as the 'Capital Growth' (http://www.capitalgrowth.org/) scheme, which aims to support 2,012 food growing spaces for London by 2012. The MetaboliCity design team have partnered with Capital Growth to cultivate relationships with landowners in London developing unused, undeveloped sites or with building complexes with space left over after planning (SLOAP).

Conclusion

Throughout MetaboliCity we have witnessed the role of urban agriculture in transforming communities into social, collaborative, sharing-spaces. Urban food production offers a solution for everyday citizens to activate a self (community) reliance. It also brings a diversity of life forms into the city and creates places of beauty. For too long now our cities have been designed to exclude and 'override' life.

The MetaboliCity design team continues to explore how designers can nurture bottom-up, social activities that revalue leftover spaces of the city as inspiring and useful places. We are just at the beginning of our second phase of research where we are looking into setting up MetaboliCity as a socio-ecological community enterprise. We are intending to continue to use metadesign as a framework for practice-based urban design

research.

It is a future ambition of the MetaboliCity design team to develop tools that can guide decision-makers in the built environment to work towards creative, social, economic, and ecological resilience. To do this will almost certainly require a collaborative, team-based effort including local inhabitants in the city in a metadesign process.

Image References

Figure 1. An image of ATP (adenosine triphosphate)
Figure 2. Participants at St. Luke's community centre
Figure 3. The tetrahedron project structure
Figure 4. Case study sites
Figure 5. St.Lukes - Site diagnostics
Figure 6. A diagram mapping the qualities of metadesign
Figure 7. The garden at the Haberdasher estate
Figure 8. Hydroponics design solution
Figure 9. Smart geometries for growing
Figure 10. The role of social networking
Figure 11. Knowledge ecology workshop
Figure 12. Grow kit method cards

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Bahram Ghadimi   MD Erika Cortés
Participative design: an exercise about social design

Abstract

Over the last years, participation concept has gained strength. Governments -due to their lack of capacity and willingness to confront low-income sectors' problems– do not offer possible solutions. Nevertheless people have been gaining consciousness and concern about problems in their communities, and have started looking for alternatives supported by social organizations and/or technical advice to face those problems. At the convergence of these stakeholders, emerges Social Habitat's Production, which refers to "housing production controlled by organized self-producers or social agents who operate nonprofit" (HIC-AL, 2001). Participative design documented background is confirmed by several methods applied to Habitat's Production, the most known developed by Habraken, Alexander, Livingston and Pyatock. Nevertheless, participation in Habitat's Production is frequently based on architects' and technicians' personal intuitions or experiences accumulated from collaborating with social organizations. In this practice virtual boundaries are crossed, architects develop a multidisciplinary approach while working with other disciplines, in order to understand the problems' complexity. However, the lack of knowledge systematization generated from practices has lead to the loss of information; making it more difficult to disseminate the experiences in the academic and scientific field. This paper offers a view of participation examples supported empirically in developing countries.

Keywords

Social design, Participation, Social Production of Habitat, Self-housing, Empiric method, Practice experiences.

Introduction

In Mexico City, two thirds of the population belongs to the low-income sector. As a result, living space is highly shaped by the so-called popular neighborhoods. These self-produced urban and living areas are created without regulations and go through a constant process of enlargement and improvement generating, as a result, a wide range of housing typologies.

During the last decade of neoliberal policies, the construction of public housing has decreased strongly and the private sector has gained strength. This real estate market is shaped by big private enterprises that promote and build "social housing" sold on the free market. It is not accessible to those without a formal job, access to social security or to a credit.

Nowadays, institutional sectors are in charge of housing production and users are totally apart from the housing process (product management, definition and manufacture), which does not correspond with the real problem [2]. On the other hand, housing producers have found it more profitable to standardize housing, leaving aside the quality of materials and space. Thus, traditional social housing limits options in order to minimize costs. (Fig. 1).

Figure 1. Social housing developed by Casas GEO, Ixtapaluca, Estado de México

Due to this situation, the low-income sector has been gaining awareness about their problems, mainly related to housing, and have started looking for alternatives to solve them. Because governments – due to their lack of capacity or willingness to confront the problems of low-income sectors – do not offer potential solutions, therefore in recent years, the concept of participation has gained strength.

From Europe to South America, from Asia to North America, we can observe different responses to the same problem. In Latin America social demonstrations have been translated into

organizative models demanding social participation in urban planning and housing production. These include the "piqueteros" in Argentina, the "sin techo" in Brazil and the "Movimiento Urbano Popular" in Mexico. (Zibecci)

These movements stopped believing in the neoliberal model and installed a new relation of forces modifying the political map. They proclaimed themselves autonomous, adopting new lifestyles, practicing empowerment and developing self-government. They are communitarian movements whose links are not individual but familiar, thus their social basis implies a collective organization. (Zibecci)

Participation refers to the collaboration of people who pursue objectives established together; it generates trust and pushes to achieve objectives, giving the population the chance to play an active role in the creative processes in order to build an environment that fits common needs and aspirations.

There are different approaches to participation as applied to the production of habitat. Their theoretical background relied on several confirmed methods applied to participative housing design, the best known of which, because of its wide documentation, was developed by Habraken, Alexander, Livingston, Pyatock and Kroll. [3]

However, the lack of a system that condenses knowledge generated from empirical participative practices has led to the loss of important information, making its dissemination more difficult in the academic and scientific fields. Through this paper, we offer a view of participation supported empirically in developing countries, describing the process and elements and capturing the experiences through quotes acquired from interviews with those who have worked as technical assistants in participative cases. The information acquired by our own research still in process, was abstracted and translated to insights trying to awaken technicians involved in housing production who still follow traditional architectural design processes.

Empiric participatory design

When participatory design is practiced empirically, there are usually neither patterns nor strategies to be concerned with in the process, but a goal to reach. Frequently it is based on architects' and technicians' personal experiences; it is a hermeneutic process that translates what people want (desires and aspirations) using as an interpretative background their own experiences gathered over time. An important fact to point out is that, during the process, techniques and tools are implemented intuitively and improved constantly.

Case study: Housing complex in Santa María Aztahuatzin

The information summarized below comes from personal experiences and the exchange of knowledge with colleagues from different disciplines. No theoretical preparation was given to the technical assessment team involved in this project; they just followed their own notions and interests about co-working.

At the end of the 1990s a group of applicants from two dif-ferent social organizations got together and created "Horizonte Unidad y Lucha", a civil association committed to the construction of housing. They asked for technical assessment from the Instituto de Vivienda Asamblea de Barrios (IVAB) [Housing Institute, Neighborhoods Assembly].

IVAB started working with an organized group which had in common the objective of developing a project closer to the inhabitants' needs. This implied concentrating attention on the human resources of the low-income sector rather than on their often-appalling conditions. The case highlights the necessity of supporting locally self-managed action. [4]

After the representatives held a few meetings, the search for available land to locate the project began. Finally, the site was located in a popular neighborhood on the east side of Mexico City. No urban services or equipment were available; this urban factor pushed the projects to be developed in planned phases, progressively.

General data

"Santa Ma. Aztahuacan" housing complex.

440 units of social housing. 59.55 m2 each.

Property of "Horizonte Unidad y Lucha, A.C."

Location: 2ª. Cerrada de Av. México, Santa Ma. Aztahuacan, Iztapalapa, México D.F.

The main phases of the participatory process of this project are summarized next. Nevertheless, it is still in progress. The final phases are just outlined, since the project had an unexpected ending.

Social organization

Participation is intimately linked with the structure of social organization which appears when people from a community share the same problems and get together in order to find appropriate solutions. Therefore, its fundamental element is people's unity around common needs, aspirations and motivations. When organized groups of people share a strong community feeling, they respond positively to solve common problems, contributing with time and resources.

Two social organizations were involved in this case: UP-REZ (Unión Popular Revolucionario Emiliano Zapata) and AB (Asamblea de Barrios-Patria Nueva).

Important general remarks about social organization are that it has been the main element in the production of Latin American cities and that it has defined the use of urban space, especially in cities where the low-income sector represents a larger percentage of the population, such as in Mexico City. [5]

The most important actions social organizations focus on are:

•Organizing self housing collective work and negotiations with government for receiving basic services

•Acquiring the role of brokers and managers to face authorities.

•Creating a forum to train and develop popular leaders.

Through:
•Consolidation of social organizations

•Looking for technical assessment
•Trying to take advantage of government support programs

Committee of representatives

Leadership does not exist in participative processes. Nevertheless, the community needs to nominate commissions that are responsible for guaranteeing that decisions made by the community are respected. After the representatives held some meetings, the search for available land for the project began. The site was located in a popular neighborhood in the east of Mexico City where very few urban services and equipment were available. This was an important factor to take into account because it led to progressive actions.

Looking for Technical Assessment

People from the organizations decided to entrust IVAB A.C. with taking care of the technical assessment. The objective was to get some help from professionals aware of collaborative housing processes. One of the most important facts to point out is that during the process, bonds of trust frequently emerge from the co-operation between technicians and people thanks to constant dialogue.

Induction and information workshops

"Provide people with enough information and knowledge, so that even the NGO's technical assistance team cannot cheat them." [6]

Figure 2. Participative workshops

Workshops facilitate an important contact between people because they are the source of ideas, questions and feedback, therefore the energy and imagination of assessment teams must be directed to raise the level of awareness of the participants in the discussion. (Fig. 2)

The main topics covered at workshops are related to context, the social and environmental situation, laws and regulations. The technical team and the participants must equally understand the situation, advantages/disadvantages and available resources. The objective is to provide people with a high level of knowledge so that they can participate actively in taking decisions with an informed and critical attitude while pushing them to assume responsibilities, making them feel part of a collectivity which has rules, rights and liabilities.

Workshops with the Santa María population were focused on resource administration, laws, regulations, and different kinds of credits. Architects involved in the process planned the contents themselves. At the beginning of this participative experi-

ence, workshops were rather educative courses. Nevertheless, besides the resources issue, which was of great importance, participants at workshops talked about their desires. Thus, it is important to create tools and dynamics for understanding the hierarchy of people's needs. "Priority circles" was created as a tool whose aim has been to help people reach a consensus about the most important needs to attend to within a community (Fig.3).

Figure 3. Dynamics for setting priorities in the community.

Participative design workshops

The way to transmit ideas is related to our way of communicating with people. It is important to assimilate the level of knowledge and set the same kind of language in order to ensure that it does not represent an obstacle to understanding each other. Our goal is not just providing a dwelling, but a habitat. Therefore, design workshops at first focus on the general aspects of the housing complex: Services, common areas, open spaces, etc. Then, they gradually focus on the housing units.

Support activities

Information shared at workshops is enhanced by different activities which depend on the creativity of each assessment team. The process in Santa María Aztahuatzin was especially supported by tours of housing complexes developed from similar experiences so that people could get a real picture of what they could achieve. (Fig. 4) Thus, people became aware of possible approaches.

Figure 4. Tours of housing complexes

Preliminary schemas.

Schemas are generated from decisions made by consensus. Some of them are generated by applicants (people interested in the project) and discussed during workshops. The technical assessment team generates others. These schemes are transformed into scale models, to provide people with a dimensional idea.

Figure 5. Preliminary schemas

Dialectics and iterative design process

The designer's job may no longer be to produce finished and unalterable solutions, but to extract solutions from a continuous dialog with those who will use his work. (Fig. 6) An advantage of participatory processes results from iteration; it provides the flexibility to improve a project's overall system. A continuous discussion during the whole process is fundamental.

Figure 6. Discussion

Making the decisions

Previous experiences of user participation in design show that the main source of user satisfaction is not so much the degree to which people's needs have been met but the feeling of having influenced the decisions. (Fig. 7) The solution will come out of a continuous exchange; the designer states his opinions, provides technical information, and discusses the consequences of various alternatives, just as the people state

their opinions and contribute their expertise. This phase is followed by the authorities' approval, the execution of the project and the construction supervision.

Figure 7. Making decisions

Inhabitation and appropriation

When Andres Manuel López Obrador reached Mexico's city government, a new urban policy was adopted and new zoning started controlling the permissions for building in certain areas. The main goal was not to build housing complexes outside of the zone comprised by the four central districts. This regulation was the so-called "Bando 2". Because of this, the Santa Maria Aztahuatzin project was frozen and the building phase never started. However, communitarian representatives are attempting to revive the project because the achievements from participative work developed during eight months remain.

Conclusions
Regarding stakeholders

To summarize, the three main stakeholders of the participative processes are: the social organizations (people), the technical assessment (NGOs), and the government (programs). Social Production of Habitat (PSH), emerges at the convergence of these stakeholders. It refers to the social, cultural, economical and political aspects of life.

The roles played by non-profit organizations (NGO) related to urban social policies have contributed to developing participative processes through the incorporation of people's capacity to improve their houses and neighborhoods; to satisfy their social, economic and cultural needs; to develop a democracy that respects human rights such as having a place to live with peace and dignity; to orientate policies and strategies for human settlements through knowledge generated from the experiences of previous people, NGO's and communitarian organizations.

Regarding the technical assessment team

Virtual boundaries are crossed inside its practice and technical assessment teams develop a multidisciplinary approach while working with other disciplines in order to

understand the complexity of problems.

Daily and close interaction with people creates the opportunity for detection and inclusion of cultural patterns to reinforce identity.

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DESIS 09: Social Innovation at the Grassroots

Design tools for the sustainable lifestyles in Wuxi

Abstract

Grassroots efforts towards sustainable lifestyles show great potential for designers to explore possibilities. In our study of design tools, posthuman ontology is proposed in user research aiming at the localized design solutions. The term 'user' here has a discursive dimension that is an integral part of the context and has a material configuration to support its enactment. We probe into a tool-kit to explore the reconfiguring and produce new design concepts. As data, the paper presents case studies on DESIS 09 in Wuxi city, a didactical and research project for design-oriented phenomenon observation and exploration of design intervention in social innovation - from promoting junkman recycling business to tackling the elderly stockholders' community life in the securities business hall.

Keywords

posthuman ontology, user, performative tools

1   Introduction

In this section we present who we are, the goal and the scope of the paper.

About the authors: Salil Sayed is currently a doctoral student whose research interests are in anthropology of China and ethnography of communication etc. Xian Zhang is a lecturer with industrial design background who is responsible for DESIS09 project at the School of Design of Jiangnan University. We built design groups and worked together as the tutors at the design school in Wuxi for DESIS09 last year.

'DESIS 09: Social Innovation and Connection' is the collaboration between Politecnico di Milano (Polimi) and founding members of DESIS-China, promoted and coordinated by DEISS-China under the umbrella of DESIS-International. It is a didactical and research project for design-oriented phenomenon observation and exploration of design intervention in social innovation.

The growing numbers of grassroots innovation that are becoming apparent reveal more sustainable solutions in daily life. Their will and imagination open fresh and still unexplored possibilities for designers to involve in. However, designing for the grassroots challenges our design practices and require us to examine the theoretical foundations of our methods. Attention has to be paid on the local cultural context as grassroots action is rooted in the local culture. This paper attempts to contribute methods and tools to improve the grassroots initiatives by adding value in their contemporary creativity as well as the local traditional knowledge.

In the following section posthuman ontology is introduced in the user research. We interpret the theoretical background of posthuman ontology and the reason why the theory can encourage design practice to connect design and culture. In section 3 we choose cases from the periphery of a Chinese city Wuxi and through the ethnographic fieldwork we present how we understand the 'users' within the framework of posthuman ontology. Section 4 explores a new toolkit - Performative Tools based on the same theory through which design concepts are produced to facilitate the shift towards more sustainable lifestyles. Finally, conclusions are made in section 5.

2   Using Posthuman Ontology in User Research

The term posthumanism is associated with the phenomena that challenges the traditional conception of human beings. In popular culture it is understood as extending the physical abilities and life span of human body by means of technology beyond natural norms. In AI research the emphasis is on extending human consciousness by means of information technology.

There is growing concern around the world about this so-called transhumanism as it challenges the traditional ethics of modern society. This posthumanism which threatens to create a new race of trans-humans is not considered the true posthumanism by scholars [1] who are interested in putting the prefix post before the humanist ontology and not before the human species. We want to refer to this scholarly discourse of posthumanism as a critique of humanism [2]. From this point of view the science and science fiction which talks about a human body (and consciousness) as a set of data that can be downloaded in a computer, replicated and teleported are essentially humanist. They believe in a being of the human that is contained within the boundary of the skin and software mind [3].

Posthumanism as a critique of humanism has been developed by the scholars who see the humanism of enlightenment as a basis of oppression in modern times. These scholars bring their arguments from the post-colonial studies, feminism and the philosophies of Foucault and Butler. Their stake in posthumanism is in bringing justice to those who are neglected, oppressed or marginalized by the normative discourse of humanism. Humanist ontology is also challenged by new interpretations of findings in the fields of quantum mechanics, genetics and neuroscience. When subjected to critical enquiry either by social theory or natural sciences the humanist subject does not hold ground. Even within the field of HCI the rationalising human agency in day-to-day interaction is being questioned [4].

But what does this posthumanism bring to design research?

The new ontology of the posthuman affords us to reconsider the 'user', a user who does not pre-exist the interaction but becomes through the interaction a part of the material world. For Barad [5]

... determinately bounded and propertied human subjects do not exist prior to their "involvement" in natural cultural practices.

…human bodies, like all other bodies, are not entities with inherent boundaries and properties but phenomena that acquire specific boundaries and properties through the open-ended dynamics of interactivity. Humans are part of the world-body space in its dynamic structuration.

With the conception of the posthuman we can analyze users and interactions in a more productive manner while including the products we design. Introducing new design concepts is then a reconfiguration of the context, in which the user is part of.

3 DESIS 09 Project at the School of Design of Jiangnan University

At the School of Design of Jiangnan University, 28 students joined the project from the third-year BA and the first-year MA courses of industrial design and advertising departments respectively. The course started in May 2009 and within the following six months, it went through four stages: 1) Cases screening, 2) Field research, 3) Data analysis, and 4) Design interpretation. At stage 1, the participants being divided into seven groups identified seven cases of social phenomenon in Wuxi, which were:

• Junk collectors
• Elderly stockholders
• Idle fishermen during the fishing ban
• Volunteer blood donors
• Vegetarianism campaign
• Newsstand vendors
• Dancers in the city square

The groups' task at stage 2 was to collect data in the field with the target 'users'. After data analysis design concepts were generated. Furthermore, several short-term workshops were held: the user game workshop, balloon workshop, and performative tools workshop. Among them, the balloon workshop could be regarded as a preparation for the performative tools workshop. Both happened in the process of stage 3 and stage 4.

Taking all these cases together, it could be seen a vivid picture reflecting the various lives at the grassroots level in Wuxi, where we could make a design intervention within the discourse of the participatory design tradition. In the mean time, we experimented with the possibilities of employing the posthuman ontology to design. Here we discuss two these cases.

**Fig. 1: A naturally formed village near
Jialan Temple where junk collectors living**

Junk collectors

The junk collectors are among the poorest people of the city. In Wuxi most of them come from rural areas in neighboring provinces to earn hard cash. They live in small temporary settlements with their children where usually an enterprising person among them has carved out within the city. They keep their lifestyle to the bare minimum in order to send home as much cash as possible. They go door to door everyday in the city and collect the recyclable junk that people want to dispose of which includes metal, cardboard, wood, glass and plastics. These items are collected in three-wheel bicycle and brought back to the base for sorting before being sold to the nearby recycling centers or large collection hubs which are run by entrepreneurs of a different economic category. The junk collectors pay attention

to their children's education and send their children to school no matter how hard their lives are and hope to go back to their native places once they have made enough money. They do have bank accounts and passbooks to keep record of their financial activity, while they do not have the local ID cards. They believe that they play a key role in an important service that the society needs. But when they go about their business in the city the citizen treat them with a degree of suspicion. The junk collectors complain of not getting the respect they deserve. (See Fig. 1)

So a junk collector is usually a decent farmer in her native place but arrives in the city looking for hard cash to send back home. When he or she chooses the occupation of junk collectors from the several others available in the city according to her skill set she has to accommodate herself in a certain material surrounding, junk men's settlement in this case, and relate with the society in a way that will keep her above suspicion and allow her to perform the actions necessary for the business. The amount earned allows for a certain kind of clothing off the business hours and dealing with junk demands another kind during work hours. This leads to the visual appearance that the city dwellers have come to associate with junk collectors. The junk collector 'becomes' though the materiality of the circumstances and the security and network provided by the landlord enterpriser who does not really own the land but manages an empty space in the city under the watchful eyes of the city officials. In a rapidly developing economy this material world on the fringes of the city keeps constantly shifting in unforeseen directions.

What does the junk collector need then? How can we make a design intervention? Who or rather what is a junk man? We tried to find tools and methods that will allow us to go about our business as designers without essentializing a junk man or imbuing him or her with certain dreams.

**Fig. 2: Leisure life
during securities exchange**

Fig. 3: Saving seats

in advance by DIY bags
Elderly stockholders

China's aging population is growing in size, and more elderly people are investing in the stock market. Some stockholders, especially young stockholders prefer the internet-based stock exchange, thus securities business halls have transformed into elderly communities gradually. We target our research on the National League of Securities Business Hall located in Wuxi downtown, where there are basic facilities such as open screen, transaction machines and chairs with the capacity of 50-200 people.

Most elderly people usually take bus with packed lunch and get to the hall at 9 in the morning, having lunch in the hall and being back home till the market is close. In the hall, some really concentrate their focus on the big screen, checking ups and downs of their favorite stocks, communicating their views with people around occasionally and some do transaction in front of the machines while other more people entertain themselves which has nothing to do with stocks, for example: chatting, knitting, playing cards, playing chess etc. (see Fig. 2).

The securities business hall has become an integral part of life of the elderly stockholders. Through observation and interviews, we seek for reasons why they choose to stay in the securities hall not elsewhere almost every day:

1)Stock speculation is a path to increase their revenue if they are the successful speculators;

2)Older people usually lack of knowledge on computer operation and would reject online and telephone transaction instinctively;

3)They still have the demand for self-realization and would love to provide investment advices for others;

4)They have a desire to reconcile feelings of loneliness, therefore stock speculation evolves into a social behavior and the hall becomes a community for them to communicate with each other, which makes them feel that they are not abandoned in the society;

5)Since Alzheimer's disease is the most common cause of dementia in older people, they almost believe dealing in stocks is helpful to maintain an agile mind.

Although the community seems perfect for the elderly stockholders' life, our study also shows that the traditional service space and the interior basic facilities are not inviting, comfortable and user-centered, far from meeting their needs. For example, the number of chairs is always less than the number of people so that the handmade bags are used for occupying the seats (see Fig. 3); older people have lunch in the hall without lunch space… Basically, the hall was designed for its identity as a Securities Business Hall, whose identity as a community for the elderly people seemed unexpected and to be left out of consideration.

What could we do for the elderly stockholders? A better community experience could be built by reconfiguring the context for the older people to keep their social connections on the basis of their identities of stockholders.

Fig. 4: Performative tools

4   Performative tools

The posthuman ontology especially the version of Karen Barad [6] stresses the inseparability of discourse and its material configuration. The user in this view comes to be through the configurations of her body with other bodies (human/non-human) within the framework of available discourses. Design then is a reconfiguration of these material-discursive phenomenon. Scaffolds for design events can be built based on this ontology, which does not split the user into a free-willing mind and a body. We simply argue for the benifits of embracing posthuman ontology as discussed before as a theoretical basis. The method that we experimented with demonstrates the feasibility of this move.

We wanted to make a new tool-kit based on posthuman ontology. The goal of such a tool kit is firstly to grasp the material configuration of discourses, which enable the use of a product or service and then experiment with possibilities of new configurations. We experimented with a development of Liz Sanders's Make-Tools concept that we call Performative tools.

At every moment we have to be someone, a junk-man, a stockholder, a fisherman, a blood donor, a volunteer, a dancer in the square, or a shopkeeper. We know how to be what we have to be. We manage it by changing the materials we use, like cloths, tools, furniture etc. Our designs have to become part of this configuration so that we can continue to perform our situational identities, hopefully better than before.

People perform their Situational Identities like a junk-man plays the role of a junk-man when he is working. He uses the kind of cloths that help in his activities. He uses tools, weighing machines, gloves, a vehicle etc. He moves his body in a certain way. But he has problems… People don't respect his contribution to the society. So he needs something to improve his image. He needs to change his material configuration and his bodily actions. We want to design something to help him to engage in the design process we need to experiment with the material configurations that make up a junk-man. For this design activity we need some scaffolding. We need tools that will help us experiment with his situational identity. Performative Tools are a set of objects, which does not have any particular meaning by itself. But we can use them by giving them a meaning in a co-design workshop. The set of objects helps us to experiment together and come to a common understanding of material configurations.

Performative-Tools kit is a set of meaningless objects that can be given any meaning. But we should be able to configure them on and around our body. We can stick them together, or on our body using Velcro or some other mechanism. These objects should be simple, without any inherent meaning. But they should be attractive and provocative. One should want to grab them and play with them. After making this kit we will have a design event i.e. a co-design workshop where we experiment with the situational identities of our target users and generate and test our design ideas.

We did not have a tool kit to begin with and we did not know the shape of things needed. So we asked each group of students to define the shapes that they would need to pretend perform their respective user identities. Next day we collected the shapes defined by all the groups and unified them into a single set of objects, coordinating the colours and materials to be used. The students proceeded to create the objects. The unified tool kit could be used by all the groups whether the situational identity in question was of a junk-man or an elderly stockholder. (See Fig. 4)

Fig. 5: Junk collectors group in balloon workshop

Fig.6: Elderly stockholders group in balloon workshop

We firstly used balloon to make the toolkit. The experiments were full of fun. The students showed great enthusiasm to play with the colorful, elastic and inflatable material. They performed as junk collectors or elderly stockholders while making and trying. The tools being attached to their bodies started to talk new stories. (See Fig. 5 and Fig. 6)

On the other hand, we also realized the shortcomings of the balloon: it is not durable at all and hard to keep in the original shape for a little longer time. After our discussion and trying, we chose the non-woven fabric to be made into the toolkit finally, using Velcro or magnet to fix different parts. Fig. 7 shows a junk collector wearing the performative tools is trading with a resident. Fig. 8 shows a concept of a redesigned bag connects a chair and an elderly stockholder's body which is flexible for her or his different identities.

Fig.7: Performative tools
for a junk collector

Fig.8: Performative tools
for elderly stockholders

5   Conclusion

The program was concluded at a stage where students demonstrated the two-fold use of the performative tools for deepening the ethnographic understanding of the user and for the experimental reconfiguration of the situational identities of the user to develop new design concepts. We left the design concepts at a preliminary stage, as elaborate concept development was not within the scope of this program. Nevertheless within the scope we could test the idea of design concepts as reconfiguration. Co-design session involving

the performative tools is a viable solution to pursue this idea. The creation of value is not about individual products, but reconfiguration of the context and the user as well who is an integral part of the context.

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Safe Agua: A Collaboration between Un Techo Para mi País and Art Center College of Design

Abstract

This panel discussion brings together the lead creative team of Safe Agua, a social innovation collaboration between Designmatters at Art Center College of Design and Chilean NGO Un Techo Para mi Pais (Un Techo). This unique combination of design education, design research, and social entrepreneurship aims to help families in Chile's campamentos (slums) break the cycle of poverty by developing new products and systems of storing, utilizing, transporting, and conserving water. Un Techo is run by university students and young professionals dedicated to eradicating poverty throughout Latin America via social inclusion processes and housing solutions. The partnership between its Innovation Center and Designmatters, Art Center's social impact department, provided a multidisciplinary team of faculty and students the opportunity to conduct field research with families living in Santiago's campamentos. Art Center students then designed innovative solutions at a range of scales—from product to system, to community spaces to campaign—to address specific water-related needs identified through that research. Six prototypes are currently in various stages of testing, in preparation for real world implementation. Projects such as Safe Agua are changing design education by integrating dynamic social entrepreneurship and community activism to realize a more sustainable future.

Introduction

In both their pursuit and execution, projects such as Safe Agua reveal the future of design education in a brilliant new light.

Led by the Department of Environmental Design under the aegis of Designmatters, Art Center's social impact department[1], Safe Agua brought together students from five majors (Environmental Design, Product Design, Graphic Design, Transportation Design, and Graduate Broadcast Cinema)[2] under three faculty members: Penny Herscovitch and Dan Gottlieb (Environmental Design), and Liliana Becerra (Product Design).

The result of a Designmatters partnership initiated in 2008 with the nonprofit group Un Techo Para Chile and its umbrella organization, Un Techo Para mi País (Un Techo), Safe Agua addresses the quotidian challenges of safe water access for the families of Campamento San José, one of the transitional slum developments on the outskirts of Santiago, Chile. Felipe Berrios, a Jesuit priest who also happens to be a social entrepreneur, founded Un Techo, which translates as "A Roof for my Country," in 1997. Berrios set about to improve conditions of poverty in Chile's slum communities with a sustainable and inclusive model for housing and development that has produced outstanding results in addressing systemic poverty by flattening social barriers and discarding an "us versus them" view of the world. Embracing the motto, "Youth building a Latin America without poverty," the best and brightest university students were mobilized to volunteer and meet the needs of slum residents by building transitional housing as the first stage of a comprehensive program integrating a series of long-term skill development services focusing on empowering individuals, families, and communities to take charge of their own future. Today, Un Techo serves 15 countries throughout Latin America, recruiting young professionals and university volunteers to assist over 200 million people living in extreme poverty[3].

Un Techo's model is fundamentally not about parachuting handouts of aid, but connecting often divided sectors of society, and ultimately building the commitment necessary for a more humane and prosperous outlook for all. As first articulated by Berrios, this mission is aligned with prevailing views in sustainable development best practices, which argue for proactive and co-participatory creative problem-solving models across boundaries to tackle environmental and social challenges. It is a transformative agenda for collaborative social change that also resonates with contemporary organizational learning theories, including that of MIT scientist Peter Senge: "The vast changes required for creating a regenerative society… will require inspiration, aspiration, imagination, patience, perseverance, and no small amount of humility. They will require networks of committed people and organizations who not only

learn how to see systems shaping how things work now, but also create alternatives." [4]

The Safe Agua collaboration is a key exemplar of the national and international alliances brokered by Designmatters that enrich the educational curricula with meaningful outside engagement in order to promote cross-pollination of expertise, new forms of knowledge, and an immersive and experiential learning process that allows students to develop tangible, "real-world" outcomes.[5] The project also reflects a socially ambitious approach to contemporary pedagogy that is redefining the role of artists and designers as potent catalysts for social innovation. With a critical shift toward ethical design gaining momentum, projects such as Safe Agua demonstrate how design schools have the unique opportunity to become vital laboratories for best practices in human-centered research and creative engagement, and play a critical role in shaping a more equitable society.[6]

As the ensuing sections of this paper attest, the extensive field research undertaken at the inception of the project was a paramount in gaining a richer understanding of the project's challenges and opportunities. This immersion allowed the students to gain experience with the community and make personal emotional connections that proved instrumental not only in their understanding of the depth of their creative process, but also in their ability to integrate design, business, and culture factors into their proposals. Both the research methodologies and initial outcomes of the project, as presented herein, clearly stand at the opposite spectrum from utopian, "blue sky" and style-driven design briefs. In seeking opportunities to improve the quality of these families' lives through design, the rigor and constraints of the field research and the multilayered community interactions together stand out as a foundational stepping-stone for the Safe Agua student teams.

Design Challenge

Safe Agua is a unique combination of design education, design research, and social entrepreneurship. Such projects are changing design education and the design process itself to integrate field research as the driving component. Beyond responding to a preconceived design brief, students now are learning how to identify design opportunities and evaluate their largest potential impacts.

Our team of teachers, students, and nonprofit partners integrated multiple professional backgrounds and design disciplines. This new model deeply connects people across cultures and forges alliances across borders.

Our design challenge began by asking the question: How can we work with impoverished communities (campamentos)[7] in Santiago to develop new tools for using, storing, and transporting water in order to help families overcome the conditions of poverty?

"We are designing real, actionable solutions to help improve the daily lives of people living in the campamentos. This is a serious challenge to create real social change. Social entrepreneurship is not about charity, it is about reaching out to others, addressing real problems in their lives, and empowering them to bring about the change they desire." — Jacqueline

Black, Product Design student

The Context: Water in Campamento San José, Santiago, Chile

Globally, 1.1 billion people[8] do not have access to safe, clean water for drinking and daily use. The challenge in Campamento San José is not the absolute lack of water, but rather the physical and mental burden of living without running water. It is easy for people who have running water to take it for granted. We bend water to flow through our lives — it appears at the turn of a knob and disappears down the drain. In the campamentos, people bend their lives to accommodate the realities of water. [9] [10]

Families in Campamento San José receive water from a municipal truck one to three times per week. They live with the uncertainty of whether or not the water truck will arrive. When the water is delivered, they store it in barrels outside their homes.[11] Without running water, women must hand carry water for each daily task. Bathing becomes an arduous chore rather than a relief; laundry can take a full day of physical labor; and a glass of water can make a child sick. These perpetual burdens consume people's time, diminish their quality of life, impact health and dignity, and become an obstacle to earning a stable income and overcoming poverty.

"In many countries, the water problem is the primary reason people are unable to rise out of poverty. When used properly, nothing drives growth and eliminates poverty more effectively than water." — Blue Planet Run[12]

Field Research

In order to understand and gain insight into another culture and ultimately identify design opportunities to help families overcome the conditions of poverty, we established different strategies and methodologies to gain empathy and to guide the students throughout the research phase.

Exercise in Empathy: A Day Without Taps

We believe that at the root of all design is empathy. Therefore, one of our initial goals in the research process was

seeking to understand people whose lives differ in many ways from our own. Establishing personal connections between students and families shifted our process from designing for people to designing with people.

For many of us, this was the first time we visited families of lower socioeconomic status, and likewise our first experience living without running water. One of the things we take for granted is convenient, unlimited water from plumbing and faucets, yet the communities we worked with in the slums of Santiago only have water delivered (as infrequently as once a week) by truck.

To better understand this limitation, we conducted an empathy exercise called "A Day Without Taps." The Designmatters team in California and our partners from Un Techo, in Chile, participated in this exercise together, helping us bond as a group and setting the tone for a truly collaborative project.

In order to experience the challenges that families living in the slums face on a regular basis, each student and instructor lived for a day using only five gallons of water, taken either from our nearest hose or from a previously filled five-gallon (19-liter) container — the average amount of water that a family in Africa consumes each day.[13] We committed ourselves to use that limited water for all our daily activities (bathe, brush our teeth, cook, wash, drink, flush toilet, etc.).

We each kept a detailed visual journal of our Day Without Taps, documenting with photos, sketches, reflections, and questions. We noted how many liters of water we used for each activity, and whenever possible we consulted our water bill to compare how much we otherwise use on average. We often found ourselves changing our behaviors to cope with the challenge: skipping showers, postponing laundry, and coming up with different solutions to carry, store, and filter water.

Once we arrived in the slums of Santiago, we realized that as useful as this exercise in empathy was, our experience of a Day Without Taps was nothing compared to the challenges people in the campamentos had to confront every day.

Research Methodology Cards

In order to prepare ourselves for the field research, we created a tool kit of methodology cards specifically targeting our project objectives. We drew input and inspiration from different design research sources and methodologies, including IDEO's method cards and their Human Centered Design (HCD) tool kit,[14] and also from our own professional background and experience in the field of design research and insights.[15]

The tool kit was fundamental for directing the focus of the field research. It provided our students with the confidence and structure to navigate a completely new territory. It also changed the traditional model of design education by introducing field research as a key component of the design process.

The set of six cards defined the outline of the research. Each card featured one research topic and posed its fundamental questions with an inspiring image on the front and our recommended tips and strategies for gaining the relevant insights on the back. The cards were pocket size, with waterproof surfaces, to enable students to carry them out in the field as a guideline. We included a blank section on the back of the cards corresponding to the date, so students could decide and mark the order in which they would organize their research.

Broad Research Topics

Rather than focusing only on the functional problems of storing, carrying, using, and re-using water, we also decided to assess the "big picture" aspects of the problem. Understanding things such as people's core values, aspirations, physical environments, and daily life gave us further insight into the problem, and ultimately engaged our team on a personal level with our partners in the slums.

The three broad research areas we considered were:

1. Aspirations & Limitations

What are people's aspirations, and what keeps people from achieving them? How can we best impact this area?

ASPIRATIONS / LIMITATIONS METHODOLOGIES

Personal Inventory (Emotional):

Document the things that people identify as important to them as a way of cataloging evidence of their lifestyles.   (30 min)

Collage or Card Sorting:

Ask participants to build a collage from a provided collection of images and to explain the meaning of the images and arrangements they choose.   (30-45 min)

Draw your Past / Future:

Ask participants to "draw the future you want" (if they won the lottery or otherwise had no limitations). Draw a path from the past to now to that future, with the steps and hurdles along the way. (30min)

EXTRA TIPS

> First, gain people's trust.

> Gather direct, unfiltered quotes.

> Plan deep interview questions and practice interview

techniques.

> Ask "why" five times, to get to the real "why."

> Prepare and print visual cards ahead of time.

2. Materiality & Spaces

What is the material reality of personal and collective objects in the household and neighborhood? How can we best impact this area?

MATERIALITY / SPACE METHODOLOGIES

Behavioral Archaeology:

Look for evidence of people's activities, habits, and values inherent in the placement, wear patterns, and organization of things.

Social Networks & Spaces:

Notice different kinds of social relationships within a user group and map the network of their interactions. In what ways do objects, materials, and spaces express social relationships?

Personal Inventory (Functional):

Ask people to show and describe objects they handle daily — catalogue evidence of lifestyle. (30 min)

EXTRA TIPS

> How do things wear out?

> What can we learn from resourcefulness of the material culture?

> Be aware of materials and spaces throughout Santiago, not just in the slums.

3. A Day in the Life

Catalogue a day in the life of people in the campamentos, with special attention to the role water plays. How can we best impact this area?

DAY IN THE LIFE METHODOLOGIES

A Day in the Life of a Family:

Catalogue the activities and contexts that water users experience throughout a day.

Shadowing:

Tag along with people to observe and understand their day-to-day routines, interactions and contexts. (1–2 hours)

Timeline:

Create a branching timeline of household members' activities. Every person in the household plays a different role. How do the roles of different people relate to each other?

EXTRA TIPS

> Each team member can shadow a different household member.

Focused Research Topics:

To focus on more specific functional, water-related issues that would directly target our project objectives and deliverables, we created the following three research topics:

1. Storing / Containing

How do people store, contain, and protect valuables, food, water, and everyday objects? How can we best impact this area?

STORING / CONTAINING METHODOLOGIES

Error Analysis:

List all the things that can go wrong when storing/containing water and determine the various possible causes. (30 min)

Scenario Testing / "What If":

After your initial research, show users a series of cards depicting possible future scenarios for storing water and invite them to share their reactions.   (30 min)

Guided Tour:

Ask participants if you can accompany them on a guided tour of how they contain objects. Why did they choose a specific means of storage?   (45 min)

EXTRA TIPS

> Be aware of cultural biases and preconceptions.

> Consider differences between storing valuables versus daily objects.

> How does the house itself serve as a container to keep out rain, store water, etc.?

> Survey containment solutions that exist on the market and that families have invented.

2. Carrying & Moving

How do people carry objects, water, and themselves around? How can we best impact this area?

CARRYING/MOVING METHODOLOGIES

Behavioral Mapping:

Track the positions and movements of people within a space over time and note what are they carrying or moving around while doing it.   (45 min)

Flow Analysis:

Represent the flow of water through all phases of use. Consider water's behavior, not only on a map or plan, but also as it moves up and down.

Fly on the Wall:

In public spaces, such as markets, neighborhoods, or public transit, observe and record behavior within its context, without interfering with people's activities. (1–2 hr)

EXTRA TIPS

> What do people carry around (wallet, phone, children, jewelry, etc.), and why?

> Take "what's in my bag" photos.

> Survey carrying solutions that exist on the market and that families have invented.

3. Use & Reuse of Water

How is water used over the course of a day and week? What objects have been reused for a function or task different than its original purpose? How can we best impact this area?

USING / REUSING WATER METHODOLOGIES

Storyboard of Water's Day / Week:

Illustrate a character-rich storyline describing the context of water use. Water is the main character; if water could tell its story, what would it say?

Camera Journal:

Distribute a kit with camera, journal, and instructions. Ask participants to keep a diary of activities related to using water. (15 min / 1–2 days)

Narration:

As they perform a task or process, ask participants to describe aloud what they are thinking — to reach users' perceptions, concerns, and motivations.   (45 min)

EXTRA TIPS

> Other documentation methods: Script photos — ask people to re-enact each step of a process; time-lapse video.
> Ask the family what's missing?
> What objects have been re-used for a function or task different than its original purpose?
> Be sensitive to private activities (i.e. shower).
> Buy cameras ahead of time.

In the Field

"It was quickly clear to me that my research trip wasn't just about acquiring raw data, quotes, and statistics. My research was to listen to stories, study faces, sympathize with difficulty, and share in excitement." — Stephanie Stalker, Environmental Design student

Once in the field, our team spent two weeks of intensive research in Santiago, Chile, with families living in campamentos (slums). During the process, students developed and personalized the guided methodologies, making them their own. This included:

Creating card-sorting exercises to identify aspirations.

Students Diane and Ramon look at the documentation of the research finding they have just created while taking a break in the field. Throughout the entire process, students documented their research findings and created people's profiles and floor plans with flows of water and daily activities.

Students Stephanie, KC, and Nubia created a paper space-planning tool. Maria used this kit to design her ideal configuration for her media agua.
Participating in — rather than only observing — daily activities of the families: doing laundry by hand, helping clean the house, and cooking meals.

Design Process

What made the Safe Agua design process unique? The class proceeded like any other Transdisciplinary Studio (TDS) at Art Center,[16] but with four significant distinctions: first, driven by field research, student designers became opportunity seekers; second, collaboration was essential to the process; third, the studio embraced the ingenuity and resourcefulness embodied by Un Techo's Minimo philosophy; and finally, the resulting projects are designed to be rapidly implemented in the real-world campamento context.

Driven by Field Research: From Problem Solvers to Opportunity Seekers

During our research trip, each methodology card asked "How can we best impact this area?" Upon returning to Art Center from Chile, this question became the driving force for the design process. After compiling the field research, we clustered the gained insights into areas of focus, ranging from long-term well-being (health, employment, education, and emotion), to daily water-related tasks and functions (optimizing containing, transporting, and using water for time efficiency and physical convenience).

Unlike many studio classes, in which an instructor or partner company might assign a project brief that defines the problem to tackle for the term, each Safe Agua team embarked on a process to define the problem for themselves based on their observations during field research. This alters the conventional responsibility of the design student to now engage in the process of evaluating which (of the dauntingly many) problems to tackle, and then deciding what to design.

"What is the problem?" probed visiting faculty Adlai Wertman and Abby Fifer Mandell from the Society and Business Lab at USC's Marshall School of Business.[17] While the constellation of daily and long-term challenges that people in the campamentos face seemed daunting, intertwined, and complex to us, Adlai's provocation challenged each team to focus on a very specific problem that could be tackled in the remaining 10 weeks.

At one point during this process of problem definition, Environmental Design student Stephanie Stalker asked, "Rather than identifying potential problems to solve, couldn't we identify opportunities?" Although it might seem a simple question of semantics, Stephanie's question shifted our view of the problem-solution paradigm toward a much more optimistic perspective: we may have begun by calling ourselves problem solvers, but in fact we would come to define ourselves as opportunity seekers.

Collaboration: Designing "With" not "For"

"Modern environments and experiences cut across all boundaries of geography and ethnicity, of class and nationality, of religion and ideology: in this sense, modernity can be said to unite all mankind….A struggle to make ourselves at home in a constantly changing world…[that] implies an open and expansive way of understanding culture." — Marshall Berman[18]

Early in the term, Dirk-Mario Boltz, visiting professor from the Berlin School of Economics, framed Safe Agua in terms of the larger "co-creation" trend. Co-creation, simply put, is designing with people, not for them. The first step is empathy — moving past a mindset of "us" and "them" to a mindset of "we" — and developing what C.K. Prahlahad describes as "a new respect for consumers as co-creators of solutions and not just passive recipients of a product or service." [19]

Our ongoing relationship with the campamento families and our NGO partner, Un Techo, drove the project. At heart, the Safe Agua design process embraced collaboration — an engagement between people of different disciplines, perspectives, and histories.

In Product Design student KC Cho's words, "No statistic or data replaces direct contact and feedback from the families. Once we were able to connect with the families, they gave us everything we needed to start the project."

In practice, bridging the divide of location, culture, and language presented challenges. Yet students stayed directly connected to the families by several means, including email and Skype. Families from the campamento participated in a focus group organized by Un Techo to share their specific feedback on each project. This dialogue between students and families extended to co-testing: as Jessie and Narbeh tested their Ducha Halo shower prototype in Pasadena, families were testing it in the campamento. Since the campamento families could not come to Pasadena for the final presentation, our team sent the families a five-foot long banner showing the entire final presentation, a symbolic exchange that extended the personal relationships established during the project.
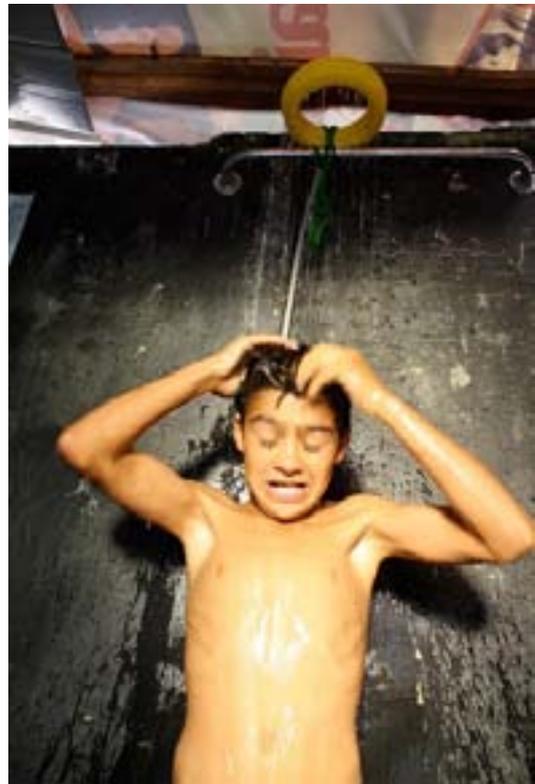
Minimo: Maximum Impact for Minimal Resources

"Minimo" stands for maximum impact for minimal resources; this is the philosophy of Un Techo's Innovation Center. Minimo also encompasses the extraordinary resourcefulness and ingenuity that people living in the campamentos have developed out of necessity. The Safe Agua studio adopted the minimo ethos — that design innovation can be driven by a radically low budget. Prahlahad, again, cites not just the poor's participation in local problem solving, but also in worldwide economic growth: "Four billion poor can be the engine of the next round of global trade and prosperity. They can be a source of innovations….in technology, products and services, and business models," and result in "sustainable win-win scenarios where the poor are actively engaged and, at the same time, the companies providing products and services to them are profitable." [20]

In practice, this approach influenced every aspect of the studio, from process to presentation to final prototypes. For midterm, teams employed an iterative process of making working mock-ups "Frankensteined" together from off-the-shelf parts (rather than more polished looking but non-functional models). This iterative process of making full scale, working mock-ups continued through to the final, to yield final prototypes intended for real-world implementation.

Real-World Design for the Campamento Context

The context of the campamento was paramount, and communicating the context in which each design was intended became part of the challenge. A particularly inventive student team played a Spanish soap opera on high volume during their research presentation to help the guests understand what it was like inside the homes of many of the campamento families. For midterm and final presentations, the simple rule of "no display pedestals" pushed teams to display their proposals within a context that communicated the feeling of the campamento to the whole school; and teams displayed their projects in the gallery amidst decidedly un-gallery-like wooden slat structures. One cannot remove these projects from their context; they simply do not make sense against a glowing white backdrop, as they are for, by, and of the campamento.

Part of our collective responsibility as a class was to bring the minimo ethos, and our connections with the families of the campamentos, back to Art Center to share with the school and beyond. This is precisely what this paper endeavors to do: connect the reader with the people in the campamentos, the challenges they face, the bigger picture of global water and poverty challenges, the class process, and solutions proposed by Safe Agua teams.

Outcome: Six Interconnected Projects

The six transdisciplinary teams designed innovative solutions at a range of scales — from product to system, to community spaces, to campaign — that addressed specific water-related needs identified through their field research. They coordinated how each proposal would complement the others, producing an outcome in which the whole is greater than the sum of its parts.

Julian Ugarte, director of Un Techo's Innovation Center, envisioned the metaphor of the class as a human body. Gota a Gota is the heart of Safe Agua — a gravity-fed system that allows water to flow to all parts of the home. Agua Segura, a family-sized kit for water chlorination and filtration, fulfills the physical need to drink safe, pure water. Two projects fulfill the need to be clean: Ducha Halo brings the dignity and well-being of a hot shower to people living with no running water, and ReLava is an inexpensive kitchen workstation that makes washing dishes in the home sanitary and efficient, and facilitates the reuse of water. The Mila community laundry and lindex catalog of shared innovations address people's need to communicate and share social support.

Although each project specifically targeted water-related challenges, the entire class worked toward a holistic goal: to make an impact on the lives of families in the campamentos. The projects that emerged are interconnected in a pragmatic sense, in that they collectively fit into the home, to make incremental improvements in the quality of daily life. More broadly, they fit into the longer trajectory of a person's life, and seek to help make the transition from people's current temporary living situation in the campamento toward a better life for their families (with the assistance of Un Techo) in permanent social housing.

Safe Agua provides a case study in a new and necessary approach to the critical importance of empathy-driven methodologies in design education for social impact, and documents the unfolding evolution of design and design education. Considered in isolation, Safe Agua makes a powerful case for specific, direct impacts through a human-centered, collaborative approach to problem solving. Viewed as an example for the execution of socially driven design principles, however, it demonstrates the far-reaching potential for these research methodologies, collaborative processes, and creative solutions to achieve further relevant successes globally. As a template for action, Safe Agua evinces the role of designers as

potential change agents for people living in poverty, or otherwise suffering from seemingly intractable problems that have yet to be addressed by the power of design.

Notaion

1.Designmatters was founded in 2001, inspired in part by a school-wide survey in which Art Center students expressed keen interest in pursuing international educational opportunities and socially relevant projects as part of their coursework. A volunteer task force of staff, faculty, and students worked with cofounder Mariana Amatullo to articulate the original Designmatters mission, establish guidelines for the program to function, and initiate both internal and external contacts to scout for projects and fundraising opportunities. For a comprehensive archive of Designmatters projects and publications, see http://www. artcenter.edu/designmatters.

2.The Safe Agua team of students comprised Elizabeth Bayne (Graduate Film); Jackie Black (Product Design); KC Cho (Product Design); Ramon Coronado (Graphic Design); Narbeh Dereghishian (Product Design); Stella Hernandez (Environmental Design); Erica Li (Environmental Design); Nubia Mercado (Transportation Design); Stephanie Stalker (Environmental Design); Will Tang (Product Design); Diane Wei (Product Design); and Jessica Yeh (Environmental Design).

3.The authors are indebted to the commitment, expertise, inspiration, and generosity of Padre Felipe Berrios; Rafael Achondo, Director of Development, Un Techo Para mi País; and Un Techo's outstanding Innovation Center team: Director and Founder, Julián Ugarte, Andrés Iriondo, and Askan Straume. For more information about Un Techo Para mi País, see www. untechoparamipais.org.

4.Senge, P., Smith, B., Krushwitz, N., Laur, J., & Schley, S. (2008). The necessary revolution: Working together to create a sustainable world. New York: The Crown Publishing Group.

5.Art Center students and faculty participate in interdisci¬plinary studios, elective courses, independent study, special projects, and international internships that focus on the social responsibility of design and busi¬ness practices. The outcomes and wide visibility of many of the Designmatters projects implemented to date derive from the strength of the educational collaborations that the initiative has brokered. These partnerships focus on four pillars of investigation — human sustainable development, global healthcare, public policy, and social entrepreneurship — and expose students to a meaningful range of expertise and experience. In 2003, the United Nations Department of Public Information designated Art Center an NGO (non-governmental organization) in recognition of Designmatters' service to society. Other unique affiliations now include civil organization status with the Organization of American States, and another NGO designation by the United Nations Population Fund (UNFPA).

6.For an excellent anthology of the current debates and discussions about what it means to teach art and design in the 21st century, see Buckley, B., & Conomos, J. (Eds.). (2009). Rethinking the contemporary art school: the artist, the Ph.D., and the academy. Halifax: The Press of Nova Scotia College of Art and Design.

7."Campamento" (literally translated as "camp" or "encampment") is the Chilean Spanish word for a slum, including the transitional communities served by Un Techo Para Chile. UN-HABITAT defines a slum household as a group of individuals living under the same roof in an urban area who lack one or more of the following: access to improved water; access to improved sanitation; security of tenure; durability of housing; or sufficient living area. In 2010, according to UN-HABITAT, 110.7 million people in Latin America and the Caribbean live in slums, also referred to as favelas, villas miseria, or asentamientos.

8.Estimate for 2002, by the WHO/UNICEF JMP, 2004.

9.For an in-depth discussion of the water crisis and the historical context of the eras of water that the world has experienced, refer to: Gleick, P. H. (2009). Facing down the hydro-crisis. World Policy Journal, 26(4), 17-23. Peter H. Gleick is co-founder and president of the Pacific Institute in Oakland, California. A MacArthur fellow and member of the U.S. National Academy of Sciences, he is the author of seven books, including the biennial report, The World's Water (Island Press).

10.For a primer on global water issues, refer to: A special report on water. (May 2010) The Economist. Retrieved from: http://www.economist.com/specialreports/displaystory.cfm?story_id=16136302

11.The 20 families of Campamento Fundo San José live in media aguas — which literally translates to "shacks" — transitional homes constructed by Un Techo Para Chile volunteers. These prefabricated wooden structures house a family of four in 18.3 m2 of interior space (6.1 m x 3 m) — smaller than a typical parking space.

12.For a rich collection of photographs, figures and stories about the global water crisis, refer to Blue Planet Run: Smolan, Rick, Jennifer Erwitt, and Robert Redford. Smolan, R., Erwitt, J., & Redford, R. (2007). Blue Planet Run: The race to provide safe drinking water to the world. San Rafael, CA: Earth Aware Editions. http://www.amazon.com/Blue-Planet-Run-Provide-Drinking/dp/160109017X/ref=cm_taf_title_featured?ie=UTF8&tag=tellafriend-20.

13.water.org. http://water.org/ (26 May 2010).

14.Patrice Martin, Practice Lead and systems designer at IDEO, notes that Method Cards were originally developed "to represent the diverse ways design teams can better understand the people they are designing for." IDEO also provides the HCD Toolkit, which is specially adapted for NGOs and social enterprises working with low-income communities in Africa, Asia, and Latin America. It is designed to help understand people's needs in new ways, find innovative solutions to meet these needs, and deliver solutions in a financially sustainable way. The resource is free and available to download at www.hcdtoolkit.com.

15.IDEO's Design for Social Impact workbook and toolkit for the Rockefeller Foundation is another valuable resource, which is free and available to download at: http://www.ideo.com/work/item/design-for-social-impact-workbook-and-toolkit/.

16.Project-based learning is a key element of Art Center's educational philosophy. Working in real-life settings tests and enhances proficiency in fundamental skills and exposes students to a wide range of disciplines. Because businesses increasingly

require artists and designers from discrete disciplines to work in collaboration, Art Center's Transdisciplinary Studio (TDS) workshops combine upper-term students from different majors on projects requiring several areas of specialization. By working across traditional boundaries, students achieve fluency in multiple design settings and applications.

17. Adlai Wertman (Founding Director, Society and Business Lab, Marshall School of Business, University of Southern California) and Abby Fifer Mandell (Director of Education, Society and Business Lab, Marshall School of Business, University of Southern California) are ongoing collaborators in Designmatters TDS projects. Their expertise and perspective adds fundamental value to design studios that focus on design for social impact. For further information about the innovative work done by the Society and Business Lab, refer to http://www.marshall.usc.edu/sbl/.

18. Berman, M. (1988). All that is solid melts into air: The experience of modernity (Second ed.). New York: Penguin.

19. Prahlahad, C. K. (2009). The fortune at the bottom of the pyramid: Eradicating poverty through profits (Revised and Updated Fifth Anniversary ed., p. 15). Upper Saddle River, NJ: Wharton School Publishing.

20. Prahlahad, C. K. (2009). The fortune at the bottom of the pyramid: Eradicating poverty through profits (Revised and Updated Fifth Anniversary ed., pp. 15, 27-28). Upper Saddle River, NJ: Wharton School Publishing.

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Designing Sustainable Sanitation through transdisciplinary research

A pilot project of nutrient recovery and reuse

Abstract

Design's contribution to the sustainable development of infrastructural systems of consumption (eg. water, sanitation, transport, agriculture) has primarily been in optimizing existing products, processes and services. Any transition towards sustainability will however need to move beyond finite solutions to complex problems and consider ambitious innovation across multiple components of the existing system, including its technologies, organizations, institutions, infrastructures and social habits of practice.

This paper introduces an innovative pilot project where an alternative system of sanitation to capture, treat and reuse urine in agricultural trials is being undertaken. This transdisciplinary project situates visual communication design as a core component in the social process of transitioning to a new and unfamiliar system of sanitation. Students across two design schools are involved in designing visual prototypes to introduce closed loop cycles of nutrient recovery from sewage to the target audiences, and engagement tools for a range of critical stakeholders during the trial. Design is being employed to support the socialisation of system innovation and facilitate a potential transition to a more sustainable system of sanitation. The project will test, on a micro scale, design's capacity to contribute to system innovation and its outcomes will include new insights into the role of design in transdisciplinary research.

1. Introduction: a new research agenda for sustainable design

The biophysical, socio-cultural and technological problems that sustainable design needs to perceive, engage with and respond to, are growing in complexity and scope. In Australia, water, energy and now food security are significant and emotive issues in the public imagination with complex environmental, political and social dimensions. At the same time, unsustainable resource use and waste generation is embedded in everyday habits, which remain relatively undisturbed. Ulrich Beck (1995) has argued that environmental threats 'disenfranchise the senses'. While big stories (and their empirical symptoms) enter our lives at an abstract level, nothing has really changed for the senses in everyday life. These insights help to delineate an ambitious agenda for sustainable design research that: generates criteria in response to complex, and often unrecognised problems; designs options in response to these criteria; and tests these responses via social participation. This paper tells the story of an innovative, transdisciplinary pilot project that adopts this agenda to explore the agency of design in supporting the transition to sustainable sanitation.

The Transitioning to Sustainable Sanitation Futures project (aka the 'Funny Dunny' project) is a two-year action research project involving the installation of an alternative system of sanitation to collect and treat urine at the University of Technology in Sydney, and reuse it in agricultural trials at the University of Western Sydney. The project is premised on the potential value of urine as a partial substitute for the phosphorus used in fertilizer to grow food. Mined phosphate rock is a rapidly depleting, finite mineral resource that underpins global food security (Cordell, Drangert & White, 2009). At the same time, phosphorus is widely understood as an environmental pollutant, which is costly to manage and treat. So this project attempts to close the loop by diverting urine for use in food production. Yet to capture, value and reuse urine in this way requires a significant transformation in how we think about sewage, as a resource rather than waste product.

The 'Funny Dunny' project employs visual communication design as a core component in facilitating the socio-cultural process of transitioning to a new and unfamiliar system of sanitation. The problem space of the project can be defined using Rip and Kemp's (1998) multi-level heuristic model of innovation. At the level of the 'landscape' is the threat of climate change on water and food security and the emerging story of Peak Phosphorus (Cordell et. al., 2009). These issues bring into sharper relief the irrationality of centralised, water-based sanitation. The 'sociotechnical regime' (Geels, 2002) of sanitation is characterized by a complexity of technologies,

institutions, infrastructures and social conventions of practice that have evolved over the last century into a highly path dependant system (Fam, Lopes, Mitchell & Willetts, 2009). This project is driven by the motivation to trial radical innovation at the 'niche' level in anticipation of a landscape shift and in the understanding that new landscape pressures can create openings for innovation at all levels of the system (Rip & Kemp, 1998). One of the overarching goals of the project is to reveal and respond to arising issues related to the installation of new systems of innovation – in this case, urine diversion.

2. Background: Transition Management and design

The complexity of facilitating system innovation relates to the fact that transformation of large scale infrastructural systems such as sanitation cannot be brought about through technological innovation alone but requires mutually reinforcing institutional and socio-cultural transformations (Geels, 2005). One of the approaches that advocate this philosophy is the recently emerging theory and practice of Transition Management (TM). TM is a strategy based on complex systems thinking which envisages steering of evolutionary processes through a means of 'learning by doing' (Kerkhof & Wieczorek, 2005). Often highlighted in TM is the importance of formulating a space for learning by a range of stakeholders including policy makers, scientists and technologists. What is rarely distinguished in TM's vague characterisation of stakeholders is the importance of encouraging learning by the user of the new technology and consideration of changing habits of practice that need to occur throughout the domestication process (Lie & Sorenson, 1996). As Shove has critically noted, the emphasis on innovation in TM has an implicit focus on technical systems and infrastructures of provision and supply (Shove & Walker, 2007) with the importance of considering habits of practice often overlooked (Shove & Walker, 2010).

The adoption of alternative sanitation and subsequent changes in wastewater flows comes close to personal life with standards of comfort, convenience and cleanliness (Shove, 2003), perceived health risks and the public and private meanings of toilet use (Horan, 1996; Quitzau, 2007) all informing user experience. This suggests that the user is not an insignificant, external actor to be disregarded in the innovation process. In comparison to innovation in other large scale infrastructural systems such as energy, transportation or communication systems, the adoption of new sanitation concepts has a higher level of intimate and high-frequency user interaction with the technology that makes social acceptance a critical factor for success.

Creating an environment where social learning can occur in an intense and deliberate fashion is therefore of critical importance in the process of facilitating innovation. TM strongly advocates multi-stakeholder involvement in inducing system change and emphasises the importance of devising explicit learning goals for transition experiments (Kerkof & Wieczorek, 2005). However, there is little insight in TM literature into how to increase learning to facilitate the process of system change toward sustainability.

While this paper does not propose to evaluate TM as an approach to facilitate transformation of large scale infrastructural systems such as sanitation, TM does raise issues in regard to design's contribution to the transition to more sustainable socio-technical systems and in particular the process of social learning. Along with TM, sustainable design can also be understood in terms of deliberately planning socio technical change "yet the relational dynamics of change have not traditionally played a part in design biased toward the 'technological fix'"(Fam et. al., 2009).

Design's traditional focus on product-oriented, market-driven, technical efficiency which produces finite 'solutions' to complex multi-faceted problems is not sufficient in dealing with system change. Finite solutions tend to be based on obvious technical performance criteria such as an operational reduction in water requirements, but the design is more often than not disconnected from the context in which it has to operate. The evolutionary design of the flush toilet for example has significantly reduced water consumption, by lowering 'flush' volumes, from single flush (12L), dual flush (6/3L), low flush (4.5/3L) to ultra-low flush (3/1.5L) but sanitary systems challenged by the effects of climate change, rapid population growth and economic instability will require more than efficiency gains for a transition toward a more sustainable system of sanitation to occur (Fam et. al., 2009). The hidden nature of sanitation systems in many western countries, means many citizens are acutely unaware of the amount of water they 'consume' in their daily toilet use (Troy & Randolph, 2006), let alone the impacts of sewage on the environment and the significant cost of maintaining, operating and managing large scale and often ageing infrastructural systems. This lack of awareness is exacerbated by the design of the toilet which deliberately conceals its connection to a much broader socio-technical regime comprising of sewerage pipes, treatment plants, water supply, extensive capital infrastructure investment, rules and regulations dictating health standards on treatment and socio-cultural norms and perceptions, habitual practices, not to mention engineering practices, production processes, and skills which have become embedded in western society over the last century (Fam et. al., 2009). In spite of the complex relationship of the artefact with the regime, the design of the flush toilet is a form of 'blackboxing' (Rip & Kemp, 1998) that disconnects the end-user from the water supply and waste production process.

If design is to influence shifts in the socio-technical regime towards more sustainable outcomes, then learning how alternative, more sustainable technologies are adopted and supported is an important part of the design process. If, as Rohracher (2006) argues, technological change is inherently social, then it would make sense for designers to consider how alternative forms of sanitation play out within a specific social context. Shove, Watson, Hand and Ingram (2007, p. 134) speculate that as the shapers and formers of artefacts, designers are "uniquely implicated in the transformation and persistence of social practice." Yet perhaps in part because of the largely sectored way in which design is taught and practiced, this sphere of influence tends to be under-recognised and underplayed.

3. Piloting UD: research precedents

The rapidly growing awareness of the value of wastewater streams, in particular the value of phosphorous in urine, has led to a number of high profile international research institutes and water authorities piloting and trailing 'urine diversion systems (UD)'. Pilot projects have been supported by institutions such as the German Technical Corporation (GTZ) (Blume, 2008), the Dutch Foundation of Applied Water Research (STOWA) (Wilsenach & Loosdrecht, 2001), Swiss Institute of Aquatic Sciences and Technology (EAWAG) (Larsen, Peters, Alder, Eggen, Maurer, & Muncke, 2001), the European Union (Peter-Fröhlich, Pawlowski, Bonhomme & Oldenburg, 2007) as well as Australian water authorities and government departments such as Yarra Valley Water (MacDonald & Narangala, 2008) and the QLD Department of Natural Resources and Water (Hood, 2008). Sweden in particular has the largest number of UD systems installed and the most extensive experience with implementation closed loop cycles of phosphorous recovery using UD systems.

In analysing the relative success of UD systems in Sweden it is important to note that many of the most enduring UD systems in Sweden today are those that have been collaboratively organised and/or managed by end-users (eg. co-operative housing estates, eco-villages and private summer houses). Johansson, Kvarnstrom and Richert-Stintzing (2009) characterise these actors as 'individual sanitation champions' willing to adopt first generation technology and deal with underperformance of the system as the technology aligns with ecological beliefs about sustainable living. Lessons learned from these 'early adopters' piloting UD systems have contributed to knowledge development and feedback to manufacturers in developing iterative toilet models (Kvarnstrom et.al., 2006). For these 'sanitation champions', the social drivers in adopting UD systems have not been in implementing UD as an individual technology but rather driven by a broader vision of what sustainable development meant within community living (Krantz, 2005; Norbeck, 1999).

In contrast to the success of many bottom-up initiatives where users played a central role, a number of UD pilot projects installed as 'top-down-initiatives' have struggled to gain socio-cultural acceptance, with several even dismantled over the last 5 years. In the late 1990s, a favourable political climate saw the installation of several 'top down' initiatives in Sweden, many of which were driven by individual municipal actors (personal communication Tanum, Gothenburg, Norrkoping, 2009) rather than by community consensus.

A number of top-down pilot projects of UD systems installed in the public domain, for example in the context of public toilets in a museum, school, as well as residential housing, have revealed a distinct lack of interaction by end-users in organising and managing the system and consequently a variable success rate compared to participatory bottom up approaches in trialing UD. Repeatedly, these projects reveal a lack of consideration of the importance of social learning and therefore of facilitating social learning. The difficulty in introducing alternative sanitation systems in the public domain is the challenge of engaging end-users in new sanitation concepts, introducing alternative

habits of practices and nurturing new expectations of a novel technology.

This rudimentary analysis of the emergence and development of UD in Sweden poses some critical questions about the engagement of users in facilitating system change. The early bottom-up experimental projects in Sweden provide insight into how technological change might be facilitated through strategically managed design intervention. What has been obviously lacking in many of the failed UD projects has been a direct engagement with users in the planning, design and implementation of UD technology. Viewed through the lens of TM, what could be suggested is the distinct lack of a critical 'stakeholder' in facilitating the introduction of UD as a radical innovation – the end-user.

Lessons from the development of UD in Sweden have directly informed the design of the 'Funny Dunny' project and consequently the enormous importance the project has placed on engaging the end-user through strategies of social research and visual communications design. The strategic adoption of visual communication tools focuses on promoting and supporting the socialisation of technology through end-user participation. Sustainable design interventions such as these are practical examples of deliberately supporting social learning in the process of system change. This project therefore is a modest attempt to deliberately utilise design's agency in system change in a practical way and in the process contribute to emerging theories of TM.

4. The 'Funny Dunny' Project: Research Design

The 'Funny Dunny' project creates a space for social learning within the university by collaborating with a broad range of interdependent stakeholders involved in the process of operationalising UD systems. The two-year pilot follows the life cycle of installation, urine collection, storage and reuse with the potential for the system to be up scaled or decommissioned at the end of the two-year period. The overall aim is to identify the enabling conditions for "new infrastructural planning processes, sympathetic regulatory and legal frameworks; altered user practices; and re-cast cultural meanings in the water industry, agricultural and horticultural sectors and beyond." (Sankaran, Abeysuria, Gray & Kachenko, 2010). Reflecting this ambitious aim, participants include local water utility the Sydney Water Company; the NSW Nursery and Garden Industry Association; NSW Department of Health; bathroom manufacturer Caroma (who were responsible for the design of the dual-flush toilet) and Sydney City Council as well as UTS' facilities management unit. University partners include Design and Agriculture at University of Western Sydney, Environmental Law at University of NSW and sustainable sanitation researchers from Linkoping University in Sweden. At least 20 UD toilets by three European manufacturers will be installed with a further 2 toilets provided by an Australian water authority (Yarra Valley Water) as a way of promoting collaborative research between industry and academia.

The Funny Dunny project utilizes an action research methodology, which supports 'learning by doing' and

collaboration in an iterative cycle of planning, acting, observing and reflecting (Kemmis & McTaggart, 1988). In keeping with the project's exploratory intent, the research design validates the discovery of constraining and enabling factors and records unanticipated problems as valuable information that could inform the transition to a more sustainable system of sanitation.
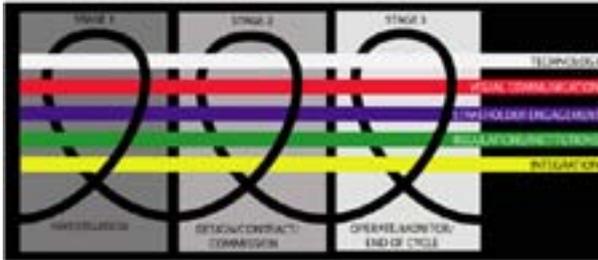

Fig. 1. Action research loops – mapping the prospective research design of the pilot

Five strands of activity represent multiple aspects of the research and enable the learning of participants to be articulated and reflected upon. The technology strand is engaged in issues associated with hardware and retrofit, technical performance and implementing the agricultural trials; the stakeholder engagement strand looks at the collection of social data; the visual communications design strand involves the development of tools to facilitate user engagement; and the regulations/institutions strand deals with landscape issues that might enable or constrain the diffusion of the system beyond the confines of the pilot project. Finally, the integration strand takes a whole system approach. It functions as a steering mechanism, overseeing the project, identifying impediments in the process and tapping into areas of crossover between the strands. This arrangement forms a new transdisciplinary social network, which has directive agency in shaping the course of action and can observe at close range how the intersectorial implications of the system unfold. This is facilitated by a multipurpose project website which is organized into strands and enables the geographically dispersed social network to function as a virtual community.

The three phases of the project involve planning, design and operation. At the time of writing this paper we are just commencing the design phase. We have established the social network and prepared for the installation by addressing a range of technical issues. One important issue that has emerged in the technology strand is the complexity of retrofitting a UD system in a building not designed to house below floor collection or storage. While this has obvious implications for system diffusion, it is beyond the scope of the current project and therefore has been defined as a boundary issue to inform future research. This has lead to the decision to minimize the scale of the 'hidden' aspects of the pilot system. Instead of diverting and storing all the urine from the UD toilets, a sampling system will be installed. It is anticipated that the complex issues surrounding collection, onsite storage and transport of what is currently deemed 'trade waste', will be explored in future research. In keeping with the gap identified in pilot projects to date, the focus of this project is 'front of house'. We are interested in how an innovative and socio-culturally challenging new system of sanitation is received, handled and experienced by its users.

The investigation phase has also seen the development of design briefs for undergraduate design students to begin to explore how to engage end-users in the system innovation and deal with the critical omission of the end-user in UD pilots to date.

5. The role of Visual Communications Design in the project

The visual communications strand (comprising the authors of this paper), is closely allied with the stakeholder engagement strand. It is tasked with creating highly visible and accessible tools that help to configure what system change might look and feel like for the everyday user. While other disciplines of design have significant parts to play in the retrofit and domestication of technology, the project hypothesizes that visual communications design is critical in the introduction of a 'greenfield' issue in the public imagination, to prepare the ground for a hitherto taboo subject to be broached, and for the routine and private practices of toilet use to enter 'discursive consciousness', which refers to the awareness with which people think and talk (Hobson, 2003). There is a range of socio-cultural barriers for the new system to overcome, such as an aversion to the idea of nutrient recovery from sewage (particularly for use in food production), or a lack of knowledge about the significance of phosphorus for food security. There are also a number of new habits of practice that need to be encouraged within the private space of the toilet, such as the need for men to sit down to urinate.

Part of the impetus for involving visual communicators in this project was the prevalence of poor visual tools identified in previous pilots, such as inaccessible user manuals or incomprehensible signage. There is a strong need for improved communication tools to inform all system participants about the 'how and why' of the system, and to gather social research during the design and operational phases of the project. We also aim to broadcast the results of design experimentation and practice-based research in an exhibition prior to the operational phase. The ambitious proposition is that visual communications can facilitate a negotiation between existing familiar and desired future practices, and colonize the imagination with a new and resonant environmental story that brings new meaning to a familiar, everyday routine.

The university is a particular public locale with a diverse population of people located in and moving through its environments. A high turnover of users with varying degrees and types of connection to the locale are anticipated. They are unlikely to resemble the intrinsically motivated sustainability community of the bottom up UD initiatives trialed in a number of international contexts. Rather they will be unique to the particular context of the pilot, with distinctive forms of embodied knowledge and unquestioned habits of practice, as well as particular domains of concern. These must be negotiated. A key role of the stakeholder engagement strand has been to develop relevant questions to help shape the appropriate engagement tools with specific users and practices. A sample of these questions and

the visual communications strategies to respond to them are indicated below:

How do we introduce the 'Funny Dunny' project and prime the university community for its installation?

How do we encourage the community to participate in trialing the 'funny dunnies'?

How do we inform users of the new practices the UD toilets require?

How do we encourage careful use and discourage vandalism?

How do we engage with non-English speaking users or those who need different styles of communication?

How can we document patterns and preferences in toilet use?

How do we gather feedback and involve users in further developments?

How do we engage with cleaners/ maintenance staff to support changed practices?

How do we bring clarity to unfamiliar technical problem situations for technical staff?

How do we engage with facilities management staff to explain the new system and implications for retrofit?

How do we engage the university community and the broader public in a conversation about 'the story of (p)hosphorus'?

How might people respond as citizens rather than consumers regarding the re-use of their waste?

These questions helped to articulate the spread of visual communication strategies for the pilot project and beyond, which are detailed in the following diagram.
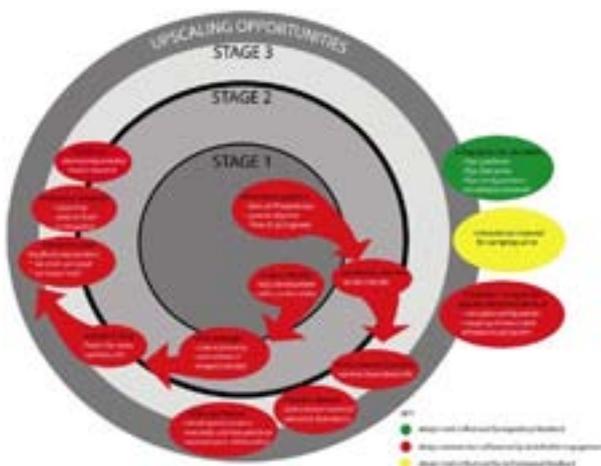

Fig. 2. Visual Communications strategies mapped across the stages of the pilot

6. Design for social learning

There is a significant gap between students' intuitive knowledge about sustainability and how they perceive their agency as designers, and the problematic of transitioning to sustainable sanitation futures upon which this pilot project is based (encapsulated by the reductive 'Funny Dunny' tag). The design brief is the means of bridging this gap as it enables students to jump into a complex and unfamiliar problem space and gives them ways to move forward within it. The brief has been discussed in the sustainability literature as an important means of introducing sustainability options to clients and a

mechanism of negotiation that can shift the balance of power between clients and designers (Fry 2009). In this project it is an important mechanism for social learning, functioning both as a vehicle to introduce new ideas to student designers and as a way to consolidate the visual communication requirements of the system for the 'Funny Dunny' team.

Students across two design schools participated in the generation of initial visual concepts through the investigation phase. 'Information Design' is an elective within 'Design Projects', a core 3rd year subject at the University of Technology in Sydney. It is the vehicle through which students are formally introduced to 'live' projects in their 4-year degree. 'Professional Brief' is a core 4th year subject at the University of Western Sydney, in which students conduct 'live' client-driven projects in 'The Rabbit Hole', an in-house design studio.

Both subjects asked students to consider how to 'give voice' to the pilot; to invite end-user participation; to explain the closed loop system of the pilot; the phosphorus cycle and the current situation of depletion; and to animate debate about the issue of waste as

a resource. Please see examples of Stage 1 design prototypes at the end of this paper.

The commencement of the design phase has seen the development of a feedback loop between stakeholder engagement and the generation of responsive design interventions. Various stakeholders including cleaning, plumbing and maintenance staff have all made a significant contribution to the development of the project. A pre-pilot installation of two toilets provided by Yarra Valley Water has enabled tinkering to occur in response to ongoing feedback from these stakeholders, prior to the commencement of the full pilot. Stakeholder feedback on the new system has been elicited in a number of ways, including anonymous on-line surveys, an in-situ 'graffiti board' in the washroom and project management meetings with the university facilities team (cleaners, plumbers and maintenance staff).

The primary purpose of the social research to date has been to determine perceptions of the new toilet, arising issues in use and what could be done via action research to facilitate the smooth transition to new practices by users (staff, students and visitors), cleaners and facility management. Critical feedback and expertise has been provided by technical maintenance and cleaning staff who have not only documented issues related to installation and maintenance of the pre-pilot system but have provided invaluable feedback on social practices in public toilet use on campus. This has subsequently influenced the planned location of the pilot and deepened design students' understandings of the socio-cultural issues involved in introducing alternative systems of sanitation.

The benefit to design students in engaging with the evolution of stakeholder feedback over a prolonged period of time is that they become aware of the evolving needs of various users in adopting new technology. For example stakeholder feedback has changed significantly since the first weeks of installation where commentary focused on the practical functionality of the system to later commentary where stakeholders wanted further

information on system design and sustainability indicators for the urine diversion system.

An exhibition will be held before the roll out of prototype visual tools for the operational phase of the project. By this time, it is anticipated not only that we will have developed through the pre-pilot sophisticated and context specific visual tools, but also a range of quality visual communication design briefs to facilitate system innovation that can be shared with other researchers and designers. Finally, we will have graduating students who have participated in 'discovery learning' (Warburton, 2009) with a practical understanding not only of design's social agency but a sense of themselves as agents to support socio-technical change.

The inclusion of visual communications design in this pilot project embeds several lessons about sustainable design: It positions design at the 'fuzzy front end' of system change where boundaries are set and decisions are made; it stresses the importance of finding leverage points (Meadows, 1999) for appropriate intervention in an existing system; and it mobilises design's historical capacity for foresight to anticipate future drivers and to help indicate what system change might look and feel like ahead of time. It also emphasises the importance of collaboration over individual action. In fact the trans-disciplinary action research model is closely allied to the mutual learning and multi-stakeholder environment advocated by emerging practices of 'co-design' (Fuad-Luke, 2007). This is supported by the fact that student design teams were dependent on expert knowledge provided by 'Funny Dunny' team and collegial collaboration between the university partners.

The initial phase of the project suggests that design has an important role to play in transdisciplinary research such as the Transitioning to Sustainable Sanitation Futures pilot. The ambitious scope but modest scale of the project has enabled the intense generation of context specific issues for designers to act and reflect upon. The visual communications strand has developed a greater understanding of the facilitation role as a legitimate design activity and of the value of the brief as a mechanism for social learning. It is anticipated that this learning will advance as the project progresses and relationships with other project stakeholders are developed.

7. Concluding remarks

The university provides an ideal setting for sustainability research of this kind. It has been described as a microcosm of society (Cortese, 2003) and a 'lab' and 'window' to design and promote sustainable innovations (Penin & Vezzoli, 2006, p.69; Vezzoli et. al., 2008). It can be seen as a hypothetical space in the culture at large, in which the risk of innovation for industry or community stakeholders can be absorbed as research enterprise (Allen, Lopes & Andrews, 2009). Universities have a responsibility to generate new knowledge that fosters collaborative engagement with real-world issues (Fullan & Scott, 2009). Internationally, the university has been charged with addressing climate change issues and equipping its staff and graduates with sustainability literacy (USLF, 1990; UNESCO, 2005). The 'Funny

Dunny' project responds to this call by facilitating social learning to support transition to a more sustainable system of sanitation. It presents the UD pilot less as an innovation for a future world than as the most rational response to the landscape issues currently confronting us. While the project anticipates a more sustainable sanitation future by closing the phosphorus loop in a local context, it is very much engaged with the antecedent world of infrastructures, institutions, social taboos, practices and perceptions across all levels of the existing system. It is in this space between what already exists and what is new, that the possibility of change is negotiated. It is anticipated that the pilot will act as an exemplary case study of how transition-based sustainability research might proceed, and the role of design in it.

Fig. 3. Branding and visual identity for the pilot Funny Dunny installation.
Designers: Mark McLoughlin (logo design), Greg Mulligan (brand name), UWS.

Fig. 4. Designer: Jethro Lawrence, UTS

Fig. 5. Toilet paper rolls visualizing '8 reasons why we need to rethink the management of phosphorus resources in the global food system' by Cordell (2008). Each second sheet on the rolls thanks users for their 'pee'. Designer: Rebecca Lam, UTS.

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Keneilwe Munyai   Mugendi M'Rithaa

Local indigenous cultures and modern design innovations: a South African perspective

Abstract

Under the theme of sustainability and social innovation, this paper looks at how indigenous knowledge can be applied in the production of organic products that are suited for modern designs. South Africa's indigenous groups offer alternative methods of production that are informally produced, sustainable and ecologically friendly, by using indigenous natural materials. Through an ethnographic study the paper investigates how indigenous methods could be used to design for modern trends. Participant observation in indigenous knowledge systems (IKS) serves as an apprenticeship in knowledge transmission. The study looks at IKS and how sustainable design can be achieved through the application of IKS to informal production. Indigenous knowledge in this context is not viewed as a replacement to technology, but rather as an integral part of the solution to help deal with environmental concerns in product production. Informal production has the capacity to transform small scale operations to large ones. IKS promotes respect for environmental resources to orientate society towards more sustainable ways of doing with respect to modern products in a global setting.

Keywords

Introduction

This paper posits that we should be looking at local wisdom and cultures for alternative production methods that might be beneficial for achieving sustainability and social innovation. Subsequently, social innovation that places emphasis on collaboration between individuals to come up with solution to design problems, environmental problems and economic problems by producing products using locally available materials is explored in this paper. The paper interrogates the manner in which indigenous knowledge systems (IKS) could inform various social innovation projects that will help with preservation of culture while achieving sustainability. Indigenous knowledge is described as "knowledge that has been acquired through lived experience and has been proven through the years of apprenticeship" (Agrawal, 1995).

This study however, recommends   promotion of social collaborations between indigenous crafters and designers to help come up with social solutions. Indigenous people produce products using indigenous methods of production which are intrinsically more ecologically friendly and sustainable in material usage in a local context. Further, the use of materials is linked to how indigenous people relate to their surroundings, culture, and beliefs. The production process of their products is informal and localised that makes it sustainable – that is more important today as humanity grapples with the pressing issues of social, economic,   environmental, and technological sustainability (Vezzoli & Manzini, 2008).

Sustainability is a key issue in the 21st century that organisations, governments, NGO, individuals are trying to deal with, as it affects our generation and if left unattended to will destroy the capacity of future generations to fend for themselves (ibid). According to the Kyoto Protocol adopted in 1992 in Japan, there are three pillars of sustainability – environmental, economic and social sustainability (Kates et.al., 2005).

The use of available materials by humans to create products that are practically suitable has always been an essential activity of indigenous people in many different cultures. Through working with indigenous people for this study it has been discovered that some indigenous people generate income through producing craft products that are produced using indigenous methods of production. Participant observation is employed in the studies of indigenous knowledge in the form of an apprenticeship in knowledge transmission as well as to validate the information given by participants on production processes which serves as an apprenticeship in knowledge transmission. Participant observation serves an apprenticeship and helps with education and knowledge transmission amongst indigenous people (Ohmagari & Berkes, 1997).

Indigenous Knowledge Systems

Local wisdom refers to traditional knowledge that is gained by people through lived experiences, living with nature and understanding nature while trying to survive using their ritualistic and cultural bases for the sustainability of their communities. Indigenous people came up with ways of adaptation using local traditional practices for humans as well as ecosystem management. Indigenous people see ecosystem as integral to them and therefore deserving of better treatment and possibly as much respect as humans (Berkes et.al., 2000). Turner et al. (2000) suggest that "caring for lands and resources relates directly to the wisdom of acknowledging the spirituality and influential powers in all things including earth".

Nomadic tribes for many centuries perfected ways of surviving and created cultures and value systems that showed great respect for the environment and their surroundings. Throughout time, people have pruned, harvested, gathered, cultivated, transplanted, propagated, sowed, burned, and weeded to increase chances of human survival (Martinez, 1993). Due to those value systems indigenous people are continuously finding ways of surviving in the rural areas based on what nature provides to them and solutions that they can come up with. Some of these solutions include using culture to produce items that they can sell to generate income while managing the environment and show respect to our ecosystems. Indigenous people continue showing respect to the environment by hand producing valuable items that durable.

There is an opportunity for designers to come up with innovative projects which incorporate indigenous methods of production. This is not to suggest that the process should be bias towards indigenous people, in order for the innovation to take place in such a way that everyone could benefit it is vital that we recognise traditional knowledge based on the acknowledgment of the rights of indigenous people – this forms the fundamental basis underscoring tenurial security of local communities and will promote mutual learning between local people and designers (Panday, 2003).

Indigenous production process is based on culture, tradition, society, and belief systems. Their methods are sustainable because they have been proven and improved upon through generations and the changes in the environment. Indigenous craft products are seen as only cultural ethnic items however, the skills and techniques of indigenous can be applied to modern designs. Their culture is also dynamic as people change so does the culture of producing craft and the selection of materials. This makes it easier for indigenous people to work and translate modern designs to beautifully crafted products (Lufele, 2009). Indigenous crafters have the ability to work with various kinds of materials, and have the ability to interpret various designs (Shapiro, 2008).

Traditional processes and techniques have the potential to last for generations to come because, these skills are passed down generations through culture and the techniques can be applied to various materials. The importance of incorporating indigenous methods of production to modern design has been emphasised by most European product designers at the 2010 Design Indaba in observing that indigenous people understand the materials and have the ability to translate designs into beautiful objects using sustainable materials (Design Indaba, 2010).

Dutch product designer Tord Boontje believes that "modernism does not mean minimalism. That contemporary does not have to forsake tradition, and that technology does not have to abandon people and senses" (ibid). While Thomas Kral a product designer from Switzerland believes that observing people's needs and combining traditional materials with revolutionary technology is ideal. However, combining tradition and technology is necessary and vital if it empowers and improves human life, and brings solutions to social problems and to create more problems, but helps create sustainability (ibid).

Role of Culture on Sustainability

Culture is defined as a ordered system of meanings and symbols on which social interaction takes place (Geertz cited in Bell, 1992). Culture helps indigenous people to construct identity for themselves, make meaning of their world and environment. Indigenous people view the land as a substance endowed with sacred meanings that define the existence and identity including non living organisms which they view as highly personal beings that form part of their spiritual universe (Burger, 1990).

Culture therefore is seen as a set of customs, values, and traditions and serves as a way of life of a society, clan, tribe, community or individual (Moreno et al., 2004:8). Indigenous people base their lives on strong beliefs that are in harmony with their surroundings, living and none living organisms. It is therefore vital that designers with their knowledge work with local communities to enhance the capacity of local communities without taking away their rights by moving them away from their cultural norms (Panday, 2003).

Culture is the way things are done based on the traditional indigenous ways of the ancestors. Culture is the resource that people draw on in relation to ever-changing circumstances and shifting identities (Davison, 2005). Culture today plays an important role in the survival of many indigenous people who live in the rural areas. Because of their culture they are able to continue with the cultures and traditions of their forefathers including taking care of the environment and their surroundings and be able to create a survival mechanism with their families and be able to generate income from the products they produce from various materials that nature has provided to them. As Koti (2008) clearly states, "culture is the way or a set of rules in which we follow to live our daily lives and helps us to protect our surroundings".

Culture is useful in organising society. It helps in setting the rules for those who believe in it to follow, as a result of their culture Xhosa speaking people of South Africa of the Eastern Cape Province have a good sense of their surrounding and place greater effort in protecting it during their production methods. According to Lufele (2009), "culture is the way we have come to organise ourselves in relation to nature. Culture means following tradition and doing things like my forefathers did".

Culture offers a sense of guidance and direction to many indigenous people. It helps people find a way to organise themselves. Their everyday activities reflect awareness of their environment as well as the impact of their actions on the environment. While also promoting self reliance amongst indigenous people and social innovation where a family or a group of community members work together to create items that are beneficial to the society using materials that are available, while allowing them to earn an income working informally.

Informal Production for Social Innovation

Chen, Sebstad and O'Connell (1999:603), described the term informal labour as "referring to activities that are not protected by labour legislation or organised by formal trade unions". Shifts from formal to informal employment have seen a rise in informal employment and these are a common feature of many transitional economies like South Africa (Macharia, 2006). However there is lack of government support within the informal sector in both rural and urban areas. Chen et al. (1999) noted that in developing countries there is lack of promotion of the informal sector, regardless of official reports showing that 80% in developing countries and 40% in developed nations operation in informal and rural markets.

European definition of informal labour is that of persons who carry out manual work on their own account, often helped by family members, friends or apprentices, even workers with whom they keep personal contacts, which generate a community of intellect and attachment to the craft (Moreno et. al., 2004). According to indigenous people the production process is society based and is based on cultural traditions. They produce products that are needed in their society.

However, indigenous methods of production currently fall under the informal (or 'second') economy in South Africa, which makes it unprotected by labour laws of the country, which makes it vulnerable to exploitation by outsiders seeking to benefit economically by exporting these ecologically produced products (du Toit & Neves, 2007). Working with indigenous people in the villages the first author learned some skills and gain more knowledge on how to produce items that ecologically friendly using what we have available to them. It is especially important to try and understand why they use certain materials, create the kind of products they do, and why it is important for humans to respect their environment.

Producing things locally enables us to follow the entire process of the production and know what has been used in the garment or product; it enables us to deal with issues that may arise, such as running out of materials. Their crafting skills have been amongst traditional tribes as a non-verbal code of communication that is significant to people of a particular group. Symbolism is an integral aspect of South African craft – traditional crafts express the communal nature of society. Symbols are also used to provide cultural context of traditional craft production. Materials that were used to produce craft were generally locally available. Crafts are often highly decorated, with complex abstract and representational signs that send

messages, tell stories, record histories, reflect beliefs and express power within the community (Sellschop et al., 2002). Subsequently, it is important to develop methods of mutual learning between young designers and indigenous crafters/artisans, as this can lead to collaborations which in turn will create more employment opportunities as well as self-reliance. This will promote integration of indigenous methods in modern designs in participation with local communities while reviving traditional methods of production using materials that are uniquely available to a particular area. This is not to say the products should be prescriptively ethnic, rather they should be of a competitive international standard with the indigenous skills applied as an added value. It also helps in promoting social sustainability, and cultural sustainability.

According to Belz et al. (2007), ecological production involves "social and technical system and this stage includes problem solving". Traditional methods of leather tanning used natural materials, and those methods are highly considerate towards the environment. However, traditional methods of production are said to be time consuming and labour intensive. Baker et al. (1993), suggest that developing countries like South Africa have a comparative advantage in labour-intensive production processes. Some indigenous people are still involved in the process of making leather. This offers an opportunity for young designers to collaborate with handcrafters to learn new skills which could in turn lead to new social innovations, while simultaneously offering economic opportunity.

andcrafted products involve cleaner production which is a continuous application of an integrated preventive environmental strategy processes to increase efficiency and reduce risks to humans and the environment. Handcrafting involves human interaction as the products are made by hand from start to finish. When designers work with indigenous people can learn about management of resources, eliminating toxic raw materials, and reducing quantified wastes before the product leave a process production is required in order to reduce impact of waste on the entire life cycle of products, to ultimate disposal of products (Panday, 2003). The reduction of environmental impact of services provided over the entire life cycle, from system design and use, to the entire consumption of resources required to provide the services (UNIDO, 2002). Shapiro (2006) suggests that countries like India, Italy, China and Spain are some of the countries that produce handcrafted items in large volumes. As a result those countries' handcrafting industries employ large numbers of people (ibid).

Eco- friendly Production Processes of Craft

Ecologically friendly or cleaner production is mainly used as an overcharging environmental management concept to deal with environmental issues in the production process (Hilson, 2002). Ecological transition translates into the ways in which humans decide to make use of their environment; they create culture which will guide them in their ways of daily living (Brandt, 2007). However, there is no clear boundary between the environment and ecology. Craft is a utilitarian or contemplative

objects made by hand, have received renewed attention in the past two decades.

People have become aware of the negative impact of mass-produced products on the environment as some of the products are not biodegradable and this leads to landfills that cause pollution (Margetts,1989). Crafts serve as part of indigenous knowledge a skill transfer and helps with the preservation of traditional knowledge. South African crafters possess exceptional skills and indigenous knowledge in manipulating a variety of available materials to create products (Shapiro 2006). These crafters belong to the various groupings of indigenous people that are found in South Africa's nine provinces. However, their work is regarded as informal labour which means that it is not legislated and is not protected by South Africa's labour laws. Chen, Sebstad and O'Connell (1999:603), described the term 'informal labour' as referring to "activities that are not protected by labour legislation or organised by formal trade unions".

Most Latin American, South Asian countries have experienced a slowdown in the growth of formal sector employment while African countries have experienced growth in informal labour sectors (Macharia, 2006; du Toit & Neves, 2007). Shifts from formal to informal employment have seen a rise in the latter – these are a common feature of many transition economies like South Africa. However there is lack of government support for the informal sector in both rural and urban areas. developing countries there is lack of promotion of the informal sector, regardless of official reports showing that 80% in developing countries and 40% in developed nations operation in informal and rural markets (Chen et al., 1999).

Before the introduction of industrially manufactured products, indigenous people made products that were driven by society, raw materials and the environment; products made out of hides and bone which had been in lasting personal possession (Jabbar et al., 2002). Grass which grows in certain parts of the country was harvested and used to make mats, brooms, sifts, place mats and baskets (such as those depicted in Figure 1).

Figure 1: Traditional crafter weaving grass baskets

Below is an illustration (Figure 2) of a piece of traditional attire called miwenda worn by Venda women from the Northern Province of South Africa – this attire is worn in pairs; one on across the shoulder and one on the waist. The miwenda is made out of cotton fabric and is embroidered in multiple colours and accessorised with matching bangles and anklets.

Figure 2: Venda cloth: hand stitched and embroidered.

Today some indigenous people still make use of high quality materials and make products that are informed by indigenous people's beliefs, culture and nature. The products are made out of durable materials because they are made to last – traditionally they are passed on from one generation to the next. It therefore becomes very important that IKS be supported because it aligns itself to the UN Millennium Development Goals. It is based on sustainable methods that inherently consider the needs of future generations.

The products created are practical and can be used to enhance their daily lives. Indigenous people are aware of every stage of production of the products they make, they relate to their environment and good stewardship of the same is second nature to them. Indigenous knowledge in this context is not viewed as a replacement to technology, but rather as an integral part of the solution to help deal with environmental concerns in product production. Informal production has the capacity to transform small indigenous production operations to larger capacities. IKS promotes respect for environmental resources to orientate society towards more sustainable ways of doing things with respect to contemporary products in a modern market setting.

Their methods of production can be replicated to the design industries where designers can work with local community groups to make handicraft such as embroidery, beadwork and appliqué as these form part of modern design techniques. It is important for designers to collaborate with indigenous crafters so that they can gain skills and ensure that knowledge as well as culture is preserved. It is local designers who are well aware of cultural and political landscapes in which they live and work, that gives an advantage of understanding the social problems and issues that face the community. It therefore becomes their role to participate in developing solutions in collaboration with the communities in which they live. Using readily available materials and equipment can help promote participation towards the growth of the economy while creating income generation mechanism for women in rural areas. In order for designer's gain better understanding of indigenous knowledge systems, it is important that young designers participate in local community crafts so that they can gain skills and wisdom in craft production.

This is important for preservation of local cultures,

knowledge, skills and create sustainability of the environment and lives.

Since 1996 the South African government introduced the Reconstruction and Development Programme (RDP) which is part of poverty alleviation programme under the investing in culture program. The government is trying to deal with the issue of an unusually high unemployment rate in the country. This is done through financing organisations and institutions such as Technology Innovation Agency (TIA) at the Cape Peninsula University of Technology (CPUT), which is the initiative of the Department of Science and Technology. TIA is involved in other partnerships which include SEDA Western Cape, Cape Craft and Design institute and the Cape Town Fashion Council which serves as a link between urban crafters and designers, CCDI is also part of CPUT Initiative which is supported by the Western Cape Provincial government.

With the support of the above Technology Innovation Agency (TIA) in collaboration with crafters the first author was able to come up with prints that are inspired by the crafters to come up with non-cultural designs that become a good selling point for the crafts. The design industry places emphasis on the supply chain, while the craft industry places emphasis on skills and techniques. Through the process of working with crafters young designers gain a deeper understanding of indigenous materials while they give an input on product development. Crafters learn to follow modern measures for the market, the aim of this project was to help the crafters learn new skills. These have been some of the critical outcomes of projects such as those of Prevailing/Solaka andThandeka based in Cape Town where the first author worked with previously socio-economically disadvantaged and marginalised women to develop a range of items that could be sold to high end retail stores with the support of TIA and CPUT. Below are some of the products that the first author worked on.

Figure 3: African daisy print by K. Munyai

Figure 4:   Zulu female heads print beadwork by K. Munyai and Thandeka y

This project shows that promotion of indigenous knowledge does not mean coming up with designs that are too tribal based, instead it focuses on promotion of knowledge of materials and skills. IKS also helps with meaning making in the process of coming up with designs. However, all these programmes need to be expanded into the rural areas were there is no easy access to the mainstream economy. Issues such as globalisation and the impact they have on the promotion of indigenous knowledge needs to be looked at.

Impact of Globalisation on sustainability of resources

Foreign direct investments as a means of globalisation occurred so that developed economies can gain access to the raw materials of developing countries – resulting in gains from the resources benefiting more developed nations. Moreover, international institutions and corporations acquire increasingly greater power and influence through the agency of collaborating leaders in industrially developing nations (Baker, 1993). The alluring pull of such multinationals draws significant numbers of younger people from rural areas in hopes that they will benefit from formal employment opportunities in urban settings. In reality though, the vast majority of these young people can not secure formal jobs and end up living in poor conditions in the cities, without any prospects of gainful employment. Arguably, no country can truly escape the pervading influence of international financial markets and multinationals as most parts of the world have an insignificant share in the benefits accruing from the restructuring of the global economy (Went, 2000).

Globalisation promotes outsourcing of production and labour into developing countries and this often results in a skewed net income distribution between developed and developing nations (Mostert, 2003). As a result there is fierce global competition amongst developing nations for the supply of cheap labour to more developed economies. In this regard, globalisation can be argued to be an internationalisation of production. The internationalisation of production comes at a great cost to local cultures and their sustainability is being threatened.

Millions of crafters who live in rural areas are unable to access the benefits of globalisation. It now becomes critical that government, NGOs and local institutions should promote IKS alongside other developmental prerogatives so that the said crafters can gain market access through initiatives such as TIA.

Concluding Remarks

This paper discussed the important role that IKS plays amongst the custodians of such knowledge. Further, it has also pointed out the pivotal role that indigenous knowledge can play within the contemporary creative world in the preservation of natural resources as well as perpetuating pertinent aspects of culture and traditions. Indigenous methods of production are inherently more sustainable vis-à-vis eco-design and related environmental concerns and much of this knowledge

and sensitivity could be harnessed to promote greater self-sufficiency as well as to inform more progressive production and consumption patterns in the broader context.

Finally, this paper supports the view that a greater emphasis should be placed on promoting IKS, job creation, investment in, and expansion within the so-called 'second' economy as this sector is more responsive to geopolitical realities in industrially developing economies with surplus semi-skilled labour on offer. By encouraging more research in this area, policy makers would be better informed in developing appropriate context-sensitive solutions that would offer their people enhanced social equity and cohesion. By referencing IKS and similar sources of inspiration in the face of prevailing forces of globalisation, progressive developing economies could help orientate their societies towards a more sustainable future for all.

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Fang Zhong[1]

Service Design for Territorial Ecology

A Chinese Pilot Case

Abstract

Territorial ecology is the state of the sustainable local development on the economic, environmental and cultural aspects. When the tools of service design are introduced to this topic, different activities will be proposed to the local residents, which are basically collaborative services. With a co-design process, local social enterprises could be founded according to the proposals.

The Chongming Sustainable Community project is a design initiated project, and the designers take the responsibility of mobilizing all of the resource. Being defined as a rururban area, the closeness to the city and the nature of an agricultural area were considered to be the specific advantages of the location. In this framework, several thematic workshops were held in Xianqiao Village. With an interdisciplinary method, designers with different subjects, such as urban planning, architecture, interior and service system, collaborate with each other. A panoramic vision is being built. New design thinking and methods are emerging in this operative/research process.

Keywords

service design, territorial ecology, collaborative service, design for sustainability

In the nowadays China who is recently recovered from the global financial crisis, the agriculture is not seemed to be a popular topic. While beneath every popular topic, the images of the agriculture, the countryside and the farmers could be found easily. For example, when we are talking about the transformation of the economic model, it is acknowledged that the precondition of the existing manufacture-exporting model is the vast countryside population in China which is the main part of the low-cost labor resource. Behind the rapid urbanization process is the morass of the farmers who lost their farmland. The headstream of the frequent food security accidents is often the pesticide abuse. And in the discussion of the environmental issues, such as soil degrading and water pollution, the next step of the industrialized agriculture should be reflected.

The Chongming Sustainable Community project is a pilot experiment in this macro social/economic background. Backing on the biggest Yangtze River Delta metropolitan cluster, the Chongming area reflected all kinds of problems in the Chinese countryside: it located in the Yangtze River estuary, the transportation between the island and the mainland is quite inconvenient. Comparing the vast acreage of the island, the infrastructure of transportation, health care and education is inadequate. Because of the poor efficiency of farming, more and more farmers immigrate into the city for work. Although the average income of the island residents is relative higher than other areas, there is still a huge difference between the city and the countryside. [2]

The Chongming Sustainable Community project is initiated by Tongji Unviersity and Studio Tao. It is an interdisciplinary project and diverse participants are involved in it. The general aim is to constructing a sustainable developing countryside community, specifically on the following aspects: enhancing the agricultural productivity, improving the infrastructure of transportation, health care, education, etc, revitalizing the countryside community, hence mitigating the trend of hollowing. The natural/geographic resource is considered to be the start point of the project: Chongming Island is an agricultural area, more than 2/3 of which is dominated by farmland and forest. There are abundant agricultural, piscatorial and forest resources. With the promotion of the eco-agriculture, it will become an important production base of the organic food for the Shanghai City. Furthermore, with the improvement of the transportation facility (the Shanghai Yangtze Bridge, the planned railway), the island would become the preferential resort destination of the citizens in Shanghai.

1, Background

The pilot case of the project is initiated in Xianqiao Village which is located in the middle of the island. The average income and the farmland acreage are on the average level. Since the low efficiency of farming, most of the young male villagers are working in the Shanghai city. Every family owns a piece of farmland of circa 1 mu (about 666.66m^2). Since only elder, female and children are left in the village, the villagers' association helps the farmers to cultivate and harvest the crops collectively. Almost every family has an independent house, and the front/back yard is generally cultivated as a vegetable garden, so that the basic demands could be self-sufficient, while the spare products would be sold in the market 2 miles away.

The Chongming sustainable community is a design-initiated project. With the idea of improving the living condition in the countryside community and orienting the sustainable development, the project team succeeded in gaining the trust and support of the local government and residents, mobilizing diverse academic and commercial resource, motivating a multidisciplinary collaboration, including urban planning, environmental science, design, etc.

2, The project process

The Chongming Sustainable Community project was launched in the end of 2008. In the past two years, the designer is the most active roles to orient the direction and build the scenario. Proposals were carried out with a serial of design activities.

2.1, Theoretic framework

Being an academic partner, the DIS-INDACO[3] group of Politecnico di Milano suggested the theoretic framework for this project, which is the sustainability-based service system design. In the field of design for social innovation and sustainability, the group has focused on the case study and theoretic research for years, and several projects have been executed, including EMUDE (2004), CCSL (2007). Meanwhile, the project Nutrire Milano (Feeding Milan) is considered to be the parallel case for this project.

A sustainable rural community is a systematic design project. Sustainability means not only the sustainable environment, reducing the artificial impact, and improving the energy efficiency, but also the economy sustainability: the industrialized agriculture has improved the farmers' income to a certain extent, but with the present price fixing system of the crops, the agriculture has been thought to be the bywork of the rural families. More and more farmers immigrated into cities and the permanent rural population is rapidly decreasing, thus the social fabric and historic context are facing the problem of dissolving. To realize the sustainable development of the rural area, any specific solution for the economic, environmental and social problems is not sufficient, only when they are considered systematically, a new way for the countryside reconstruction could be figured out.

The concept of rururban is introduced into this project (Buchanan, 1992). The closeness to the city center will be a particular advantage of the Chongming Island. With an efficient distribution system, the agricultural and tourism resource would be more accessible to the citizens. When the potential demands on better food and air were satisfied, the farmers could gain more income without any impacts on the environment. At the same time, the expending employment opportunities could be attractive for the young, educated generation, thus a self standing sustainable community could be expected.

The Chinese ancient idea of Yin-Yang could also explain the relationship of the urban and rural areas (Lou&Diaz, 2009). The countryside provides food for the city, while the active participatory of agriculture could improve the life quality of the citizens as well as feeding the countryside. The rural and the urban are trophic symbiosis and complement to each other.

2.2, Territory analysis

The territorial resource analysis is the starting point of the design and planning process. The project team did field research in Xianqiao Village, which is a representative of the Shanghai rural area. Most of the farmland is used for crop planting, with some complement of vegetable and fruit. Different kinds of poultry and animals are raised scatteredly, most of which are only for the family needs. Being close to the most developed area in China, the traditional culture is disappearing except the local cuisine. Most of the architecture was built in the past two decades, and almost no monument is discovered. However, some elder villagers still keep handicraft skills, such as basket weave, honey making, homemade pastry. Even they are not popular in the village, they are still recognized as a part of the immaterial resource. With the design process, these tangible and intangible resources will be organized in a feasible, innovative way.

2.3, Thematic workshops

From 2009 to 2010, several thematic workshops were held on enclosing to the topic of sustainable community, including the rural public space, the rural kitchen and creative economy. Some international design schools have been involved in the workshops. With a global view and in a totally local context, the workshops carried out co-design activities and produced plenty of feasible proposals.

2.3.1, the rural public space workshop

The workshop of the rural public space was the first international workshop for this project. The aims were, firstly, to find out the spare space in the village, planning to reuse them especially for the public life for the villagers. Secondly, to modify the existing farming plan, in order to improve the agricultural productivity and the farmers' income.

Just like most of the villages in China, there are few facilities for the public life in Xianqiao Village. The present community center is used generally for the committee's meeting and occasionally as a projection room for the villagers. Some simple gymnastic equipments are fixed in the courtyard of the community center, while only children will use them after school. The redesignated community center will be a multifunctional center for all of the villagers, particular providing public service,

such as information service and primary health care aiding.

With the future vision of agritourism, a panoramic plan for the village was proposed by the workshop. A better streetscape with basic outdoor furniture could not only improve the living condition of the villagers, but also make the village more attractive and friendly to the visitors.

The second task of the workshop was to rearrange the farmland. Since the collectively cultivated farmland was proved to be low efficient, a well planned plant chart will be helpful for the villagers. Having reserved enough space for the crops, some farmlands could be cultivated diversely with different seasonal plants, including vegetables and fruits, which could improve the farmers' income evidently, meanwhile the monotonous landscape will be improved naturally.
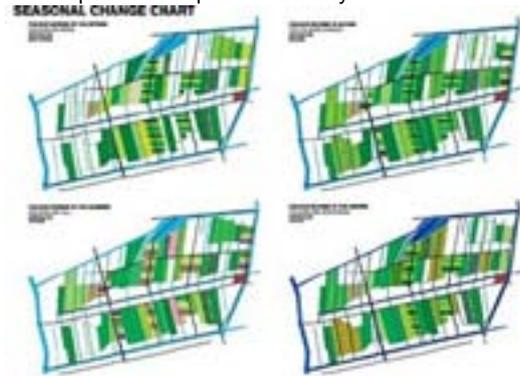
2.3.2, the rural kitchen workshop

Followed the rural public space workshop, a more specific workshop was held in September. With a rapid process of urbanization, the Chinese tradition has been diluted no matter in urban or in rural, with an exception of the cuisine. Eating remains its importance in the everyday life, so that the kitchen could be an interesting portal to observe the lifestyle.

In the Xianqiao Village, most of the villagers have built their own houses in a mixed western style. In general, there is a well-equipped modern kitchen with an affiliated traditional kitchen, or with the traditional stove in the same space. The reasons for this reservation are, firstly, it is more economic to use the traditional stove, since the fuel, such as hay, woods, is free for the villagers. Contrarily, the gas or electric will be quite an expense for them. Secondly, it is thought that the food which is cooked with a traditional stove is tastier than the gas-fired stove. Therefore, if only there were visitors, most of the villagers insist to use their traditional stove.

The rural kitchen is not only for the redesigning of the kitchen itself, but also for the reorientation of the lifestyle. Besides the basic function-cooking-of the kitchen, it is also a space of the reunion of the family and a place for the casual meeting of the neighbours. In addition, with the expectation of agritoursim, diverse functions should be considered to meet the visitors' demands. It is an interior-service design task with possible expending of the outdoor space planning. Six international teams were constituted by students with different backgrounds (architecture, interior design, industrial design, sociology, mechanical engineering and landscape planning). The research topics started from 'kitchen' while expanded to a macro scale, including industry/business, architecture/environment, energy/waste, tools/craftsmanship, lifestyle/service and communication.
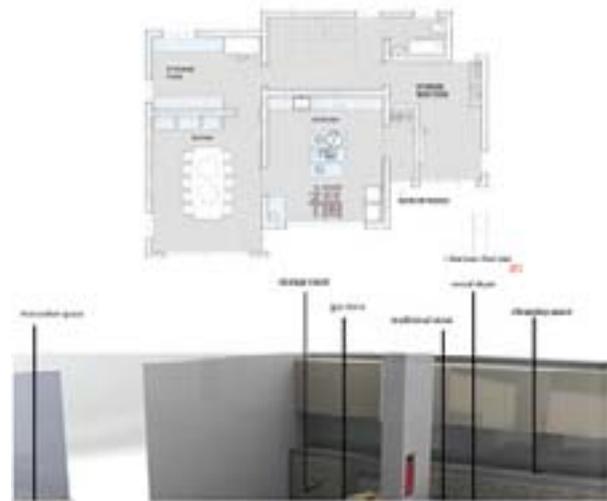
2.3.3, The creative economy workshop

Both the rural public space planning and the redesign of the rural kitchen are the reconstruction of the existing living condition, which both mainly aimed to the improvement of the infrastructure. However, in order to figure out the sustainable mode of the village, possible commercial opportunities will be the urgent but practical issue for the project.

In the past decades, the general model to boom the rural area is introducing investment on manufacture. Being employed by the local factories, the villagers could have an expectable income besides farming. But few of these enterprises could be operated successfully because of the small scale and low efficiency. In Xianqiao Village, there was a textile miller which has moved to the town a few years ago. The water pollution was the reason of the transfer. Consequently, the fragile ecological condition of the village requests cautious but innovative solution for the economic development.

The creative economy workshop was an experiment for both of the students and the villagers. The existing resource, both the natural and cultural, and the characteristics of 'rururban' were considered to be the unique advantages of this village. The project of Agricultural South Park of Milan was studied as a parallel case. The five groups-food, agriculture, hospitality,

mobility and health-explored the local treasure as well as designed with a global vision, especially the vision of a network society-small, local, open and connected. (Manzini, 2009)

In the network society, the method of maximizing efficiency is to collaborate with each other and involve all of the roles actively. Even dealing with different topics, the design groups tried to create synergy. For example, Bio Ming, the food company could provide traditional Chinese herbs to the H+ Company (health). When Renmu (hospitality) designs diffused accommodation for the visitors, some space could be specifically reserved for the organic food restaurant (Ping Heng Dao). By sharing operations and infrastructure, different enterprises would reinforce and complement each other (Meroni, 2010).
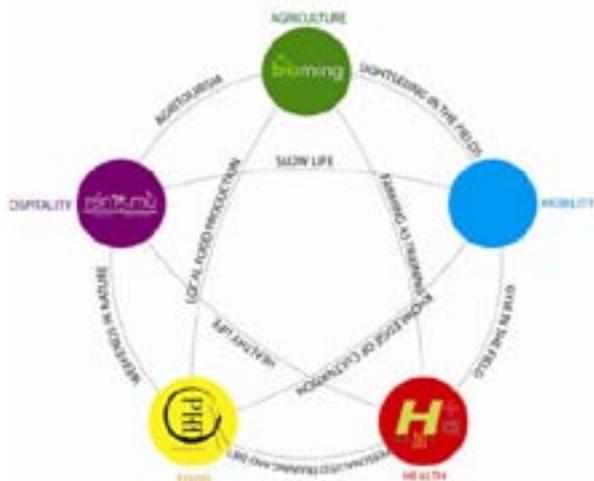
These thematic workshops are not only for design didactic and research, but also for the proposal generation of the projects. Potential business partners could be attracted during this process. Meanwhile the villagers and the local government could have better understanding on the territorial ecology by social learning.

3, Design reflection

The Chongming sustainable community project is a design initiated project. It comes from the vision of sustainability, the insight of the present context and the understanding of the particularity of the area. Being a mediator between the provider and the user, the designers take the responsibility of mobilizing the social capital. All the roles, or the stakeholders, will be motivated by the design activities and solutions. At this rate, the keys of the project are how valuable the solutions will be and how much the stakeholders could be activated. Starting from the resource analysis, the design activities run through the whole project and loop every specific task into a framework.

3.1, Design for idea generation

Comparing with the product design, the service design emphasizes particularly on the human behavior. The design for territorial ecology requires an in-depth understanding of the local resource. The designers, who are usually an alien to the local background, have to discover valuable but available elements for both the villager and the potential clients. After collecting plenty of information, a series of design tools will be applied to generate creative ideas, such as brainstorming, idea map, etc. The service solutions with both creativity and feasibility derive from a systemizing process of the ambiguous information.

3.2, Design for scenario building

After the idea generation, the scenario building will make the enabling solutions visible. Multimedia design tools, including storyboard, moodboard, interaction map, video, etc, help to meliorate the rough solutions. Therefore, the communication between the stakeholders will follow as a further step.

3.3, Design for communication

By creating the scenario of the enabling solution, the communication could be possible with the design tools. In general, the communication means the dissemination and the publicizing of the project. The Chongming sustainable community project, as a pilot project of social innovation, follows the five stages of innovation: knowledge, persuasion, decision, implementation and confirmation (Rogers, 1983). The innovative idea diffused in the society as well as the project itself. Consequently, the decision would be possibly performed after the effective persuasion to the stakeholders.

Specifically, the other role of communication happens between the different stakeholders. The design for territorial ecology transfers the traditional user-centered design to community-centered design (Meroni, 2010). The mutual understanding of stakeholders will somehow orient the direction of the project. And it is one of the main difficulties of this project. Most of the village residents are less educated elder and women, some of whom only speak the Chongming dialect and could not understand the mandarin, How to satisfy the latent requirements, and how to involve them into an active co-design process, therefore trigger the social entrepreneur among the villagers challenge the designers' creativity. Considering the huge urban-rural gap in China, the method of activating community into the co-design activities will be a significant theme for the design researchers in China and other developing areas as well.

3.4, Design for systemizing

The collaboration between the villagers is one of the objects of the sustainable community project. In the populous

village like Xianqiao, the resource owned by every family is quite small, such as the vegetable garden, spare room, labor, skill, etc. The profit will be quite limited if every family works separately. However, when the project is planned as a whole and initiate the collaboration of the villager by sharing resource, the marginal utility will exceed the sum of the individually works.

4, Conclusion

The design for territorial ecology is an emerging subject in the design arena. Being a pilot case in China, the Chongming sustainable community project aims to build a prototype in China, and search for a feasible solution of the sustainable development for the rural area. New design thinking and methods are catalyzed by generating and operating the project. It is a creative experiment for not only the social innovation and the design research itself.

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Notation

1. Fang Zhong: Politecnico di Milano, PhD candidate at the department of industrial design and multimedia communication. Ph.D of philosophy.
2. In 2009, the average income of the urban citizens is 28,838 CNY, and 12,324 CNY of the rural citizens. http://yanzhao.yzdsb.com.cn/system/2010/01/29/010354311.shtml
3. DIS-INDACO: the research unit of design for social innovation and sustainability of the department of industrial design and multimedia communication.

Ding-Bang Luh   Chia-Ling Chang

Users' Searching Approaches for Design Knowledge

Abstract

With expansion of the notion of open innovation, user innovation has become a popular issue in innovation management. Users gradually become highly interested in design behavior with increasing desire for design knowledge and the corresponding search approaches. Design knowledge no longer exists within professional designers but expands to users. The roles of designers progressively expand from creators to enablers. Understanding users' approaches in design knowledge acquisition and searching becomes essential for designers of all kinds. Focusing on highly-involved users, this study proposes a research process for exploring how users search for design knowledge, which consists of four elements: forming questionnaire tools, selecting user involvedness and classifying user status types, interviewing and data analyzing, and constructing the design knowledge searching framework for users. Through studies on 16 highly-involved LEGO players, the feasibility and usefulness of the proposed method was verified. As a result, four design knowledge gradations were suggested and eight generalized concepts of user design knowledge and six generalized concepts of user search approaches are proposed. Hands-on esthetic experience, Construction principle technology, and Component appearance are most essential design knowledge, and; Product associated media, Self-experience, and Fellow group network are core search approaches. With the suggested procedure and its resulting frameworks, designer's role as enabler and users' role as creator can be further explored in design research and marketing strategy.

1. Introduction

It is increasingly common for users to participate in product development (Morrison, John and von Hippel, 2000). More and more enterprises are willing to gradually open up design recourses for users to fulfill their desires of self-designing (von Hippel and Katz, 2002; Chan and Lee, 2004). Many world-known corporate websites grant the design rights to users and encourage users to design their own individualized products. When an enterprise takes the initiative and provides positive resources in supporting consumers' self-design activities, it facilitates product promotion and innovation development. Hence, exploring users' design knowledge and their search behaviors becomes essential. However, most researches focused on design knowledge within professional designers or design organizations and seldom explored the amateur designers or users who have accumulated design knowledge by self-education.

Customers with design ability to innovate products are getting increasingly important (Berthon et al., 2007) and design knowledge no longer exists within professional designers but expands to users. This span goes beyond the traditional professional boundary. Knowledge can be divided into explicit knowledge and tacit knowledge. Design knowledge can be categorized by the needed knowledge in different design processes. Accordingly, explicit design knowledge comprises design presentation, ergonomic data, design procedure instructions, computer-aided design and so on (Chen, 2000), additionally, written documents or figures, models, prototypes, design handbooks, reports, and design patents, etc are also included (Wu and Wang, 2001). Tacit design knowledge contains experience, observation, esthetics sensibility, etc (Nonaka and Takeuchi, 1995; Howells, 1996; Nonaka, 2007), moreover, business and marketing knowledge, design execution, design evaluation capabilities, design experience and design intuition can also be taken into account (Cooper & Press, 1995; Narváez, 2000). Cross (1997) indicated that inspiration is helpful for designers to have creative leaps in design process and to bring creative development. Eckert and Stacey (2000) believed the source of inspiration helps to generate ideas and that the inner representation of designer's work is formed from inspiration. Inspiration should thus be regarded as a kind of design knowledge. This research defines design knowledge as the users' comprehensive knowledge, skills, and any output implicated in creation or design behavior. According to the needed knowledge in design process, design knowledge can therefore be categorized as Inspiration knowledge, Thinking knowledge (design methods and presentation skills), Product knowledge (including related services and systems), Technique knowledge (engineering and production related knowledge), and Experience knowledge (individual or other's experiences).

Information search behavior is caused by the user's sense of the information needs (Wilson, 2000). One's information search behavior can be viewed as a self-learning behavior. Wu and Yang (1999) classified information search approaches into three types: formal approach (mainly graphs, texts, and product information provided by enterprises or social communities), informal approach (mainly speech communication), and online approach. Through in-depth interviews with ten graphic designers on their search behaviors during the concept development process, Jen and Cheng (2008) found that the effective search behavior can help designers obtain various inspirations and stimulations, which may help improve the speed of thinking and develop new directions of thinking. Franke et al. (2008) indicated that in the initial self-design development stage, users can be positively encouraged when they received design suggestions from the fellow group in the problem-solving process. Designs are representations of living experiences, and social organizations in many countries put efforts into promoting the life esthetics activity. Social resource has become one of the sources for the public to acquire design related knowledge. According to relations between self and communities, user information search approaches can be divided into four aspects, namely Self-learning, Peer, Enterprise resources, and Social resources.

The level of involvement may define, to a large extent, the kind of design knowledge required for self-designing and indirectly determine the search approach needed for specific design information. Involvement was defined as the level of relevance that individuals perceive towards an object, basing on internal demands, values and interests (Zaichkowsky, 1985). Blackwell et al. (2001) defined involvement as the level of individual importance and interest perceived, caused by stimulation, under a circumstance. Current tools for measuring consumer's level of involvement mainly originate from three methods: Personal Involvement Inventory Scale (Zaichkowsky, 1985), Consumer Involvement Profile Scale (Kapferer and Laurent, 1985), and Involvement Scale (Mittal and Lee, 1989). These scales can be applied to consumer strategic behavior in the marketing field, not applicable for design creation behavior. Establishing proper principles to identify level of design involvement for the users is necessary. Experience can be accumulated through time and by content. This study adopts the "length of time" and "breadth of experience" in designing as a framework to classify the user's involvement level. In comparison, the low-involved ones passively and limitedly acquire information, while the highly-involved ones actively and widely collect information and with relatively higher value to explore. Generally, the highly-involved person has high sustainability, concentration, and more cognitive and emotional expressions (Park and Young, 1986).

Figure 1 The process on exploring design knowledge searching at users

2. Methodology

Targeting on highly-involved users and with the developed frameworks of design knowledge and of information search approaches, this study suggests a research method to explore users' searching approaches for design knowledge. The process includes four stages, each comprises of three steps (Figure 1).

2.1 Forming Research Tool

(1) Identification of Attributes and Approaches

According to the five categories of design knowledge (Inspiration, Thinking, Product, Technique and Experience) and four aspects of search approaches (Self-learning, Peer, Enterprise resources, and Social resource), relevant references and information are collected. Through KJ Method (Kawakita, 1986), suitable design knowledge attributes and information search approaches for highly-involved users are grouped and further defined.

(2) Questionnaire Development

Based on the user's cognition and product characteristics and in accordance with the inductive and deductive principles of the Grounded Theory (Strauss and Corbin, 1990), lists of design knowledge attributes and of search approaches are established, in form of semi-structured questionnaires, namely, Design Knowledge Questionnaire (DKQ) and Information Search Questionnaire (ISQ). To analyze their correlations, the matrix-format Design Knowledge and Information Search Correlation Questionnaire (DKISCQ) is developed.

(3) Items Convergence

To raise the validity of questionnaires, at least three pre-testers without design background are required to minimize the mental burden of subjects when facing too many questions, and to increase subjects' willingness to answer questionnaires.

2.2 Subject Selection

(1) Qualification

Length of involvement time and breadth of experience content are taken as the framework to set up qualifications of highly-involved users. The former requires users to have at least the same basic minimum training period as professional designers, and the latter is used to categorize users into different status types. Qualified subjects are those who have at least one of the following experiences: one's works outperform the instructions inside the box, one's works with higher completeness and maturity, one who communicates closely with companions, one who actively holds design activities. For easy selection, subjects with any of the following accomplishments will be qualified:

1. Forming Research Tool	2. Subject Selection	3. Interview and Analysis	4. Model Construction
(1) Identification of Attributes and Approaches	(1) Qualification	(1) Interview with Questionnaires	(1) Matrix Integration
(2) Questionnaire Development	(2) Status Type	(2) Content Confirmation	(2) Concept Generalization
(3) Items Convergence	(3) Sampling Method	(3) Information Integration	(3) Framework Construction

(a) having works approved by association, (b) having works exhibited in public, (c) having managed design related groups or organizations, and (d) having received related creative contest awards.

(2) Status Type

Each subject is assigned a representative status type. For deciding status type, each subject is asked to describe one's design experiences and remarkable achievements. Different experiences can make different design representations. When the subject has two or more experiences, the one with comparative uniqueness is employed. Rare experiences can be regarded as unique experiences.

(3) Sampling Method

The number of valid subjects from each status type should be the same. People in charge or representatives of concerned communities are set as initial subjects. Each subject is asked to fill in questionnaires followed by an interview. Concerned data and information are recorded. By snowball sampling, they are asked to recommend other qualified users as next subjects. The recommendation is passed on until the information is saturated, indicating that consecutive two or more subjects in the same status type do not add or modify any opinion.

2.3 Interview and Analysis

(1) Interview with Questionnaires

The data is collected via semi-structured questionnaire interview. Through DKQ, the subject selects the more important half of the design knowledge attributes. With ISQ, the subject chooses all of the effective search approaches that have been used during one's design process. By DKISCQ, the subject ticks the design knowledge attributes that can be obtained via the chosen search approaches. After finishing all questionnaires, subjects are interviewed about the reasons and thoughts behind their answers in the questionnaires. The interview contents are tape-recorded and organized in text-format.

(2) Content Confirmation

To facilitate the research process, the majority principle is applied to determine if the chosen items are valid. In each status type, items selected by majority of the subjects would be included in the information integration stage. Otherwise, the interview contents will be reviewed one by one to find out the rationales behind those selection decisions for final determinations.

(3) Information Integration

The distribution result of design knowledge attributes selected by each status type of users is illustrated via the Venn diagram (Ruskey and Weston, 2005). The importance of each item or the gradation of design knowledge can be identified based on the convergence number of status types. The more convergence by different status types, the higher importance and higher level a design knowledge gradation would be assigned. The design knowledge gradation will then be given appropriate names.

2.4 Model Construction

(1) Matrix Integration

The result of DKISCQ is demonstrated in a matrix, using user status types as the matrix rows, and design knowledge gradations as the matrix columns (each column is divided into two subparts - design knowledge attribute and information search approach). Because one search approach may acquire multiple design knowledge attributes, columns with duplicate items may be merged for simplification. There are two ways to merge: cross-status merge (if one item exists in different fields of user status types, these fields can be merged) and intra-status merge (if one item appears in different fields under the same user status type, only the one in higher gradation of design knowledge is retained and the ones in lower positions are excluded. Higher gradation implies more important in design knowledge).

(2) Concept Generalization

By integrating all user status types, generalized concepts of design knowledge attributes and search approaches for highly-involved users can be established. Based on the results from the integration matrix and employing the axial coding principle of Grounded Theory, design knowledge attributes with similar meanings in the same gradation are merged and accordingly generalized concepts are proposed. The same procedure is applied on search approaches to gain the generalized concepts.

(3) Framework Construction

By applying design knowledge gradation as vertical axis and information search approach as horizontal axis, the generalized concepts of design knowledge attributes and the corresponding search approaches can be placed along the axes. Accordingly, the theoretical framework can be constructed.

3. Case Application

The proposed process can be applied to modular products with the characteristic of "Design it user-self". The product of LEGO is taken for case study for being the most familiar product to general users and the company has a long development history and has collected excellent works designed by users for commercialization and brought in actual commercial benefits.

3.1 Forming Research Tool

(1) Identification of Attributes and Approaches

The category of design knowledge is applied as a development framework for design knowledge attributes of users (Table 1). According to relevance of information connotation and through the KJ Method, design knowledge attributes were proposed. Based on mainstream mass media (printout, audio visual, Internet, community, etc.) and current information communication channels about LEGO, the four aspects of information searching and concerned searching approaches were identified. (Not listed, due to the exceeding amount of information.)

Category of design knowledge	Scholars	Opinions
Product knowledge	Cooper and Press (1995)	Perception of business and marketing
	Chen (2000)	Ergonomics
Technique knowledge	Sveiby (1997)	Skill
	Cooper and Press (1995)	Design execution
Thinking knowledge	Nonaka and Takeuchi (1995)	Aesthetic sensibility
	Narváez (2000)	3D presentation method.
	Chen (2000)	Freehand sketch presentation method, 2D CAD presentation
	Wu and Wang (2001)	3D presentation method
	Chen (2000), Wu and Wang (2001)	Design procedure
Experience knowledge	Cooper and Press (1996), Nonaka and Takeuchi (1995), Wu and Wang (2001)	Intuition
	Sveiby (1997)	Value judgment
	Cooper and Press (1995)	Design evaluation capability
	Cooper and Press (1995), Sveiby (1997), Nonaka and Takeuchi (1995), Wu and Wang (2001)	Iindividual experience, Other's experiences
	Sveiby (1997)	Social networks
Inspiration knowledge	Cross (1997), Eckert and Stacey (2000)	Inspiration

Table 1 The framework for design knowledge attributes

Categories of design knowledge				
A. Product knowledge	B. Technique knowledge	C. Thinking knowledge	D. Experience knowledge	E. Inspiration knowledge
A1. Component shape	B1. Component connection method	C1. Freehand sketch presentation method	D1. Object operation intuition	E1. Passive Inspiration
A2. Component color	B2. Component connection step	C2. 2D CAD presentation	D2. Personal practice experience	E2. Active inspiration
A3. Component size	B3. Object construction technique	C3. 3D presentation method	D3. Fellows' experience exchange	Other _____
A4. Component material	B4. Auxiliary tools application usage	C4. Form esthetics concept	D4. Expert instruction	
A5. Component price	B5. Structure constitution principle	C5. Color scheme skill	Other _____	
Other _____	Other _____	C6. Design step		
		C7. Design thinking method		
		Other _____		

Table 2 Design Knowledge Questionnaire (DKQ)

Aspects of search subject			
W. Self-learning	X. Peer	Y. Enterprise resource	IV. Social resource
W1. Instructional manual	X1. Joining fellow group	Y1. Themed books published by enterprise	IV1. Themed books published by government
W2. Related books	X2. Visiting exhibition held by fellow group	Y2. Regular magazine published by enterprise	IV2. Contests sponsored by government
W3. Newspaper and magazine	X3. Themed books published by fellow group	Y3. Membership club	IV3. Educational training held by government
W4. Internet knowledge	X4. Fellow group's electronic bulletin board system	Y4. On-line simulation/test sample	IV4. Expert on-site demonstration invited by government
W5. Physical store/ online store	X5. On-line interactive forum	Y5. Electronic newspaper published by enterprise	IV5. Expert on-line teaching invited by government
W6. Expert's blog	X6. On-line work exhibition	Y6. Contest sponsored by enterprise	IV6. Design exhibitions sponsored by government
W7. Related television program	X7. Personal communication	Y7. Training course held by enterprise	IV7. Design related website
W8. Advertisement	X8. Group gathering	Y8. Expert on-site demonstration invited by enterprise	IV8. Themed museum
W9. Personal past experience	X9. Regular magazine published by fellow group	Y9. Expert on-line teaching invited by enterprise	IV9. Creative market
W10. Leisure activity	Other _____	Y10. Upload system established by enterprise	IV10. Patent database
Other _____		Y11. Themed exhibitions sponsored by enterprise	Other _____
		Y12. Themed museum established by enterprise	
		Y13. Themed park established by enterprise	
		Other _____	

Table 3 Information Search Questionnaire (ISQ)

**Table 4 Example of Design Knowledge and Information Search
Correlation Questionnaire (DKISCQ)**

(2) Questionnaire Development

Based on the characteristics of the target product (LEGO bricks) and LEGO user's cognition, the design knowledge questionnaire with encoded items was developed (Table 2). Following the same method, the information search questionnaire was established (Table 3).

According to Table 2 and Table 3, the matrix-format Design Knowledge and Information Search Correlation Questionnaire (DKISCQ) was further developed (An example of which is shown in Table 4).

(3) Items Convergence

Three highly-involved users without design backgrounds were invited to do pre-test in order to increase the validity of the questionnaires and to converge the items. As a result, E1 and E2 required minor modifications and were renamed as "Intentional inspiration" and "Unintentional inspiration," respectively. The former is an idea related to the predetermined goal that flashes in one's mind during the thinking process; the latter is the idea that suddenly comes across one's mind without any predetermined goal.

3.2 Subject Selection

(1) Qualification

The ideal subject has to meet the basic requirements with at least continuous five years of LEGO design creation experiences and one of the following four qualifications: having LEGO works approved by peers, having LEGO works exhibited in public, having managed LEGO related groups or organizations, and having received LEGO creative contest awards.

(2) Status Type

According to the above four experience qualifications, the statuses of highly-involved users were classified into four types: Junior Expert (JE), who has works admired by peers; Exhibition Participator, who has works exhibited in public; Business Manager (BM), who has managed LEGO related organizations, and; Award Winner (AW), who has received LEGO related creative contest awards. If a subject has two or more experience qualifications, only the most unusual one will be selected as his/ her status type.

(3) Sampling Method

To facilitate in-depth research, subjects in the same region, Taiwan, were interviewed. These include the chiefs of two major LEGO clubs in Taiwan, namely "Taiwan Lego User Group" (TWLUG, about 6,100 members) and "PockyLand" (about 4,000 members), and one LEGO Ambassador in Taiwan (only 40 LEGO Ambassadors worldwide accredited by the LEGO Group). These three local professional LEGO users were taken as the initial subjects in snowball sampling. Each subject was asked to recommend at least two qualified subjects for each of the four status types as the next subjects, and the recommendations continued until two or more subjects in the same status type do not add or modify any opinion. Consequently, each of the four status types had four valid subjects when the information was saturated. All subjects' design creation experiences are listed in Table 5.

Table 5 Subjects' status type and their design creation experiences

chiefs of two major LEGO clubs in Taiwan, namely "Taiwan Lego User Group" (TWLUG, about 6,100 members) and "PockyLand" (about 4,000 members), and one LEGO Ambass.

3.3 Interview and Analysis

(1) Interview with Questionnaires

Each subject answered three types of questionnaires. In DKQ, each subject was asked to select twelve comparatively important design knowledge attributes out of twenty-three and suggested new attributes that are necessary. In ISQ, the subject was asked to choose the ideal and effective search approaches out of forty-two and suggested new approaches that are essential. In DKISCQ, the subject was asked to choose design knowledge attributes that can be obtained from the above selected search approaches. Each subject was interviewed about the reasons behind their answers in accordance with the results after finishing all questionnaires.

(2) Content Confirmation

The selected results of attributes from DKQ is shown as Table 6 (due to the exceeding size, only a part is demonstrated). The items selected by majority were regarded as the representative design knowledge attributes in a status type. For items selected by less than majority (only selected by one), the interviews about the subjects' answers were reviewed to determine if the items should be excluded. After integration, the representative attributes are listed in form of Table 7.

(3) Information Integration

The results of design knowledge attributes selected by each user status type were illustrated via the Venn diagram (Figure 2). Based on the convergence number of user status type, four design knowledge gradations were identified: Essential Knowledge (EK), Main Knowledge (MK), Secondary Knowledge (SK), and Peculiar Knowledge (PK). Applying the same procedure, the distribution of information search approaches selected by each status type of users was obtained (Figure 3). The search approaches selected by all status types of users were regarded as key search approaches which serve as the

Table 6 Selection statistics in DKQ

Table 7 Confirmed design knowledge attributes
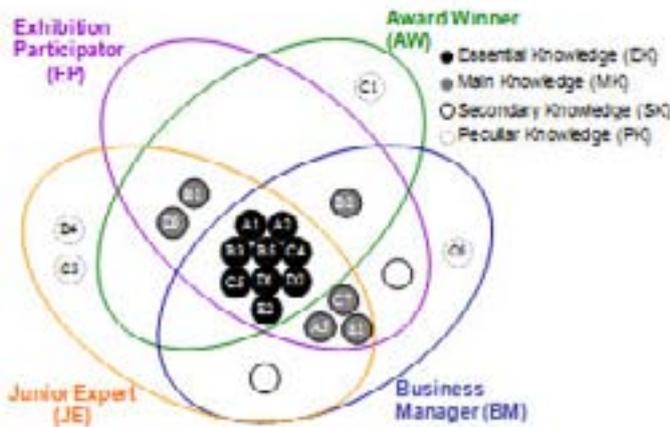
Figure 2 Selection result of knowledge attributes
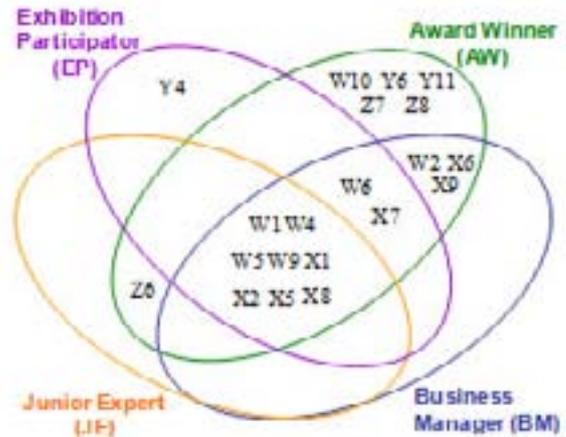
Figure 3 Selection result of search approaches

Design knowledge gradation		User's Status type			
		Junior Expert	Exhibition Participator	Business Manager	Award Winner
Peculiar Knowledge (PK)	Attribute	C3, D4	n/a	C6	C1
	Approach				
Secondary Knowledge (SK)	Attribute	A3	A4	A3,A4	n/a
	Approach		Y4		
Main Knowledge (MK)	Attribute	A5,D1,C7,D3,E1	A5,D1,D2,C7,D3,E1	A5,D2,C7,E1	D1,D2,D3
	Approach		X7		Y8,Y11
Essential Knowledge (EK)	Attribute	A1, A2, B3, B5, C4, C5, D1, D2, E2			
	Approach	W1, W4, W5, W9, X1, X2, X5, X8			
		Z6	W6	W6,X6,X9	W6,X6,X7,X9,Z6,Z7

Table 8 Matrix of design knowledge and search approach of highly-involved users

threshold for becoming highly-involved, consisting of eight items.

3.4 Model Construction

(1) Matrix Integration

With the DKISCQ, the matrix of design knowledge gradation and search approach of highly-involved users was established.

simplification, duplications were merged (Table 8). Clearly, nine EK attributes and eight key search approaches are shared by all four user status types.

(2) Concept Generalization

According to the axial coding principle of Grounded

Theory, the design knowledge attributes under the same design knowledge gradation were generalized. (Table 9) Taking component shape (A1) and component color (A2) in the attribute field of EK in Table 8 as examples, their core meanings both refer to component form, therefore the generalized concept of design knowledge can be named as component appearance. Applying the same procedure, generalized concepts of search approaches were obtained (Table 10).

(3) Framework Construction

Taking design knowledge gradation as vertical axis and aspects of search approaches as horizontal axis, a framework of four types of highly-involved users' searching approaches for design knowledge can be established (Figure 4). Through the generalized concepts, various status types of users' behavior can be further analyzed.

Searching approaches of Product Associated Media,

Knowledge gradation	Design knowledge attributes	Generalized concept	Illustration
Peculiar Knowledge (PK)	D4	Professional Instruction	Professional's instruction and suggestion
	C1, C3, C6	Design Presentation Technique	Component material and specification
Secondary Knowledge (SK)	A3, A4	Component Material and Specification	Component material and specification
Main Knowledge (MK)	A5, B1, B2	Production Cost Concept	Component connection process and cost consideration
	C7, D3, E1	Creative Thinking Method	Utilizing design thinking method and brainstorming with fellows, exciting creativity and exchanging design experience each other
Essential Knowledge (EK)	A1, A2	Component Appearance*	Component appearance and color
	B3, B5	Construction Principle Technique*	A technique that skillfully combines two or more components based on construction principle
	C4, C5, D1, D2, E2	Hands-on Esthetic Experience*	The hands-on experience that realizes creative inspiration through certain design process based on esthetic sense of form concept and color scheme

*: Essential generalized concept of knowledge

Table 9 Generalized concepts of design knowledge attributes

Aspect	Search approach	Generalized concept	Illustration
W. Self-learning	W1*, W4*, W5*	Product Associated Media*	A product-associated medium where design information can be easily acquired
	W9#	Self-experience*	The past creation experience of user oneself
	W5	Other's Thought Sharing	Product knowledge or creation attainment of others sharing regarding individual as the unit
X. Peer	X6, X7, X9	Work Exchange Platform	A platform to exhibit fellow's creative works and to deliver information
	X1#, X2#, X5#, X8#	Fellow Group Network*	Fellow group network system that can offer fellow members to register personal information, on-line discuss, invite fellow's works for exhibition, and easily convene a meeting of members
Y. Enterprise	Y4, Y6, Y11	Themed Activities	A series of themed design contests and exhibitions hold by enterprises and the Government
Z. Society	Z6	Themed Activities	

#: Key search approach, *: Core search approach

**Table 10 Generalized concepts of search approaches**
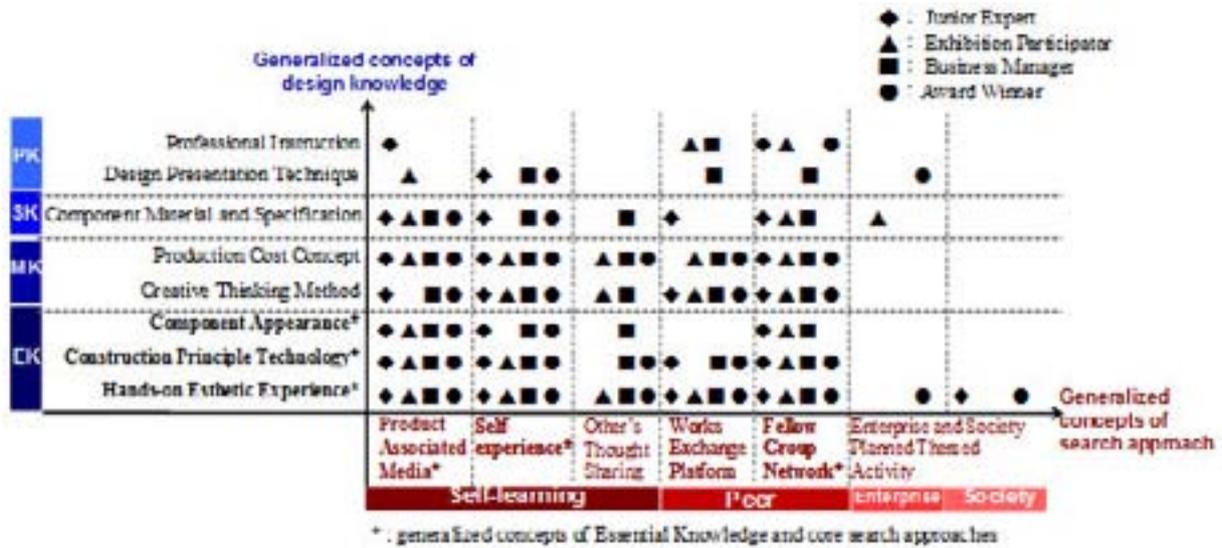
Figure 4 Framework of four types of highly-involved users' searching approaches for design knowledge

Self-learning, and Fellow Group Network are adopted by most user status types and used to acquire most design knowledge. They can be viewed as the most effective generalized concepts of search approaches for the highly-involved users. Generally and in terms of PK, Self-learning is less involves with Design Presentation Technique (DPT) and Professional Instruction (PI). Through Works Exchange Platform from Peers, DPT and PI can be accessed. Noticeably, DPT can also be reached via Enterprise and Society Planned Themed Activity. To enhance user's involvement levels, enterprises may consider to promote their creative activities and to provide PI through Peers, for they have much greater influence on users. The same rationale can be applied to Society.

4. Implication

From the design knowledge axis of the framework (Figure 4), Essential Knowledge has the highest level of demand. It includes Hands-on Esthetic Experience, Construction Principle Technique, and Component Appearance, which are design knowledge concepts that highly-involved users prioritize to acquire. Therefore, aesthetic, technique, and component can be viewed as three major principles for evaluating the maturity of user's creative ability. In Main knowledge, Creative Thinking Method helps group brainstorming and arouses diversified creative inspirations; whereas Production Cost Concept helps estimate product development time and costs from the design inspiration stage to the completion stage. Regarding Specific Knowledge, Component Material and Specification helps users optimize material's surface treatment details and enhance the visual effect of the space ratio of works. As for Peculiar Knowledge, Design Presentation Technique can help users not only record creativity and construction steps, but also express ideas to other. Since all highly-involved users have reached at least the level of Junior Expert, their demand for Professional Instructions is comparatively lower.

From the search approach axis, obviously the highly-involved users focus on Self-learning and Peer when searching for design knowledge. Resources provided by enterprises and the society are less utilized. Self-learning basically can be regarded as one-way active learning. It has three major learning resources: Product Associated Media, which includes operation manuals and visual introductions attached to the product; Self-experience, which is the accumulation of user's previous hands-on design experiences and life experiences, and; Other's Thought Sharing, which refers to using an individual as the unit, a platform sharing design knowledge and creation attainments, such as an expert blog.

Peer aspect means two-way or multi-way communication and interaction, and has two major resources: Work Exchange Platform is creation-based (or object-oriented) online exchange platform that allows users to upload images or videos of their design processes to share with others; Fellow Group Network is creator-based (or human-oriented) Internet system for fellow group members to register their design processes, share design information, interact and discuss with others. Themed Activities refer to themed design contests and exhibitions planned by private or public sectors, which attract Award Winner type of users mainly.

The search approach aspect correlates with the level of interpersonal intimacy in relations between self and communities (S&C relations). PKnowledge involves Professional Instruction and also correlates with the level of interpersonal intimacy in S&C relations. Comparatively, professional designers (can be regarded as Professional Instruction in the framework) often convey product ideas through Design Presentation Techniques, establish component materials and specifications, control production costs, provide Creative Thinking Methods (i.e. open-assembly), among others. Through these approaches, users can easily understand Component Appearance, utilize Construction Principle Techniques, and Experience Hands-on Esthetic. It can be asserted that, designers and users have

opposite relationship standpoints in the sequence of applying design knowledge. This reflects the real situation that designers and users stand on two far ends in the design knowledge chain. The framework suggested by this study conforms to experience rules and reflects their process relationship in design knowledge chain. Highly-involved users are no longer just product users but corporate designers and marketers, and their concerned knowledge, resources, and strategies become critical aspects for corporate innovation development.

The proposed framework demonstrates the process difference between users and designers in applying design knowledge chain. When users provide design services to others or enterprises by utilizing personal design knowledge and skills, their works and individual values also upgrade. The social innovation model may gradually replace professional model and users have the potential of personal brand. Creative resources of enterprises can be accumulated by the professional users rather than by enterprise themselves only. Users thus change from pure consumers to innovation partners, and the relationship between enterprise and users changes from the vertically host-guest relationship into horizontally partner relationship.

5. Conclusion

From above discussions, feasibility and usefulness of the proposed process for exploring the highly-involved users' search approaches for design knowledge was verified. Through which, various user status types can be further defined and their search behaviors be analyzed. According to the studied case, the following conclusions can be drawn:

1.According to the needed knowledge in design process, design knowledge can be categorized into five kinds (Inspiration, Thinking, Product, Technique, and Experience), which can be further employed to explore users' design knowledge.

2.Four design knowledge gradations were identified and eight generalized concepts of user design knowledge are suggested. Hands-on esthetic experience, Construction principle technology, and Component appearance are found most essential.

3.Based on the relations between self and communities, user information search approaches can be divided into four aspects (Self-learning, Peer, Enterprise resources, and Social resources). Self-learning and Peers are found most frequently adopted by all status types of users.

4.Six generalized concepts of user search approaches are proposed. Product associated media, Self-experience, and Fellow group network are identified as core approaches, through which most knowledge can be searched.

5.The suggested research method to explore users' searching approaches for design knowledge is feasible and useful, which includes four stages, each comprises of three steps. Three questionnaires and a set of analytical tools are proposed, which can help model user behaviors.

6.The length of involvement time and breadth of experience content can be used for defining highly-involved users. Four user status types are suggested (Junior Expert, Exhibition Participator, Business Manager, and Award Winner), each has its different ways searching for needed design knowledge.

7.Through the matrix of design knowledge and search approaches, the highly-involved user's design knowledge searching framework can be established, which conforms to experience rules and truly reflects the real situation that designers and users stand on two far ends in the design knowledge chain.

8.With the suggested procedure and its resulting frameworks, designer's role as enabler and users' role as creator can be further explored in design research and marketing strategy. It can serve as a strategic road map for the user to improve oneself to become a better creator, for the designer to learn how to be an effective enabler, and for the enterprise to gain insights of users as innovation resources and strategic partners.

Users with excellent design ability are the utmost emerging creative resource that enterprises need to develop in the future. Based on the construction procedure, methods and tools of the highly-involved users' design knowledge searching framework, the behaviors and demands of users at different levels of involvement, during the process of storing and sharing design knowledge, can be further explored to establish user's design knowledge management strategy. It is also anticipated to offer enterprises with effective applications of users' design resources and create new energy on knowledge economy. Moreover, creative origins of industries and design knowledge chain can be further developed.

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Sustainability and Design Education

Case Study: Lebanon

Abstract

After twenty years of civil war and continued political and economical turmoil, concern for ecological issues is not a priority to most Lebanese. Lebanese students in higher education design programs are typically not even familiar with the term sustainability. Literary research found that a handful of NGOs, global corporations, local businesses and the Ministry of the Environment are currently addressing ecological issues in Lebanon, but merely on a surface level. Living within an ecologically diverse yet deteriorating country the Lebanese must take action immediately. From this, the question arose: How can design education in Lebanon be modified to encourage sustainability? A qualitative analysis of sustainability progress within design education outside Lebanon was conducted. By having faculty as question-asking facilitators and reference providers, students as content-creators capable of self-run critiques as well as program and course revisions made to be green-focused potential to modify Lebanese design education exists. Examples are provided that combine the literary findings of existing sustainable activities in Lebanon with pedagogy progress outside Lebanon to create program titles, course titles, project descriptions and student actions with community collaborations in a Lebanese context. The integration of sustainability within design education can serve as catalysis for environmental change in Lebanon.

Keywords

Lebanon, sustainability, graphic design, education

Introduction: Lebanon's War, Instability & Environment

Lebanon is a small country situated along the Mediterranean, bordered by Syria and Israel. It is a country where political and economic problems have overshadowed environmental issues for decades. In 1975 the Lebanese civil war began and did not see closure until 1991. Those 16 years of war took their toll with approximately 120,000 people killed and 300,000 wounded, many of whom were civilians (Marston, 1994). Even since the end of the civil war, Lebanon has experienced the July War in the summer of 2006. During such instances of conflict it is inevitable that concerns for one's personal safety, economic welfare and basic survival take precedent over environmental concerns.

The Natural Beauty of Lebanon

Though the Lebanese had much of their country and natural reserves destroyed by war, neglect or lack of concern, the people do pride themselves on the natural beauty of Lebanon. It is common place for the Lebanese to eagerly welcome foreigners with descriptions of the ecological diversity of their small country. In her book Lebanon: New Light in an Ancient Land, Elsa Marston (1994) writes about the misconception that all Middle Eastern countries have desert landscapes and the fact that Lebanon does not. She goes on to describe the snowcapped mountains, cedar and pine tree groves, the fertile Bekaa Valley, the abundance of wildflowers and fruit trees, mountain springs and rivers as well as the many ports and fishing communities along the sea. Moreover, throughout her description the word beautiful appears again and again in describing the Lebanese landscape. Unfortunately though, this beauty has been neglected and abused after years of turmoil, wars and instabilities.

The Environmental Concerns of Lebanon

In 2006 the war had a direct and destructive impact on the environment. Lebanon suffered dramatic effects from missile attacks, the bombing of a power plant and the largest oil spill ever in the Mediterranean region. Environmental issues began with attacks on thousands of Lebanese homes and buildings causing fires and smoke. The smoke contained contamination with the potential to create hormonal and respiratory problems in humans. The short and long-term damage continue to affect the people, water, animals, and breathing air. The environmental affects of the war could seal the fate of what was once a beautiful, tourist-filled country. (Mndaily, 2009). Other environmental impacts from this war included air pollution and chemical spills

as Israeli military targeted industrial factories, fuel bunkers, and other flammable structures. Furthermore, there were a half a million refugees in Lebanon. Difficulty due to transportation created waste problems and water pollution (Oilspilllebanon.org, 2009).

Beyond war-related environmental issues the conclusion of the 2001 State of the Environment Report for Lebanon provides a list of more topics that need to be addressed. Sound agricultural practices should be promoted. Industrial facilities need to be classified, sighted and implement new industrial emission standards. Road and highway projects should be rethought. Air pollution by way of the transportation sector should be reduced. Construction needs to foster environmentally-friendly practices. Public access to the beach should be restored or preserved. Sound water conservation measures need to be introduced. The national land use master plan should be shaped to protect so called protected sites. Reforestation resources need to be leveraged. Municipal solid waste management needs to be reshaped to encourage sound management of special wastes and promote small-scale wastewater treatment and reuse in rural regions (Ministry of Environment, 2001).

There are reasons why each of these issues must be addressed and information to help support the rationale behind them. In terms of water conservation, for example the USAID website explains that, "Today water in Lebanon is relatively plentiful. However, mismanagement of this vital resource causes 50 percent of the country's water to be lost. If this trend is not fixed, Lebanon will face severe shortages within the next 25 years…Lack of proper sewage disposal endangers Lebanese health and the environment" (USAID, 2009).

From articles on the 2006 war, text from the State of the Environment Report and information from the USAID website, a basic overview of Lebanon's dire environmental problems are addressed. Sustainability within Lebanon is a multifaceted and in-depth predicament. Fortunately, the country is experiencing a time of stability. With some sense of peace since 2006, the Lebanese have recently gained ground in terms of dealing with their environmental concerns.

Lebanese Organizations Taking Eco-Action

There are global and local organizations in Lebanon taking action. One major resource is the Ministry of the Environment (MoE). Key actions related to the environment which the Ministry takes on include: events, activities, international projects, publications, reports and forums. MoE also places emphasis on awareness, protected areas and reforestation. Another significant contributor to the environment in Lebanon is USAID which, focuses on water management. By protecting the environment USAID also encourages rural tourism and brings jobs and money to the region. Furthermore, in consultation with the Lebanese Ministry of Environment, USAID cleaned oil from over 68 miles of shoreline. The first priority for the oil spill cleanup were areas of high economic importance, including commercial harbors, public beaches, and several historic sites (USAID, 2009).

There are also organizations such as Green Line and AFDC taking on specific environmental concerns. Like, USAID, Green Line addresses environmental problems of a post-war Lebanon. However, "Green Line is a non-governmental association independent of any government, group, or individual. It embraces the principle of environmentally sound development in the developing world. Green Line brings together all those who are concerned with: preserving the past, conserving the present, and giving the future a better chance" (Green Line, 2009). Green Line's focus is on sustainable development. This organization promotes knowledge and documents environmental dangers in order to deal with them at the community level. The Association for Forests: Development & Conservation (AFDC) on the other hand, focuses on forestation. "Two of AFDC's main objectives include: "Developing local communities while maintaining conservation and the sustainable management of forests and natural resources. [and] Capacity building and public awareness in fields and issues related to the environment and sustainable development" (AFDC, 2009).

There are also several eco tours, tourism organizations and local businesses in Lebanon that contribute to the welfare of the environment. Some of which include: Esprit Nomade, Exit To Nature, Ibex ecotourism, Lebanese Adventure, Liban Trek, Speleo Club and ALES. Such organizations provide the public with awareness and active observation. They also work toward conservation and sustainability of local environments. Beyond eco-related organizations, there are local businesses that address the issue of sustainability in their own unique ways. Shtrumpf is a Lebanese bar and restaurant chain that organizes an annual graphic design competition open to university students. Their call for participation involves the creation of eco-friendly campaigns. The competition is referred to as Go Green. Shtrumpf is one of the few local businesses recognized for their green efforts. Moreover, they acknowledge the potential of sustainable design as a powerful force for positive change within Lebanon.

Lebanese Graphic Design Studies and Challenges

Lebanon has numerous colleges and universities, several of which include graphic design programs. A handful of reputable universities in Lebanon with design programs are: LAU (The Lebanese American University), AUB, (American University of Beirut), ALBA (l'Académie Libanaise des Beaux-Arts), AUST (American University of Science and Technology), NDU (Notre Dame University) and USEK (Université Saint-Esprit De Kaslik). Lebanon has a reputation for excellence in Higher Education for the Middle East. However, the design work coming out of university programs is not addressing the issue of sustainability in a significant manner. Students are commonly unfamiliar with the term sustainability. Though most understand the term green or eco-friendly they do not make a connection between impending environmental concerns and design. Nor, do they realize that they as designers have a social and ecological responsibility in all that they create.

Today's Generation of Students

Fortunately, today's generation is exceptional. They are referred to as the Facebook or Green generation. As explains in the article titled, The Facebook Generation vs. the Fortune 500, this new generation has a different set of values than previous ones. This generation believes that, "Intrinsic rewards matter most…Money's great, but so is recognition and the joy of accomplishment" (Hamel, 2009). Furthermore, this generation is referred to as, "people (who) want to change the world…They want their time working for an employer to mean more than just helping 'The Man' pay his mortgage…They want to be part of an organization that is aligned with their personal values" (Foster , 2008).

Not only do today's students set new priorities in their career paths, they were raised with awareness about global environmental concerns. An article titled, The Green Generation states that, "The current generation is the first to have grown up entirely in a world confronting global climate change…This generation is teeming with activists and organizers who will make the big visionary connection and take the drastic strategic actions on behalf of our survival" (Brown, 2007).

Design education can harness such positive aspects of this generation and implement innovative changes. Fortunately, there are organizations working to help the Lebanese environment and today's students are eager to play a positive role. The question then arises: How can design education in Lebanon change to be more sustainable?

Qualitative Analysis

In order to determine how to make educational changes towards sustainability in Lebanon, it is first essential to examine how design sustainability is being taught outside Lebanon. The following is a qualitative analysis of the four main components of education: Faculty, Students, Programs and Courses. Each was researched in terms of progress made outside Lebanon. The question was asked: What can faculty, students, programs and courses do to implement sustainability in design education?

Faculty

First, faculty must acknowledge the importance of sustainable design and understand what it encompasses. Faculty should become aware of the type of information available in sustainable design resources. This could then be used to help students initiate design projects. International design organizations are already taking action. One example is the Center for Sustainable Design, which empowers designers as specifiers and communicators who encourage sustainable energy, materials, products and services through research, professional development, education, communication and outreach. The Center provides designers with practical information regarding sustainable business practice. There are case studies, articles, initiatives, interviews, answers and discourses as references. The Center can help faculty to inspire, encourage and support design student to incorporate sustainable thinking into their design projects (Center for

Sustainable Design, 2009). Such resources provide a starting point for faculty to be reference providers for the students.

Faculty also need to consider how they guide the students. Creating eco-friendly designs begins from the initial concept development. The environmental impact of a design project must be thought through in every stage of design. In the same way that faculty expect projects to be aesthetic they should also take sustainability into consideration (Ortbol. 1996). The article, The Ecology of Design provides a series of questions that faculty must ask their students. "Is the design appropriate for the final product? Is there a better way to design this using fewer materials? Are there other ways to deliver this message effectively with less impact on the environment? Can we use recycled materials? What is required to produce this design? How much energy will it eat? Pollution? Hazardous Waste? Is the product reusable? If it isn't reusable is it recyclable? Is it easy to recycle?" (Ortbol. 1996). This indicates how faculty can facilitate question asking rather than answer giving techniques. In turn students become responsible for finding their own unique solutions.

Students

Students play an active role in making design projects sustainable, especially in terms of content creation and participation in critique. "Project assignments can require content developed by the student dealing with public and personal social, political, and economic issues and current events. The responsibility for developing content is a crucial one; it counteracts the passive design role in which one unquestioningly accepts client-dictated copy" (Heller & Vienne, 2003). There are a variety of contexts in which written content can be created. Though it is typical for research papers and essays to be used as content within academia, other creative potentials exist such as: blogs, articles, surveys, poetry, lyrics, interviews and dialogues. By enhancing the creative approach behind content development, students could become more inspired. Furthermore, by making students controllers of their own content, they become active judges of the content's value. However, beyond such self-initiated content, group critique is essential.

"The critique process for issue-oriented work can be a very effective forum for values clarification. This is particularly true of group critiques in which all students are encouraged to participate, rather than the authoritarian traditionalist crit in which the faculty do all the talking" (Heller & Vienne, 2003). The group critique enables all the students to personally evaluate and discuss issues. They question their own values and see how solutions arise through design. Beside the critique there are also other means to engage students in dialogues that work toward the improvement of projects. Survey's can help to gather data. Focus groups can be used to test a design. Group and team collaborations can help to strengthen a design project and facilitate critique. "The point here is content. As design educators, we cast projects almost as a scientist designs a laboratory experiment. The formula and the variables conspire to slant the results in one direction or another. The project assignment and

the project critique are powerful tools that teach far more than explicit goals, and carry strong implicit messages about design and designers' roles" (Heller & Vienne, 2003). In both content creation and critique the projects relation to the environment can be evaluated and improved upon. Diversity among student projects can expose the classroom to a whole range of projects and solutions.

Programs

There are both major and minor steps that programs can take in implementing sustainability. The major step is to introduce new or completely revise existing major programs. Minor steps would be the introduction of emphasis or minor programs which addresses sustainability. Master's in graphic design programs stressing the importance of sustainability can be initiated. Numerous design curriculums have latched onto the popular trend of going green. Some examples of higher education programs in design sustainability specific to architecture and interior design include: Rocky Mountain College of Art and Design which, offers a Bachelor of Art in Interior Design: Green Design and Carnegie-Melon, School of Architecture which, offers a Maste'rs of Science in Sustainable Design.

Two programs that have a direct relation to this paper because they entail design in general are those of Finlandia University International School of Art & Design which, offers a Bachelor of Fine Arts in Sustainable Design (BFA) and Ontario College of Art & Design (OCAD) which, offers a minor in Sustainability in Design. "Finlandia puts you in touch with revolutionary design strategies: Biomimicry, Inventive Reuse Design, Designer for the Real World, Permaculture Designer and others yet unnamed" (Finlandia University, 2010). Another interesting aspect of Finlandia University is that they place emphasis in their program description on being cross disciplinary or interdisciplinary. This is because of the unpredictable nature of sustainable design. OCAD, unlike Finlandia offers a minor program. Their program is part of what they refer to as NEL, The New Ecology of Learning. "It entails both a structural and conceptual shift in OCAD's undergraduate curriculum" (OCAD, 2010). Like Finlandia, OCAD focuses on holistic thinking. OCAD also places emphasis on community engagement, non-profit organizations and government ministries. Though such major, minor, undergraduate and master's programs exist outside Lebanon, Lebanese universities do not yet have such programs.

Courses

The next level of change is the introduction of or revision to courses. Sustainable desing course descriptions from OCAD provide thorough examples. Three of the courses that display diversity in sustainable design studies are: Socially Responsible Design Practices, Sustainable Business and Greening the OCAD Campus. Socially Responsible Design Practices explores design responsibility in a social setting. The course content considers human aspects related to psychological, spiritual and cultural needs. Emphasis is placed on designers as leaders exchanging ideas. Sustainable Business is a course in which students develop a sustainable business plan. This course is unique because it addresses the need for designers to understand the business side of sustainable design. Emphasis is placed on the Triple Bottom Line. This is also "known as the 'three-pillar model of sustainability', the principle states that sustainability not only comprises the natural heritage we pass on to the next generation but also the economic achievements and social institutions of our society, such as democratic political participation or peaceful conflict resolution" (Bader, 2008). The third course example is Greening the OCAD Campus. At OCAD this course serves as a summer workshop. In this workshop students examine aspects of sustainable design on their campus including the: environment, social and economic. Students raise potential solutions and collaborate with the community. This last example shows how changes may not only be made to full-fledged courses but also in the incorporation of eco-related workshops internships, lectures, forums, competitions and seminars. Involvement can come from environmental experts, green organizations and designers who specialize in sustainable design.

Results

From the qualitative analysis it can be determined that there are key actions to implement sustainability into design education. By having faculty as question-asking facilitators and reference providers, students as content-creators capable of self-run critiques as well as program and course revisions made to be green-focused changes can be made to Lebanese design education. Furthermore, one key point should be addressed that was mentioned in the student section of the qualitative analysis: students should develop content, "dealing with public and personal social, political, and economic issues" (Heller & Vienne, 2003). This indicated that the public plays a role in sustainable design. Connection can be made that link universities design programs with green organizations in Lebanon. Community involvement and collaborations are essential to ensure that sustainable student design projects have real impact beyond educating students. As written about in the sections, The Environmental Concerns of Lebanon and Lebanese Organizations Taking Eco-Action there are numerous organizations that are actively participating in creating environmental change in Lebanon.

Discussion

By combining components from the literary findings on Lebanese NGOs, global corporations, local businesses and the Ministry of the Environment with information gained from the qualitative analysis examples in relation to Lebanese design education are made. Three examples provide potential program titles, course titles and project descriptions with community collaborations in a Lebanese context. Program titles were left to be in design in general (rather than specific to graphic design) to give opportunity for interdisciplinarary approaches. The projects themselves were created to show the applicability within graphic design specifically. Questions are asked by faculty in each description and students are required to be content creators.

Example 1.

Program title: MA in Sustainable Design
Course title: Socially Responsible Design Practices

Project description: Exchange ideas through group research and analysis. Link this to the development of an individually written thesis paper that evolves into an extensive and cohesive design project that addresses a specific aspect of the topic: Impact of War in Lebanon on the Local Environment. Take into consideration human aspects related to psychological, spiritual and cultural needs. Throughout the process ask: What is the impact of your piece on the environment? This project includes readings from: Design for the Real World.

Community collaboration: in collaboration with USAID

Example 2.

Program title: Bachelor of Science   in Design: minor in Sustainable Design.

Course title: Sustainable Business

Project description: Develop a sustainable business plan that transforms into a website for an eco-tourism organization in Lebanon. Be sure to take into consideration the Triple Bottom Line. Conduct research on the impact of on-line media in sustainable business practice. Meet with members of eco-tour organizations in Lebanon. The project will be conducted through a series student-run critiques. Throughout this process continuously ask: Is the design appropriate for the final product?

Community: in collaboration with Ibex ecotourism, Lebanese Adventure, Liban Trek

Example 3.

Program title: BA in Design

Course title: LAU: The Green Campus (Workshop)

Project description: Examine the aspects of sustainable design on your campus including: environment, social and economic. Formulate potential solutions. Transform these solutions into a campus-wide campaign that addresses: How the Lebanese American University can be more sustainable. As part of your process conduct a survey and focus groups. Throughout this process ask: Are there other ways to deliver this message effectively with less impact on the environment?

Community collaboration: in collaboration with the Ministry of the Environment

Conclusion

These examples show the potential to take the results from this paper to create actual educational scenarios that could be implemented in design education in Lebanon. Furthermore, even though this case study applies directly to Lebanon, this research serves as a means of initiating change within education in other countries or regions with similar predicaments. This research serves as a basis indicating that the integration of sustainability within design education can serve as catalysis for environmental change in Lebanon by evaluating local potential with global progress. Modifications in graphic design education in Lebanon would contribute to the development of the next generation of ethically, socially and environmentally responsible designers.

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Mobile applications in healthcare for pregnant woman and maternal child

Abstract

The rapidly increasing uptake of mobile communication technologies in developing countries presents a strategic opportunity for the mobile health community to open new collaborations and new network structures for a more sustainable healthcare system from economical, social and cultural-ethical point of view.

Today mobile applications are enabling improved access to everyday health services, enhancing disease control and coordination of emergency, improving the access to medical information and decision support among various healthcare actors.

According to the Millennium Development Goals 2009, there are several main problems regarding to some chronic diseases, cost of services, some ethical and cultural obstacles for pregnant women's access to the healthcare services.

How can mobile technology answer the lack of healthcare knowledge and information exchange among healthcare providers, patients and their families?

Some case studies are analyzed in order to understand the existing problems and to find some technological solutions that could contribute to create a sustainable shared information flow inside the local community and their relationship within the healthcare system. The contribution could be implemented in the socio-economic and cultural context of developing countries in order to promote a better life in local communities.

1. Introduction

Information and communication technologies are becoming increasingly important for our everyday life and are used in many areas of healthcare services such as telemedicine, wireless monitoring, care management and for the delivery of health interventions. The mobile applications are not only useful to define a diagnosis but also to create an environment for advancing quality of life and socio-economic status. Furthermore new mobile technologies enhance the disease control with a decision support, improve the access to medical information and coordination of emergency.

Due to the lack of economical and social problems in developing countries, there's a need of new opportunities to increase the quality and accessibility of healthcare services for pregnant women and maternal child. The United Nations Millennium Development Goal Report 2009's[1] aim is to achieve universal access to reproductive health between 1990 and 2015: "As a result of complications during pregnancy, childbirth or the six weeks following delivery, 536,000 women and girls die every year, considering that about the 99% of these deaths occur in developing countries, and the 90% of this quantity occur in Africa and Asia" 2.

A maternal death is defined as a "death of a woman while pregnant or up to 42 days post-delivery from any case (except accidents)" (Menken & Rahman, 2006). Each year, approximately 4 million babies out of 130 million born die in neonatal period of the first 28 days (4 weeks) of life (Lawn, Cousens & Zupan, 2005), and 70% of these deaths can be prevented if proven interventions were implemented effectively with high coverage where they are needed most (Darmstadt et al., 2005). Maternal mortality is among the health indicators that show the greatest gap between the rich and the poor. Developed regions report 9 maternal deaths per 100,000 live births compared to 450 maternal deaths in developing regions

According to the maternal child mortality report in sub-Saharan Africa in 2007, close to one in seven children died before his or her fifth birthday3. Together with high levels of fertility, this has resulted in an increase in the absolute number of under-five deaths from 4.2 million in 1990 to 4.6 million in 2007. Sub-Saharan Africa now accounts for half of all deaths among children under five4.

The reasons for these great number of deaths in the developing countries are the marriage occurs at very young ages in many countries therefore in in sub-Saharan Africa is high at all ages and early pregnancies are common. Young adolescents are more likely to die or experience complications in pregnancy and childbirth than adult women. Moreover, the children of these young mothers have a higher risk of morbidity and mortality. Girls

who give birth before the age of 15 are five times more likely to die in childbirth than women in their twenties. Pregnancy early in life contributes to the estimated 70,000 maternal deaths among girls aged 15 to 19 every year. An infant's risk of dying in his or her first year of life is 60% higher when the mother is under age 18 than when the mother is 18 or older. These pregnancies often occur under circumstances that are not only detrimental to a mother's health but also to her educational prospects and opportunities for social and economic advancement.

Prenatal care refers to the medical and nursing care of the unborn child and pregnant woman during pregnancy. Pregnancy care phases are a complicated health issue to be confronted dividing into phases such as pre-conception, antenatal (prenatal), childbirth, delivery (6 weeks following delivery) to postnatal care. The aim of good prenatal care is to detect any potential problem early, to prevent them if possible (through recommendations on adequate nutrition, exercise, vitamin intake etc), and to direct the woman to appropriate specialists, hospitals, etc. if necessary. Death rate increases due to obstetric complications — including post-partum haemorrhage, infections, eclampsia, and prolonged or obstructed labour — and complications of unsafe abortion account for the majority of maternal deaths. Anaemia, exacerbated by malaria, HIV and other conditions, heightens the risk of maternal death from haemorrhage. In sub-Saharan Africa, haemorrhage alone causes 34% of maternal deaths. As suggested in the MDG 5, yet most of these conditions can be prevented or treated with good quality reproductive health services, antenatal care, skilled health workers assisting at birth, and access to emergency obstetric care.

Since 1995, every region of the developing world has made some progress in improving the availability of skilled health personnel (doctors, nurses or midwives) to assist in deliveries. However, in Southern Asia and sub-Saharan Africa, more than half of all births still take place without the assistance of trained personnel. This requires more help in assistance of emergent cases especially in the baby born. Fewer than half of pregnant women in developing countries have the benefit of adequate prenatal care; Sub-Saharan Africa has 42% of the proportion of women (15-49 years old) attended four or more times during pregnancy by skilled health personnel, 2003/2008[5] .

Many health problems among pregnant women are preventable, detectable or treatable through visits with trained health workers before birth. The proportion of women who receive four or more antenatal visits is still less than 50% in sub-Saharan Africa where the majority of maternal deaths occur. These figures have changed little over the last decade, indicating that maternal health and the provision of reproductive health services in those regions have scarcely advanced. These enable women to receive important services such as tetanus vaccinations, screening and treatment for infections, as well as potentially life-saving information on warning signs during pregnancy.

Mobile phones present a new age for the developing countries to confront healthcare problems. Broadband access allows advanced features like location based services, email, privately developed applications, texting and video-audio transmission. Access to information is an important factor for increasing the quality of care and decreasing costs.

Reducing pregnancies, improving access to and quality of obstetric care, increasing the capacity of health staff in deliveries, involving pregnant women in their own pregnancy care management can be some possible solutions through mobile applications to confront the healthcare problems of pregnant women and newborn child. Moreover assessing the socio-economic and cultural barriers to care access is crucial in determining proper intervention and integration. Efforts must include links to the health system: between community and referral facilities and with existing maternal and child health care programs and services. Strategies must include home based care where the majority of births and deaths occur.

2. Methodology

In order to map local healthcare situation in developing countries and obtaining references from developed countries, a deep case study, called "MoTECH", has been analyzed together with more than six other projects, some of them happening in developing countries and others have already been conducted in developed countries.

2.1 Case study: MoTECH

From April to June 2009 the Grameen Foundation[6] worked together with Columbia University Mailman School of Public Health and Dodowa Health Research Centre[7] in a research project called MoTECH, Mobile Technologies for Community Health to support the use of mobile phones for the achievement of the Millennium Development Goals for health, starting from the maternal and newborn health conditions in Dodowa, a city in the southern part of Ghana, Africa.

This report demonstrated that the use of mobile phones and networks in the mobile health has become increasingly popular in low- and middle-income countries, including Ghana where a broad range of mHealth initiatives are now being implemented. This offers many opportunities to translate information and communications technology, particularly for fighting disease and improving population health. The mHealth Ethnography prepared has been used as a critical entry point to both assess the initial state of information, communication, and mobile phone use for maternal and newborn health both within the health sector and the general population in the Dangme West District in the Greater Accra Region of Ghana.

This qualitative study is thought to help frontline health workers and the individuals in the communities to be informed about the types of mobile phone applications and services.The MoTECH has been already investigating the question "Can the adaptation of low-cost mobile phone-based health technology address major gaps in knowledge and information-sharing among healthcare workers at the community and district levels?" And also "Can mobile phones be utilized to meaningfully answer questions and provide information to individuals in a way that promotes better health practices?". Analyzing the answers of the questions in the MoTECH report, it is described the Three Delays Model, a current framework for maternal health that

presents pregnancy related mortality to be overwhelmingly related to three delays: (1) in the time to make the decision to seek care, (2) in the time to reach a facility, and (3) in the time to receive adequate treatment. The first delay is related to problem recognition, decision-making, and the perception of care at the nearest facility. The second delay is related to finances, transportation, and logistics. The last delay is related to quality, supplies, personnel, and equipment.

This mHealth ethnography research report declares that some spontaneous situations already exist in which family members, husbands and pregnant women contact each other in order to obtain useful suggestions from midwives or other women possessing abundant experiences of pregnant process. But some risks should be resolved in order to avoid any complication.

2.2 Other existing mobile phone practices and projects within the health sector

Some current mobile health applications has already exist for improving maternal and neonatal health in low- and middle-income countries, with the aim to minimize the delays in maternal and newborn mortality and morbidity. And many of these activities involve strategic partnerships among telecommunications industry, health sector, academia, and software development groups. Here some examples.

1. Datamation Foundation, Microsoft and OneWorld South Asia are implementing a pilot mobile health information service that will provide specific knowledge advisory on prenatal healthcare to expectant mothers via SMS.

2. MOH, with the collaboration of United Nations Population Fund (UNFPA), is piloting community or home-based midwifery in two districts of Kenya. The aim of the project is to improve the quality of normal pregnancy, delivery and postnatal care for women in the community. Specific objectives for this pilot project include: improving access to skilled care within the socio-cultural context; increasing reproductive health knowledge among women, their male partners and the community at large; assist women to make individual birth-preparedness plans; providing more antenatal, childbirth and postpartum support to mothers and newborns, continuing up to six weeks after birth; reducing costs for women during the pregnancy, childbirth and postpartum period. UNFPA is supporting training, delivery kits, manual vacuum aspiration kits, and mobile phones for midwives' use, and monitoring and supervision.

3. Lady Health Worker (LHW) Pilot Project scheme run by the Pakistani Government's was launched in 1994 to reach out women and children in rural communities and to act as primary healthcare providers. Currently LHWs have no formal means to communicate with their supervisors and other health organizations such as hospitals, emergency and district healthcare units. LHWs were provided with a mobile phone for the first time to support their work such as regulated monitoring and evaluation mechanisms and prompt corrective measures.

4. The "RapidSMS" text-messaging system will now be used to map and track child malnutrition trends in Malawi more accurately and in real time, enabling quick responses to unfolding food and nutritional crises after being firstly developed

in Ethiopia to monitor food supplies. This system is now also being deployed by the Millennium Villages Project in Kenya for malaria and nutrition monitoring and management. Links to OpenMRS (open source electronic medical record system) and District Health Information System (DHIS- open source health system reporting platform) are currently under development.

5. MobiSUS (Mobile Applications for health), launched in September 2008 in Brazil, provides a mobile phone-based program that allows more efficient and effective health data collection by Brazilian health workers operating in challenging and under-resourced environments. In the proposed program, data entry modules would be created for use with mobile devices and they would replace paper forms and manual entry. The first module would be for immunizations services, to be followed by creation of modules for nutrition, oral health, and maternal and child health over the three years of the project.

6. Through the World Vision program in Indonesia, more than 200 Acehnese midwives and local midwife coordinators have been trained in new skills including difficult deliveries and data collection. Over 100 were also provided with a mobile phone and instructions on how to use it. The study poses to assess whether or not mobile communications can be used as an effective tool for impacting the quality of pre- and post-natal care in Indonesia.

Through above mobile phone practice and experiences, more strategic use of mobile phones for health would create better services within the health sector, particularly the reduction of unnecessary travel costs and transport time in developing countries. More and more people will have their own personal low cost mobile phones, but the minority that haven't one, will access to one. Most of these phones are basic voice and text handsets which are sufficient to support their work include: contacting supervisors, contacting patients and contacting health facility, their own and the next higher level facility. Common mobile phone use by healthcare sector are: health service delivery, emergencies, information access, maternal health, and newborn health, financial management, communicating with the general population and health sector management.

3. Conclusion

This paper presents the analysis of different case studies and a deep research about MoTECH project in order to facilitate the mapping of local situation in developing countries looking at their economical, cultural and mobile technological aspects. In future research steps, it is recommended to considering some issues such as cultural-social and economic issues, possible risks in pregnancy, various information levels, transport issues related to the coordination of emergency, post-natal and newborn care.

In developing countries, cultural and social background is interrelated with the poor health status, unhealthy living environments compounded by limited education, illiteracy, and cultural taboos.

There are some cultural ethical obstacles both from men and women. Men try to get a woman pregnant before going to her

family to initiate the marriage process (perceived very laborious in Ghana) or an unmarried women hide pregnancies up to the 6th month particularly those who are uncertain about who the father is or working women also tend to hide pregnancies for fear of being sacked.

Economical issue is another main problem in the family where the cost of healthcare effects income loss and increase poverty; for example women associate telling their husbands about their pregnancies with requesting money for antenatal care transport costs and food to ensure a healthy pregnancy.

In relation to mobile phones, the phones are often shared among family members therefore the pregnant women refuse openly subscribing to a mobile phone support service before she is willing to public reveal her pregnancy. Mobile phone uses tend to focus more on providing support to lower levels of service delivery as expressed by a DHMT, District Health Management Team (that serves as a liaison between the district health facilities and staff and the regional health administration), through husbands, neighbours, church (or other religious body) and through all available mobile phone operators (MTN, Tigo, Vodafone, etc.)

From the analysis of the map below indicating the possible risks in pregnancy period (fig.2), it is obvious that some diseases can be prevented through correct habit and enough health knowledge. These risk factors could be even higher in developing countries because of ignorance, lack of knowledge and low income. So special information customization service based on different users should be considered in the delivered process of information in order to provide personal data record and pregnancy healthcare service through peer to centre interact model.

According to MoTECH report there is a variety of information in different levels to be accessible to different actors: women who participated in those interviews expressed that their husbands play a financial role that is supportive, but they still need to share information and experience in nine moths to confirm their safety and actively preparation.

Another important issue to be considered is the coordination of emergency transport: many of the discussions regarding the positive health impact of mobile phone use focused on reducing the risk of death and complications during child birth. Home delivery was discussed by mobile phone users in rural areas as common practice that did not require medical professionals, except in extreme cases in which people have used mobile phones to mobilize assistance to be brought or to coordinate transport to transfer women to more able health care workers8. For peri-urban and urban respondents, the tangibly felt decline in number of births as well as increased numbers of women seeking medical supervision (mostly in cities) of pregnancy and delivery is also contributing significantly to reduced risk of mortality for women and newborns. Unfortunately in the developing countries, the majority of women in child bearing years live in rural areas. Health professionals in urban areas are frequently visited and contacted by patients from villages which require over 3 hours of travel. The service design in emergency situation should be discussed through mobile technology.

Most newborn care is done within the home and it's difficult to know by people the description of what they do for newborns apart from taking them to the health facility whenever they detect a problem. In the aspect of newborn care and growing, can referent the successful cases and experience which happened in digital platforms and mobile services in developed countries in order to provide them the cooperation opportunity through peer to peer way.

After analyzing the results of the case studies and the MoTECH research, new products and service scenarios are required for new solutions regarding to pregnant women and their newborn care in developing countries in order to promote an enabling environment for access to timely prevention information and early detection. Voice and video based systems and multimedia messaging technologies can be some possible solutions to be used the local people due to language and litteracy issue in text messaging with the health workers which could alleviate the cost of transportation.

4. Discussion

This paper brings one step forward the case studies that are anaylzed and the research MoTECH which results in finding the actual healthcare problems for pregnant women and maternal health in Ghana' local communities by using ethnographic research method.

The designers role could be looking at the existing problem from a user point of view applying the user centred design methods and principles in solving the problem of pregnant women healthcare issue in developing countries. User Centered Design guidelines include user involvement in all stage of the design process, from the analysis to final evaluation; iterative process with prototyping/evaluation/modification cycles; interdisciplinary of the design team as defined in Norman and Draper (1986). This methodology has also the multidisciplinary property where in a complex situation such as healthcare, this should be considered as an important issue. By centering the user and anayzing their relationships with other actors in the healthcare process evaluating within their social-cultural and economical constraints will orient a different solution to the existing problem.

Starting from the local healthcare problems which the paper encourages to use a user centred design and create a systematic solution by designing new service scenarios thanks to the use of mobile technology and testing its feasibility and possibility to implement in the socio-economic and cultural context of Ghana. This multidisciplinary collaboration and integration coordinates a network of different actors (Health providers, Ministry of Health, Research centres like universities and Local people of Ghana) trying to understand the difficulties of accesses to service and to improve the quality of healthcare life for pregnant women and encourages them to participate in problem solving solutions and process of decision making in healthcare services (actors such as healthcare workers, organizations, public administration, mothers, doctors, husbands, midwives, etc.).

The approach to the research solution is focused on

product service system design9 in healthcare: starting from the design of a software for mobile applications and its interface, arriving to the managing of the proposed platform considering the feasibility of mobile technology for all actors in the healthcare system in developing countries. As a matter of fact, the future research has to be considered as an original contribution to an actual healthcare system in order to promote social innovation and to improve the knowledge among local people by using the advantage of technology and new product service scenarios which can be implemented also to other similar healthcare contexts in other developing countries.

Image

Fig. 1: Other case studies on mobile technology in healthcare in developing countries. Research management Course FP7 European Union Proposal MoMa project, Mobile applications for pregnant mothers, December 2009-February 2010, P. Arslan, X. Liu, V. Vezzani, Politecnico di Milano.

Fig. 2: Possible risks in pregnancy. MOHE Project, Mobile Health for Moms Kids Adults and Elderly, November 2009- February 2010, RED (Ergonomics Design Research Unit), INDACO Department, Politecnico di Milano.

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Notation

1.The eight Millennium Development Goals (MDGs) are, together with the comprehensive United Nations development agenda, ambitious but feasible and set the course for the world's efforts to alleviate extreme poverty by 2015. From halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education, the goals form a blueprint agreed to by all the world's countries and the entire world's leading development institutions. They have galvanized unprecedented efforts to meet the needs of the worlds poorest. http://www.un.org/millenniumgoals/

2.United Nations (2009). Millennium Development Goals Report 2009. from:http://www.un.org/millenniumgoals/pdf/MDG%20Report%202009%20ENG.pdf

3.United Nations (2009). Millennium Development Goals Report 2009. Goal 4 Reduce Child Mortality. p.24-25. from:http://www.un.org/millenniumgoals/pdf/MDG%20Report%202009%20ENG.pdf

4.United Nations (2009). Millennium Development Goals Report 2009. Goal 5 Improve maternal health, p.27. from :http://www.un.org/millenniumgoals/pdf/MDG%20Report%202009%20ENG.pdf

5.United Nations (2009). Millennium Development Goals Report 2009. Goal 5 Improve maternal health, p.27. from: http://www.un.org/millenniumgoals/pdf/MDG%20Report%202009%20ENG.pdf

6.The Grameen Foundation is a nonprofit organization headquartered in Washington DC, founded in 1997 by friends of Grameen Bank to help microfinance practitioners and technology development to move people out of poverty. (www.grameenfoundation.org)

7.The Dodowa Health Research Centre was set up as part of an agreement with the then British Oversees Development Agency (ODA), now DFID, to have Operations Research satellite stations in the early 1990's. The centre is one of the three health research centers of the Ghana Health Service tasked with the responsibility of conducting research within the health sector.

8.Mechael, P.N. (2009). Case Study From Egypt: Mobile phones for mother and child care. from: http://unpan1.un.org/intradoc/groups/public/documents/unpan/unpan037365.pdf

9.Product-Service System (PSS) can be defined as the result of an innovation strategy, shifting the business focus from designing and selling physical products only, to selling a system of products and services, which are jointly capable of fulfilling specific client demands. From Manzini, E., & Vezzoli, C., (2002). Product-Service Systems and Sustainability, Opportunities for sustainable solutions. UNEP, Paris.

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A Methodology for Sustainable Product Design

Abstract

Culture oriented sustainable product design is becoming more important besides explorations in engineering based sustainable design researches and practices. Many sustainable design researchers and professionals addressed that sustainable design should be connected with the region's cultural heritage and suggested designers to learn from indigenous approach to get sustainability. This research looks at Chinese everyday objects which are not intentionally designed to address sustainable issues. To understand and apply the motivation, making and appreciation of those objects, this research aims to build a design methodology which helps to reveal and apply the wisdom behind those objects. A knowledge framework of sustainable product design with associated criteria has been built as the theoretic background of the research. This methodology is established in three phases: 1) How to select everyday objects; 2) How to interpret embedded design insights; 3) How to apply insights in design practices. This paper explains the methodology with actionable process, methods, and tools. In the end it discusses the possibility of studying everyday human behaviors in further research. The methodology will be tested and refined by organizing design workshops at design schools and industries in China.

Introduction

This paper is to introduce an indigenous approach for sustainable everyday products design. The purpose is to understand and interpret the embedded sustainable design thinking in everyday traditional objects in a certain cultural context. This indigenous approach is to design sustainable products which inspired by the found insights got from studying traditional Chinese everyday objects. The everyday objects in this research are selected by generally agreed sustainable design criteria and principle. This research provides an integrated methodology with process for understanding, collecting and organizing useful design insights for contemporary sustainable product innovation.

The research is carried out in China and most of the selected everyday objects are founded in Chinese families located in urban and countryside. It is on the process of data collection and expected to be finished in the end of year 2011. The research methodology and process will be introduced as a practical solution for everyday sustainable products innovation. It has been tested in selecting and interpreting dozens of Chinese everyday objects and some design insights have been found and interpreted for sustainable product innovations.

The design methodology is constructed with three phases: 1) objects selecting, 2) Interpreting embedded design insights, 3) design practices application. Examples and case study will be presented in the paper to illustrate each phase of the study. The possibility of studying everyday sustainable behaviors with this methodology will be discussed as extended research.

1.The evidence-- why traditional Chinese everyday objects can give insights to contemporary sustainable product innovation?

The value of traditional wisdoms for addressing contemporary problems of sustainability has been better recognized by contemporary design researchers and practitioners. David Orr pointed out in Ecological Literacy (1992) "the crisis as the result of an evolutionary wrong turn", "This is not to argue for a simple-minded return to some mythical Eden, but an acknowledgment that earlier cultures were not entirely unsuccessful in wrestling with the problems of life, nor we entirely successful." David Ray Griffin, the editor of SUNY Series in Constructive Postmodern Thought (1992) also suggests "A new respect for the wisdom of traditional societies in growing as we realize that they have endured for thousands of years and that, by contrast, the existence of modern society for even another century seems doubtful." These statements gave the evidence to return to traditional culture for seeking useful elements to solve

contemporary problems.

William McDonough and Michael Braungart, well known scholars of practitioners, stated in Cradle to Cradle (2002) that "All sustainability is local –we begin to make human systems and industries fitting when we recognize that all sustainability is local…It would involve local people in building the community and keep them connected to the region's cultural heritage, which the structure's aesthetic distinctiveness itself helped to perpetuate." They suggest that we can learn from indigenous approaches to get sustainability.

In contemporary design discipline, the concepts of sustainability and principles of sustainable design is mostly originated and developed in western world. Some of everyday objects which are designed or invented much earlier before these sustainable design theories but they represent some certain sustainable features. Many Chinese researchers study Chinese traditional objects—artifacts, tools, facilities and pointed out some of these objects are sustainable designed in function; some provide better energy solutions and some support sustainable social behaviors. It convinced that people can learn from traditional Chinese wisdom when addressing contemporary unsustainable issues in design research and product development. Lots of everyday Chinese objects like bamboo steamer and Sand-fired teapot which even has long history of more than hundreds of years can also satisfy contemporary sustainable design criteria. Many precious traditional thinking and cultural value are embedded in those traditional objects. Many of these embedded wisdoms can still be referred in contemporary design. However there isn't any developed approach to turn these traditional Chinese wisdoms into structuralized methodologies to solve those unsustainable problems. To investigate how these sustainable features of everyday objects are generated and represented from a scope of Chinese traditional thinking and everyday behaviors may provide different understanding and approach to design sustainable product.

2. The methodology in three phases

Roozenburg (1996) defines "Design Methodology" as the branch of science that critically studies the working procedures that product designers follow (the science of methods that are or can be applied in designing). It aims at providing conceptual tools for designers to organize the design process effectively and efficiently. Design methodology provides designers with knowledge on the design process. Parts of this knowledge are:

a) models of design and development process, representing the structure of thinking and action in design;

b) the methods and techniques to be used within these processes;

c) a system of concepts and corresponding terminologies.

The design methodology illustrated in this paper is used to design sustainable products by interpreting everyday traditional objects. This methodology has three integrated phases according to the research logic--1) how to select objects, 2) how to interpret objects and 3) how to apply in design.

2.1 Select everyday objects by the understanding of Sustainable Product Design (SPD)

Learning different approaches, principles, guidelines and practices is the base of this design methodology. A good sustainable product can't be designed without a good understanding of SPD related knowledge. This design methodology emphasizes the knowledge building of understanding sustainable product design. The knowledge system is constructed by cooperated theories and research disciplines—environmental ecology, human and social ecology, cultural ecology, industrial ecology and economical ecology. This knowledge system will be continuously developed with emergent knowledge. To help researchers and designers easily and efficiently get a general understanding of SPD, a knowledge framework has been built as the theoretical background.

To select the study subjects for this research, selecting criteria should be established. They are also the criteria to evaluate the designs generated by this methodology. The method of building the criteria framework is based on reviewing sustainable design related theories and practices. It has been refined in the practices of everyday objects studies.

This knowledge system involves amount of literatures, journal articles and online resources. In this stage approximate two hundred of design thinking, guidelines and principles have been collected. The key references have been listed as SPD theoretical resource and attached as appendix with this. A paper on this SPD theoretical framework is under constructed to detailed demonstrate how these different approaches with design principles emerged and how to practice it in knowledge learning and design practices. This framework is constructed with four different approaches: Systematic thinking, ecological efficiency, ecological aesthetics and human ecology. It can be structured in following pyramid:
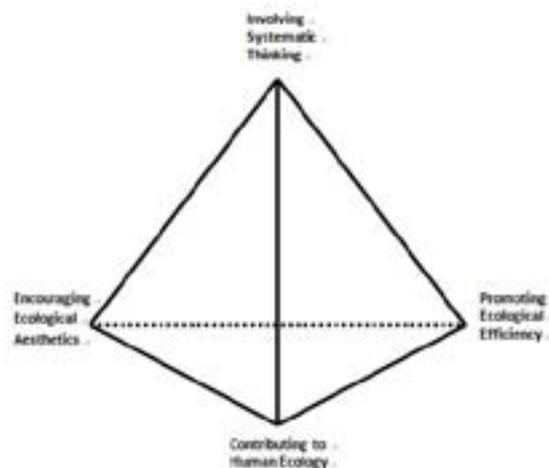

Figure 2.1.1: Framework of Understanding SPD

These four different approaches emphasize four key factors in SPD. 1) Systematic thinking emphasizes on holistic thinking in material, form, function, process and service. It is the key principle form environmental ecology which considers the environmental things as integrated system and everything works

with each other. 2) Ecological efficiency is the major concern of industrial ecology to elevate the material, energy efficiency while producing less environmental impact. 3) Human ecology is the ultimate goal of social innovation which aims to provide a harmonious physical and social human lives which balancing the life quality. 4) Ecological aesthetics talks about aesthetic durability, upgradability, creativity and diversity from a scope of cultural ecology which is a frontier environmental and cultural research discipline. These four approaches work with each other in designing and evaluating a sustainable product.

To choose sustainable everyday objects, each approach comes with inner criteria which were generated as key categories by coding the collected SPD theories. This will be briefly introduced in this paper with following chat and it will be constantly developed by involving studied updated design theories and practices.

Approaches	Criteria
1.Involving Systematic Thinking	1.1 Respect the rules of nature system and social system 1.2 Holistic and long-term consideration 1.3 Consider resource and energy transformation 1.4 Product lifecycle and system design 1.5 Cause and effect—interaction between related elements
2.Promoting Ecological Efficiency	2.1 Providing non-toxic solution 2.2 Contribute to ecological effectiveness 2.3 Promote energy efficiency 2.4 Best use of material --proper, minimize, non-toxic or durability 2.5 Smart function--Simple solution/ multi-functional/ flexible contexts/universal products
3.Contribute to Human Ecology	3.1 Promote healthy lifestyle 3.2 Promote social harmonious—ethics, social standard, morality 3.3 Appropriate needs and demands—peace and moderate 3.4 Promote to life quality
4.Encouraging Ecological Aesthetics	4.1 Aesthetic durability and updatability 4.2 More creative—celebrate diversity 4.3 True comfort and process—honest product 4.4 Present local aesthetic and cultural identity 4.5 Appreciate natural forms, make nature visible

Figure 2.1.2: Selecting Criteria of Everyday Objects

This theoretical framework with sustainable criteria is the background of the research which constructed with four different approaches which emphasize different levels of sustainability. It is not a universal and accurate theory but an outcome of studying existed sustainable product design theories and will be constantly developed. The criteria are not only used to judge whether the selected objects are sustainable products but they are not used

to find out the embedded sustainable design wisdoms and make them into practical design insights.

There are two important concepts in the research: 1) Traditional Ecological Thinking. Traditional ecological thinking refers to any thoughts (motivation, immediate reasoning, and philosophical foundation) or practices (techniques of designing and making artifacts, lifestyles, behaviors, customs, and so on) are deeply rooted in Chinese culture and lead to the birth of an object that is considered sustainable. These thoughts and practices are consistent with the value system in traditional Chinese society. 2) Everyday Chinese Objects. Everyday Chinese Objects in this research can be any objects, functional, decorative or ritual, found at Chinese homes. They should be originated in ancient or contemporary China. Objects that are still used in everyday life are preferred. It does not exclude those objects that although developed in China may also be used by people from other cultures, for instance Japanese or Koreans may share similar traditions and objects with Chinese.

The reason for taking Chinese objects in this research is because the cases of objects studies are carried out in both urban and rural China. This methodology is build to be used in any other cultures to generate its indigenous traditional solutions of solving everyday unsustainable problems.

2.2 Interpret Embedded Sustainable Design Insights in Those Selected Everyday Chinese Objects
2.2.1 Objects Studies

This research adapts participant observation as the key study method in everyday objects investigations. Kathleen (2002) defined Participant Observation as a method in which a researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and their culture.
 In this research the participant observation method is developed into a practical research process which can lead to an efficient way to get useful data. The studies of the selected objects should be taken in their original contexts in both urban and countryside families to observe, understand and record the design reasoning, motivation, related behaviors. Specific process of objects studies has three steps which are firsthand experience of the object, contextual observation and interview.
1)Firsthand experience

Researchers try to use the selected objects in their original contexts. The firsthand experience of using the artifact is important to understand the design, making and using before further investigation. Field notes of the using experience and detailed information are record to plan further investigations.
2)Contextual observation

Observations on different people making and using the objects in their original contexts are carried out for record detailed functional performance, behavior patterns and aesthetic attributes. Interviews can be placed for specified questions emerge in these observations. Take pictures and memos of observations, related behaviors can be recorded by video camera with descriptions.
3)Users and Makers Interview

Semi-structured interviews are conducted in the final step of the object study. Questionnaires and target interviewees should be prepared before interviews. The questionnaire is organized to know required information form firsthand experience and contextual observation. As different questions may be asked for different objects, there is no fixed questionnaire structure in this research. In some rural places, researchers have to investigate illiterate people without paper questionnaire and simple questions should be prepared before the interviews and the conversations should be recorded.

The investigating process of the selected objects can be illustrated as below diagram:

Figure2.2.1: Object Study Process

2.2.2 Interpreting Embedded Design Insights

The investigations of selected objects are not to illustrate the selected objects are better or not than similar contemporary products. The aim of investigations is to find out the embedded wisdoms in solving everyday unsustainable problems and interpret them into actionable design insights and methods. The embedded wisdoms and thinking can't be visualized until using, thinking, investigating and evaluating of the objects by the SPD framework brought out in previous contents in this paper. The objects are selected to be studied by satisfying some of the criteria of SPD framework which can be record as Sustainable Features. Design insights are exploring solutions, motivations and considerations which lead sustainable features. These insights can be referred into other similar contexts for designing sustainable products or share a similar design philosophy. To illustrate the interpreting of embedded design insights a case study of a selected everyday Chinese object is exemplified in below content.

Case Study— Chinese Washboard

The Chinese washboard is a simple appliance for hand washing clothes which are still widely used in both rural and urban Chinese families. Usually it's made of wood with sculpted waves on the surface for rubbing wetted clothes. It is not a unique Chinese product but has its local forms for different functions. After investigations in both rural and urban Chinese families the insights have been abstracted in field studies. The outcome of object study and analyzing can be presented in following format.

SPD FEATURES:

1. Promoting ecological efficiency--Simplify human's moves of washing clothes by cutting waves on wood board; place for soap.
2. Integrate designed product –-make it apart of architecture or home facilities.

FIELDNOTES:

•Made of wood, stone, bamboo—Material
•Wood board make gentle rubs to hands and clothes—Material
•Rectangle shape, common size --Design
•Cut horizontal waves about 10mm in depth--Design
•The board is in 20mm-30mm thick—Design
•Curve the shape on top--some decoration (some don't have) --Pattern
•Different patterns of waves (horizontal, rhombus, ripples…) –Pattern
•The waves are in the middle have spaces in each side of the board--Function
•Cut a groove to hold soap when washing clothes—Function
•Some families build cement or stone ones which designed integrated with sink or basin—Innovative Uses
•While rubbing clothes on board, the movement brings water bottom of washboard—Use
•Usually a wood washboard can be continued used for dozens of years in traditional Chinese families--Durability
•Clothes are more carefully washed than machine does—Performance
•The board should kept in dry and clean place—Behavior
•It usually be placed on windowsill where easy to get sunshine after using—Behavior
•People use it at the place near water or stove to easy fetching hot water--Environment
•It can be used for different purposes (under investigated, e.g. a culture of 'punish husband')—Culture and Lifestyle
•It's more simple and creative styles than the similar products in other cultures—Cultural Unique

INSIGHTS

1 Provide simple and universal solutions
2 Integrated product design—consider the whole process
3Involving using context in design process
4 Product support a cultural lifestyle

Figure 2.2.2: Example Case Study

Field notes are listed and structured by different categories with underlined keywords. Some insights may come from those categories by abstracting the shared design thinking. There are also other methods and patterns to interpret embedded designing insights which can also be concluded into a diagram of interpreting. The abstracting process itself is a kind of discipline can make designers and design students practice and enhance their ability of synthetic design thinking.
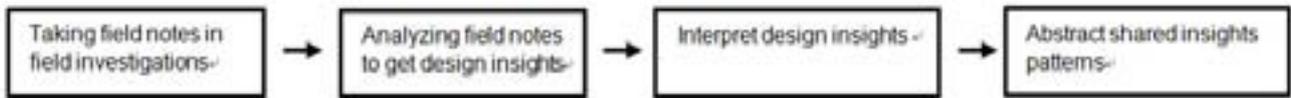
Figure 2.2.2: Object Study Process
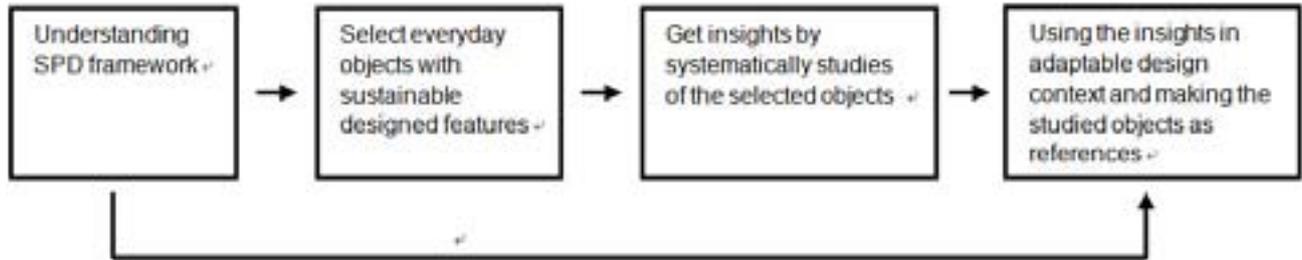
Figure 3.1: Process of the Design Methodology

2.3 Apply in design practices

The ultimate goal of the design methodology is making the insights into actionable and effective design methods or guidelines for sustainable product innovations. The insights provide different possibilities and approaches to solve the unsustainable problems in modern lives. They can be applied cooperatively in a similar context to improve the existed product or product series. The shared insight pattern can also be applied as design methods for sustainable product design innovation.

The field notes and other original data can be referred in design realization process. This design process is generated by working back forward the above objects study process which from insights to different design contexts to get the sustainable designing features. The insights should be used in adaptable new design contexts which constructed different social, economical and ideological environments. For example, designers can't build a similar cooking context in modern families but we can refer the systematic energy using solution by designing a product with multiple functions or cooperative products series to promote energy using efficiency.

The last step of this design methodology is still under development when writing this paper, a design workshop in a chosen design school is in process. During this workshop, groups of design students are trying to making their design insights into creative design concepts. These design activities will be observed and interviewed to generate a core pattern or patterns of how to apply the design insights. All the outcome new designs should be finally evaluated by the same SPD framework to test the effectiveness of the design methodology.

3. From studying everyday objects to studying everyday human behaviors

Herbert Blumer (1969) gave a definition of "an object" as "an object is anything that can be indicated, anything that is pointed to or referred to. He classified objects in three categories: (a) physical objects; (b) social objects (different human beings); (c) abstract objects, such as moral principles, philosophic

doctrines… Everyday human behaviors can also be studied by the same SPD framework to get designing insights as it's a kind of abstract objects. Immediate solutions, activities and lifestyle patterns can be collected by the understanding of SPD based on the knowledge framework. In this research some immediate solutions found in urban Chinese families have already been observed. As they are more abstract and individual that could be influenced by personal experiences, values and social and material environments, the study process is more complicated than the physical objects. But through the observations, some insights patterns from observing different user behaviors can also lead to useful design insights for improving existed products and also designing sustainable services. For example, by observing some housewives how to efficiently using water during their laundry processes designers can be inspired to design integrated products to make this sustainable behavior happened by every user.

Conclusion

This paper suggests a design methodology of getting and applying sustainable design insights from studying everyday sustainable objects. The process of this design methodology can be concluded into below diagram:

A temporary Sustainable Product Design theoretical framework with four related approaches and inner criteria has been illustrated to help the users of this methodology easy master the knowledge system. Object selecting and studying method has also been introduced with process of data collection and organization. Possibilities of applying the found insights have been briefly discussed. Study on everyday sustainable behaviors has been motioned as extended research of this methodology in future studies.

This design methodology will be continued completed and refined by involving more case studies of everyday objects and design applications. It will contribute to emphasize the value of traditional design wisdoms and also the creativities of everyday people by giving design insights and references. It also can be an actionable design approach for cultural and social innovations

which addressed on different dimensions of human and cultural sustainable development.

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Appendix:

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Anna Meroni   Paola Trapani

Public spaces as common good
The role of creative communities and collaborative networks

Abstract

The essay presents a social innovation led approach to the design of public space, following the reflection developed for the research Human Cities (2009-2010) within the EU action programme Culture. Assuming social innovation to be a set of promising new ways in which people and communities engage to strengthen themselves to achieve a result, often as a bottom-up initiative, it discusses what motivates these groups to take action over public space, and how design can support them.

This perspective implies the power of the social fabric to make an effect on the condition and development of a physical public space, instead of the other way round.

This action of (re)shaping public space underlines its value as a common good, meaning that all the members of a community can make use of it. It is defined as an inseparable unity of social and spatial elements. As a countercheck to this observation, we find that, when the sense of community and empowerment is lost, the frail essence of this kind of good is no longer recognized and it becomes continuously subject to acts of violence.

The analytical phase of the research presented in this essay is based on the observation of case studies, from where we synthesize a reflection on the role of creative communities and collaborative networks in generating and promoting new typologies of public space. Community can be built on: spaces and common services shared and opened to their neighbourhoods; local resources and skills connected to a wider network; initiatives aimed to promote the value of a place.

In conclusion, the paper proposes a possible pragmatic strategy to create design contexts and tools to support similar phenomena.

From Creative Communities and beyond

A recent EU funded research project - Human Cities, (2009-2010) within the action programme "Culture" – gave us the chance to further the reflection on social innovation and sustainable development within urban contexts, with a specific emphasis on public space (Coirier, Goličnik Marušić, & Nikšič, 2010). This paper takes the reflections started within that context even further (Meroni & Trapani, 2010).

The way we have been dealing with social innovation phenomena so far has led us to develop the concept of Creative Communities. Over the years we have matured a consolidated background to this field, collecting and analysing cases of social innovation from all over the world[1]. We define Creative Communities as groups of people who creatively organise themselves to obtain a result, exploring the transition towards sustainable ways of living and producing. Moreover social innovation can drive technological and production innovation in view of sustainability (Meroni, 2007).

Focussing on communities has led us to talk about a Community Centred Design, where the attention shifts from the individual "user" to the "community" as the new subject of interest for a design that is more aware of current social dynamics (Meroni, 2008).

This experience has taught us important lessons: the most interesting, meaningful and, to some extent, surprising is that there is a deep, lasting and identity-building sense of enjoyment and satisfaction in "taking care" of people/things/places and in "putting effort" into doing things. Both are ways of assuming responsibility towards the community and society in general and thus towards common goods, public space being one of them. This is where the importance of creating a social innovation-led approach for design has become crucial: designers can do a lot to start, support and spread its application. Within a society where pleasure and wellbeing are mainly conceived (and proposed) as "being served" and "consuming things" this lesson is a sort of Copernican revolution that can trigger a new way of conceiving and developing innovation in different social and business fields.

The process behind this behaviour, according to psychologists (Seligman & Csikszentmihalyi, 2000), lies at the root of self-fulfilment. Subjective well-being is related to a belief in interpersonal relationships: by helping each other, a community of support and strength has the capacity to bring people together around an idea, to get people moving, to get together to resolve a problem. Not only does the community find specific ways of building values, but also a sense of personal well-being is instilled. An attitude of this kind arises when we discover how to determine our own lives, instead of seeing ourselves as "consumers" of products; when we make creative use of objects

in the plenitude of society, according to what Inghilleri (2003) calls "sense endowed materialism", using artefacts instead of being used by them.

Necessarily following on from this set of conditions, awareness towards common goods increases and all commons acquire a new importance in the personal and collective sense of wellbeing and belonging. This trend becomes manifest in what we can call the emerging economy[2], which is founded on three pillars:

•a social character that is closely linked to the social innovation we have been studying;

•an environmental re-orientation that leads to a green-revolution, and a new territorial focus;

•technological innovation that comes from an unprecedented Such an economy calls for a new kind of product/service system, enabling people to address the lives they want to live. The accent shifts from products or services to "the support" they provide to people, in order to lead their own lives as they wish, and to navigate a complex world. Manzini talks about platforms for actions, enabling people to express themselves and bring their own capabilities into play in creating the solutions for their own lives, becoming part of the answer rather than part of the problem. Here, services acquire a unique importance: service provision rather than goods is becoming fundamental to economic exchange[3]. Value is co-created with and defined by the user, rather than embedded in outputs, and that's why services become the paradigm of this emerging economy (Meroni & Sangiorgi, forthcoming 2011).

Public space as a special kind of common

The social economy is an emerging phenomenon also characterised by the following elements: a strong role for values and missions in clustering groups active in certain fields; an emphasis on collaboration and on repeated interactions to accomplish bottom-up actions, aiming to achieve a common goal; a preference for care and maintenance rather than one-off consumption; the blur of boundaries between production and consumption; the intensive use of distributed networks to sustain and manage relationships, capable of being realized by broadband, mobile and other means of communication (Murray, 2009).

Public space seems to be one of the favourite hot spots of this economy and of social innovation, given its intrinsic nature of space "of and for" relationships.

We define public space as a special type of common good. Public space is traditionally a common, defined as a collectively owned resource. We believe that the novelty lies in considering it from a broader perspective which privileges the cultural and behavioural spheres over the spatial one, in a holistic vision of what a "common good" is. Thus it is what happens (or could happen) in the public space that reflects its true significance for the community. Public space is therefore both a social, political, and physical space "where things get done and where people have a sense of belonging and have an element of control over their lives"[4].

Public space, in the times of social economy, promotes the values and the missions shared by the local community, fostering a sense of identity and belonging: we can see this very clearly, for instance, in the diffused system of community gardens in the Lower East Side in New York City; in the seafront promenades of many Italian towns, where people bring tables and chairs to eat and chat outdoors; or in the cultural and social mix to be found on the beaches of Rio de Janeiro. Public places are the accessible fields of opportunity and interaction, where people can meet to share experiences and visions, where they can try-out new paths to solve their own problems and improve the quality of life. Given its inherent character of accessibility, public space is the natural stage for social interaction and collaboration, promoting buzz, reciprocal influence and unexpected delight in the most dynamic neighbourhoods of our cities. As a countercheck to this statement, we can observe that the meaning of public space is continuously eroded when the sense of being a group of empowered people with a common interest, living together in a given place, is lost. Suddenly public space starts to lose its valuable status of common good, becoming either a no man's land, a place of fear, crime and degradation or the domain of building speculation.

Over the decades, the ability to reshape urban space to new needs has always been an effective way to promote an attitude of care and maintenance rather than one-shot consumption. The topic of land waste is certainly crucial in the present environmental crisis, but the rising awareness of its limited availability can prevent disappointed citizens moving to the countryside only if the community is able to make cities desirable places to live in.

While other kinds of common goods, such as air and water, are "given", public space is commonly "produced". For this reason its meaning, allocation and use has to respect the needs of a vast audience, which has led to the birth of PARK(ing) DAY[5] in San Francisco, where 70% of public space is dedicated to vehicles, while only a fraction of that space is allocated to the public realm. The situation is even worse in many other metropolitan areas around the world. Anyone can participate in this strictly non-commercial project, which has been expanding worldwide, intended to promote creativity, civic engagement, critical thinking, unscripted social interactions, generosity and play. The creativity of those who live and run the cities will determine their future success and attractiveness. Creative groups are often the starters of renovation processes in contemporary cities, later involving a wider range of social groups.   However, we often forget that creativity is not an exclusive domain of artists and innovation and is not exclusively technological. The emerging paradigm shifts attention toward social innovation, which mostly takes place in the commonly produced good of public space (Landry, 2000).

Cases and purposes

To investigate the different shapes that public space could take as a common, we have made an extended observation of cases and then selected those with a clearer focus.

In this investigation, particular attention has been given to cases produced in Milan and discussed within the context of the research, Human Cities. Observation has been directed to situations where creative communities have taken action towards public space with different purposes. This has led us to the following categorization, which helped in understanding the rationale of the different actions, though not assumed to be exhaustive:

To produce goods and services for the household economy – the household sub-economy and the extension of family productive space into public space, as in an extended home: i.e. allotment gardens and community gardens;

•USA, New York City, Lower East Side Community Gardens. A network of Community Gardens in public plots, created and maintained by the local residents, has been flourishing since the Seventies, greening the neighborhood and providing it with a rich social space;

•France, Paris, Jardin Nomade - Nomadic Garden. Residents transform an abandoned plot into a shared neighbourhood garden.

3 France, Paris, Jardin Nomade - Nomadic Garden

3 USA, New York, Community garden in the Lower East Side

To host services and activities shared by community housing – the public space of a neighbourhood community formally or informally structured as a co-housing community: e.g. playgrounds for children, barter and yard markets, open access workplaces;

•Italy, Milano, Cantieri Aperti - Beyond the building site. A project of the group of activists esterni that aims to turn temporary building sites into physical and ideal spaces the neighbourhood can enjoy or use to host events;

•Italy, Milano, The Community of Villapizzone. A community to share everything with everybody, The Villapizzone community is a place in which people live sharing everything they have;

•Italy, Comeglians, Udine, Albergo Diffuso - Diffuse hotel. A system to manage accommodation for tourists in the local territory, using private houses and existing resources;

3 Italy, Milano, esterni, Cantieri Aperti

3 Italy, Comeglians, Udine, Albergo Diffuso - Diffuse hotel

3 Italy, The Community of Villapizzone

3 USA, New York, see side
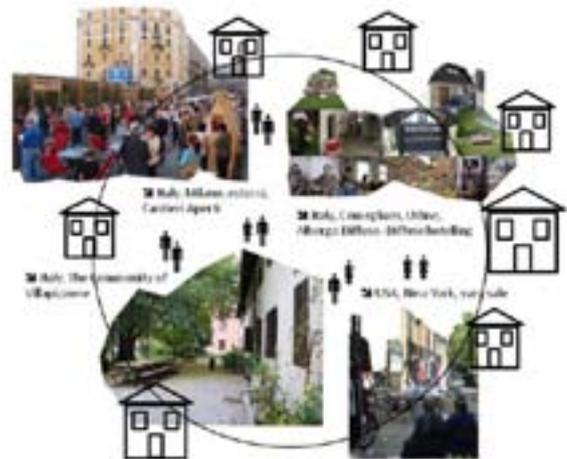
To create contexts in which elective communities can express themselves, get organised and find synergies to help each other – the realm of public art and of amateur activities: e.g. flash mobs, arts performances, sport sessions, knitting happenings, music performances;

•Lithuania, Vilnius, Street Musician Day. Bycoordinating the performances of different local bands, this event gives everyone a possibility to express him/her self in music;

•The Netherlands, Eindhoven, Graffiti Galerie. A place in the city centre where graffiti artworks are allowed. Tolerating the spraying of graffiti in certain places, even promoting the artistic value of the works, is a way to prevent vandalism;

3 The Netherlands, Eindhoven, Graffiti galerie

3 Lithuania, Street Musician Day in Vilnius
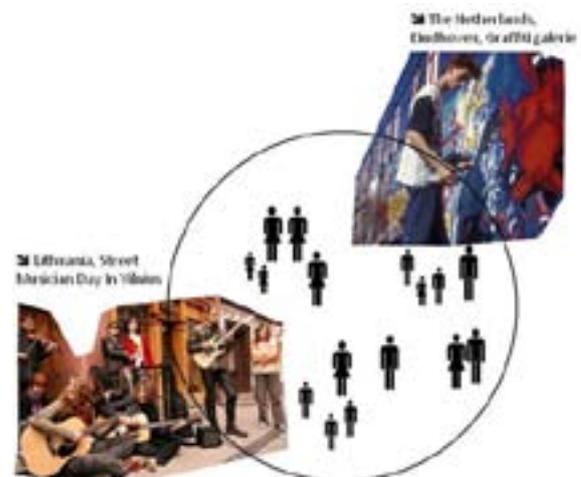
To reclaim the streets for different uses – the city re-appropriated for more human activities: e.g. proximity-vacation spots, spaces to rest and relax, public dining tables, public dancing floors, cycling and walking areas, open-air cinemas;

•Brazil, São Paulo, Elevado Costa e Silva (Minhoção, Big Heartworm). A violent wound in the city that is now closed to traffic on Sundays, by the will of the municipality, when it opens to the public for bicycle recreation;

•Italy, Milan, Film Festivals. A series of initiatives of the group esterni, which bring the cinema to the streets and public spaces, creating unconventional open-air theaters and places of encounter;

•Italy, Milan, Tango Illegal. It is an amateur dance group

that organizes tango nights in the heart of Milan and in the surrounding area gathering a number of dancers in public spaces temporarily equipped with hi-fi music players;
•Italy, Milan, The Public Design Festival, Duepercinque. An initiative launched in 2009 by the group esterni, to collect and show ideas about how to temporarily use parking lots for purposes more oriented to public wellbeing and benefit.
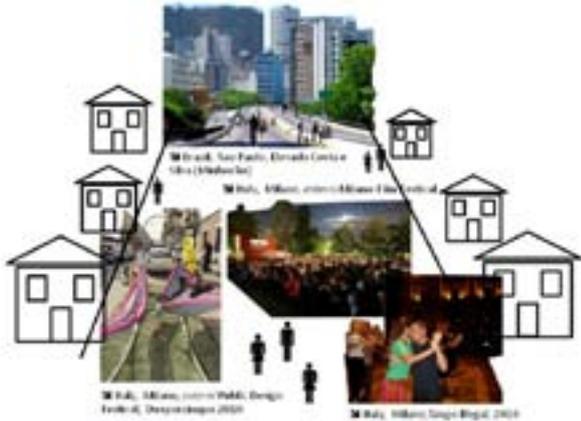

To express a political position, through activities and/or art performances – public space as a context of constructive protest, cultural and social engagement, where proposals are presented through "demonstrative prototypes" of possible improvements: e.g. guerrilla gardening, reforestation initiatives;
•Italy, Milan and Turin, Guerrilla Gardening. Free gardening attack (mainly in the night time) in different places of the cities, aiming to embellish neglected or forgotten areas with plants and flowers;
•Italy, Milan, Darsenapioniera. April 2010. A group of active citizens gathers to envision new possible uses of a very popular public place in the centre of the city, in order to subtract it from building speculation;
•Italy, Milan, Sorridi, ti stanno filmando! - Smile, you're on air! January 2009. An intervention by the group esterni to think about social control in public space through video-control. It is a guerrilla action placing new road signs at the bottom of CCTV cameras, similar in size and graphics to real ones but with the message: "Smile, you're on air";
•Turkey, İzmir, Balçova Afforestation Society. Afforestation of drought areas and care of plants in the Balçova district by people living in the area.

To enhance living contexts – public space as an everyday panorama calling for quality, beyond the distinction between public and private: e.g. loan gardens cultivated by neighbours; cleaning days and public space maintenance by the inhabitants, open museums and galleries;
•The Netherlands, The Hague, Neighbourhood Shares. Inhabitants improve living conditions in their neighbourhood by taking over responsibility from local authorities for certain neighbourhood maintenance tasks;
•The Netherlands, Utrecht, Loan Gardens. Public green maintained by the residents makes a neighbourhood more beautiful and welcoming;
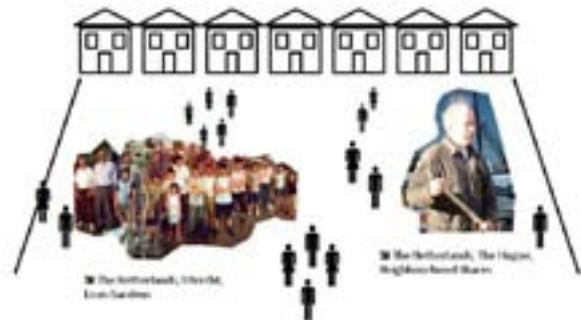
To improve security, safety and efficiency – public space as concierges and infrastructures maintained by the inhabitants: neighbourhood watch, collectively managed infrastructures and maintenance services;
•Finland, Helsinki, The Bearpark Sponsors. Elderly people, the police and the municipality networking for the benefit of public space, with the aim of promoting the participation of local people in taking care of their surroundings;
•Germany, Cologne Mühlheim, MFG Mülheimer Fahrrad Gruppe – MFG Cycle Association. Paths and services for urban cyclists are better maintained thanks to the care and surveillance of the residents;
•Turkey, The Kerkenes Eco-Center and Environmental Studies. The Kerkenes Eco-Center is in a village called Sahmuratli, in Yozgat. By 2003 the eco-center established a concept of researching and promoting renewable energy and sustainable village life, where inhabitants actively contribute.

These cases present public space as an inseparable unity of meaning and spatial context, and of social and technical conditions, breaking the conventional boundary between private and public goods. Social innovation and public activism systematically transfer behaviours and purposes between the two realms of the household and the State.

It has been argued (Murray et al. 2008) that today social innovation stems from many sources: for instance, new forms of mutual action between individuals within the household economy – whether in the form of open source software, or web-based social networking around specific issues - are increasing in number and importance. Generally speaking, the household is becoming a fundamental cell of social innovation (Leadbeater, 2008). Moreover, the development of social enterprise operating within the market has been noticeable (Jégou & Manzini, 2008; Murray, 2009). Reaching beyond the limitations of the old categories, we discover that the Market can, to some extent, meet the goals of the social economy.

It is also true that the State is reshaping the concept of public property and the way to 'commensurate' social production, changing its own methods of allocation and control. In other cases, in addition to producing sociality, innovation by social enterprises has provoked responses from the private sector and the State. Finally, as mentioned, the weight of the household within the social economy is growing, both through labour in the household, and via the contribution to social production of informal networks, associations and social movements, and this is the realm of the social production of public space.

Studies in this field are flourishing in several parts of the world, many of them within the international network of DESIS[6] which aim at investigating social innovation from a broader perspective. A specific research on the value and the potential of social innovation for the benefit of the public space is now in progress in New York City, by Parsons The New School for Design. A group of researchers from the DESIS Lab is investigating the impact of creative communities in transforming urban space and lifestyles, with the aim of amplifying the scope and the benefits of these initiatives[7].

Networking and connecting

During our research path, we've registered the presence of groups of active citizens in different urban contexts, working to foster awareness of the local community around the topic of public space[8]. We acknowledge to these creative groups the role of hero in the stories, even though they simply perceive in advance what will later become a common opinion.

Given the blurred boundary between production and consumption of public space, we can borrow Alvin Toffler's term 'prosumer' (Toffler, 1980) to define the new kind of aware citizen who knows best what the right solutions are for his/her local situation. Without their action, the mere existence of physical public space is as useful as a piece of hardware without software. The community is the context to orchestrate this plurality of voices, through a democratic process that recognizes equal opportunities to all members, allowing their desires to guide the

creation and implementation of solutions.

The present stage of transformative innovation would not be possible without the spread of networks and global infrastructures for communication and social networking. We have already mentioned the circular relationship between physical space and people living in it, but public spaces are now being redefined and extended thanks to a third applied force: ICT technology. Flash mobs, street festivals, condo and street TVs, meet-up groups of all kinds are the new high-tech actors of the wired public space. Terms like peer-to-peer (distributed networks of equal entities mutually available), de-mediation (taking away the middlemen from retailing), wikis (websites open to easy and collaborative creation), collaborative platforms (on-line or off-line contexts which allow participation), open source (practices that allow contents created to be available to everybody) have moved from the lexicon of distributed systems to every-day life repertoire. It is interesting to observe the shift toward new habits, when people are given the enabling tools to do things together, without needing traditional top-down organizational structures.

According to Clay Shirky[9] a revolution doesn't happen when a society adopts new tools, but only when a society adopts new behaviours, exploiting these possibilities. This is what Jégou and Manzini define social innovation, meaning the various changes, mainly emerging from bottom-up, in the way individuals or communities act to solve a problem or to generate new opportunities (Jégou & Manzini, 2008). The rise of a distributed organisation model, where innovation and knowledge epicentres are widely dispersed and linked by networks, steps back from the imposition of standardised and simplified solutions from the centre. On the contrary, the network acknowledges local communities and neighbours living at the margins as those who have ta sense of specificity of time, place, events and beliefs, a kind of insight that central politicians totally lack (Murray, 2009). Local innovative solutions to everyday life problems can be promoted and circulated in different epicentres of the net, fostering a process of social learning, where even the original promoters of the initiative can improve their solution thanks to the shared experiences.

Strategies and approaches for doing and supporting

How can we, as designers, actively operate to foster such initiatives? How can we intervene in the pattern of society to support or make them flourish? These questions open the debate around the role of the designer in the present context.

It seems to be clear that it's time to adopt new perspectives. Several authors sustain that one possible role of a designer today is to create conditions for people to use creativity and innovate at the local scale, becoming able to recognise and understand the context in which innovations are born and develop tools and methodologies to support these situations (Sang & Manzini, 2009; IDEO 2009).

We believe it's time to support people in doing things and to do things with people. Both situations imply a co-designing capacity that must be put into practice with professional skills and tools, and raise more transversal reflections to be developed. Both

require stimulating a positive attitude in people, systematically building competency and encouraging pro-activity.

Questioning the role of the designer today means questioning also those of the client and user, which leads us to think about how and why we can support people in doing things and do things with people. That's to say that design should become the context of the actions and be better embedded in people's behaviour.

We believe that how to support people in doing things, is the key question. This first reflection is the result of the observation of a variety of initiatives around the world, going under the title of design for service toolkits to support bottom-up innovation[10]. All this material, currently available on the consultancy websites[11], is aimed to familiarise non-designers with design thinking. Finally, these kits are, organised combinations of problem setting and solving design tools. They target local organisations or, more directly, communities aiming to implement new activities. In addition to this typology of kits, specific activity toolkits, getting-started and step-by-step instructables are commonly available through Internet for free use and open-source[12].

In spite of the relative novelty of these toolkits, which makes them almost impossible to assess, they guide us to hypothesise the following conceptual structure for action-supporting kits:

•what to do: this is about the main purpose of the supporting activity. We have identified Observing, Communicating, Starting Up, Engaging, Synergising and Mobilising as the main general purposes of a supporting kit[13]. Each and every activity is a complex task in itself. A kit can address a specific activity or be multipurpose. Then again it could be generic, meaning that it doesn't address a specific field of activity, or thematic;

•how to do: this is about providing users with specific design tools or tips, organising them into a step-by-step sequence. When the kit is generic, tools are explained in a methodological perspective, when it is thematic they are more likely to be pragmatic tips, coming for the experience of previous users. Within the category of specific tools we can also embrace the different kinds of digital platforms with several aims (Baek & Manzini, 2009). These tools emphasize the importance of collaboration, co-creation and co-experience as key factors of successful initiatives;

•for whom: this is about the users of the kit, and the skills they are supposed to have or acquire. The more the kit is generic and the purpose extended, the more the user is likely to be someone like a professional design facilitator at the local level. The more the kit is thematic and specific, the more the user is an amateur.

These kits allow designers both to support people in doing things and do things with people. Nevertheless, they imply that a sort of "design demand" is diffused within the community, and thus expressed. They imply, eventually, that design was recognised as a context for the action.

We hold that one way to make this happen is through emulation: the power of visionary and radical ideas that so called "local change-makers" (Drayton, 2010) are proposing lies foremost in their ability to touch, attract and inspire other people, so that they wish copy them in some way. Acknowledging this

power, we propose that the observation, identification and diffusion in a highly communicative way of cases of social innovation is the first step towards effectively "amplifying" such ventures. And that's why initiatives such as the Human Cities Festival, SEP- sustainable everyday project and Amplifying Creative Communities[14] rely on widespread communication as a strategy for engaging people in diffuse design thinking.

Concluding, we believe in the importance of showing that firm commitment and hard work does bring a reasonable chance of success and also that design can help initiatives which bravely challenge the traditional way of acting in public space to flourish.

At present, collaboration and networking are the only feasible and effective ways for these initiatives to work: mutual stimulus, mutual support, resource sharing and affective empowerment of groups are the key ingredients of both their existence and their success.

Basically, designers conceive tools to interact with the environment: artefacts that possess utility, function, culture and emotional qualities. What kind of "tools", whether material or conceptual, can be designed to facilitate mutual support, enable resource sharing and create empathy within the community?

The answer depends on the specific field of intervention but, considering the relational nature of public space and the variety of cases observed so far, we can assume (Leadbeater, 2008) that these tools have to be a peculiar mixture of pre-industrial and post-industrial, with a marked value in "the values". As we have seen in the abovementioned toolkits, they mix and apply advanced technology support (i.e. digital platforms) and pragmatic, intuitive do-it-yourself instructions, emphasizing the importance of collaboration and co-creation. This strategy of support seems to have the potential to make people feel and be active and engaged in the contemporary world.

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Notation

1. EMUDE emerging user demand for sustainable solutions, EU, VI framework programme, 2004-06; CCSL creative communities for sustainable lifestyles, a project promoted by the Task Force on Sustainable Lifestyles, within the United Nations 10 Year Framework of Programmes on Sustainable Consumption and Production, 2005-07; LOLA looking for likely alternatives Project within the framework of the EU CCN, Consumer Citizens Network 2005-09; several academic courses, workshops and national research projects.

2. According to different authors this is also defined as "Social Economy" (Murray, 2009; Murray, Mulgan, Caulier-Grice 2008)," Support Economy" (Shoshana, Maxmin 2002), "Co-production Economy" (Leadbeater, 2008; Von Hippel 2005; Ramirez 1999; Vargo & Lush, 2004), "Next Economy" (Manzini in Meroni & Sangiorgi, 2011)

3. See Vargo & Lush, 2004, Vargo, Maglio, Archpru Akaka, 2008

4. The Ecologist magazine, Vol 26 No 4 - July/August 1996, "Who Competes?: Changing Landscapes of Corporate Control," by N. Hildyard, C. Hines and T. Lang

5. http://www.parkingday.org

6. DESIS: Design for Social Innovation and Sustainability, www.desis-network.org

7. Amplifying Creative Communities, is the title of the research supported by the Rockefeller Cultural Innovation Grant 2009 for the DESIS Lab of the School of Design Strategies at Parsons the New School for Design. Yeas 2009-2011

8. Groups like Rebar in San Francisco, esterni in Milan, Prostorož in Ljubljana, Future Canvas in Melbourne

9. http://www.shirky.com/

10. Just to provide a few examples, we can mention: IDEO, in 2009, has issued "HCD Human Centered Design: Toolkit"; Engine Service Design, in 2010, has issued the "Design for Service: for both service and manufacturing businesses"; the D-School of the Hasso Plattner Institute of Design at Standford, has issued the "D-School Bootcamp Bootleg".

11. http://www.ideo.com, www.enginegroup.co.uk, http://dschool.typepad. com/news/boot-camp

12. www.instructables.com, http://makingpolicypublic.net, http://www. wallacecenter.org/our-work/Resource-Library/wallace-publications/ handbooks/Farmer11-1_Sc.pdf/view

13. This part of knowledge comes from the collaboration with the research Amplifying Creative Community in NYC.

14. http://festival.humancities.eu/en/introduction, http://www.sustainable-everyday.net, http://amplifyingcreativecommunities.net

Wendy E Brawer   Bala Mulloth
Green Maps as a Vehicle for Social Change

Abstract

Environmentally conscious businesses, organizations and partnerships have been a commonplace feature in cities, towns, and other various community structures. In 1995, Wendy Brawer and colleagues addressed the need for greener, healthier cities, with http://GreenMap.org, a product-service system combining a universal iconography, adaptable tools and local leadership, offering access to a global collection of sustainable maps. Involving youth, designers, social entrepreneurs, NGOs, universities, governmental and tourism agencies, the Green Map movement has now spread to over 625 cities, towns and villages in 55 countries.

Each locally-led Green Map project has a unique way of involving people of all ages in discussing, assessing and highlighting green living resources as well as sites of natural, social and cultural value. Building skills as they organize, design and promote maps as well as interactive workshops and tours, student-led Green Map projects create vibrant place-based outcomes. The research method promoted by Green Map has played a significant role in this outcome.

Wendy E Brawer, Founding Director, Green Map System and partner to DESIS New York project.

Organizational Background

In 1989, Wendy Brawer began thinking of how to address the effects of globalization.

Brawer states, "We were losing our sense of place, and along with it, a healthy environment where each individual and species could thrive with dignity and sufficiency. With the desire to design a green product in terms of the need it fulfilled, the materials used, and how it was produced and distributed – I opened my eyes and looked around my community, NYC, for inspiration" (Mulloth, 2010).

Focusing on that city's signs of progress toward sustainability, Brawer created the very first Green Map in 1992. Named the Green Apple Map, it was designed to help tourists, relative newcomers and native New Yorkers develop a renewed personal interest in sustainability, along with the natural sites and culturally significant places that make New York City's environment unique. Published by her eco-design company, Modern World Design, this handheld map was created with the support of local residents, and informed by their knowledge of the city. Debuting on the first day of spring in 1992, 10,000 copies on 100% recycled paper were quickly disseminated (Brawer, 2009).

Universally understood, resource efficient, and easy to carry or mail, the Green Apple Map gave many users an epiphany. It highlighted everyday greener ways to get around, dine, shop, learn, work and recreate. Along with sustainable living resources, the map charted biodiversity and nature, social innovations and local cultural sites that contribute to the community's sense of place. As the first Green Map, it sparked broad attention and engagement, building networks and new relationships within the city's unique environment (Brawer, 2009).

Such positive reaction to the original Green Map spurred development of locally-led Green Map projects around the world - today over 650 communities in 55 countries have gotten involved. Responding to inquiries, Brawer began to consider how to link the locally-led projects to create a cohesive global network. She realized a universal iconography was a simple solution with multiple benefits, and began thinking about how to create it.

Not knowing about open source development or the internet's potential, but in the spirit of collaboration and with a sense of urgency, Brawer brought this concept of a locally-led global network, the tools and principles of what was to become the Green Map System to Copenhagen in 1995. There, she

collaborated with the O2 Global Network, an informal network of sustainable designers, NGO members and academics, to flesh out the creation of a Green Map global network. This marked the start of Green Map System, and set a precedent for the international collaborative efforts, augmented by the World Wide Web, to follow.

Green Map System partnered with the creators of every locally led map, learning from their best practices and developing an adaptable suite of mapmaking resources to help each successive project determine the way forward in their own community and enable capacity building among the members of that community. With multiple aims and a diversity of needs to fulfill within each Green Map project, Green Map System strives to help each community effectively manage the full process, particularly in the areas of context setting and criteria development; research, interviews, and observation; data collection, editing, and illustration; map composition and design; and finally, publication, marketing and dissemination. Led by city agencies, NGOs, universities, grassroots community and youth groups, many of the projects develop an ongoing program that engages different people in creating diverse citywide, thematic, tourism-oriented, neighborhood and special purpose Green Maps.

Green Map System offers additional support to each locally-run project by offering an adaptable tool kit, books and multimedia guides, training resources, a strong online presence and technical support. Combined with an online content managed presentation and resource center, and a new multilingual social mapping platform, the program has yielded increasingly meaningful local outcomes, some of which are featured in a downloadable resource online at GreenMap.org/impacts (Green Map Impacts, 2007).

An innovation in and of itself, the globally designed Green Map Icons link all of the Green Maps together and function as an inventory tool for green living sites, local natural, cultural and social resources. This award-winning set spurs replication of model sustainability initiatives and supports cross-cultural dialogue and exchange. Provided as a font usable with any computer program, as images, or as stickers for youth projects, the most recent "icon update" was an inclusive five-year process. At present, there are 170 universally adaptable icons that form the basis for all Green Maps. "As seen at GreenMap.org/icons, when we created Version 3 of the Green Map Icons", said Brawer, "we made a 'pattern language' to support understanding and the development of new local icons that would harmonize with the global set" (Green Map Icons, 2010). These copyrighted icons are a unique asset accessible to people of all backgrounds and ages.

1995 also saw the creation of Green Map System's first website at GreenMap.org. This digital outlet has dramatically expanded accessibility to the archive of locally led projects, thereby increasing awareness and inviting even greater community participation. One of the first 18,000 domains registered, the organization grew steadily, increasing the number of new locally-led projects developed each year.

By 2000, Green Map System had a network of 100 locally-led projects, and 36 published Green Maps. As of June 2010, Green Map has empowered 670 projects in 55 countries. 'Hubs' in Indonesia, Japan, China, Cuba, Europe and key Mapmakers worldwide are vital collaborators. This award-winning program has engaged and elevated the creativity, initiative and devotion of a great diversity of professionals, students and local experts who have collectively published over 400 unique Green Maps and 125 Open Green Maps that have energized millions of people (Brawer, 2009).

Caption: Collage of locally designed Green Maps

Staff in New York has collected a remarkable archive of beautifully made maps, in addition to education and outreach resources utilized in the creation of adaptable guides, graphics, posters, workshop scenarios, and classroom and presentation materials in several languages. The Green Maps themselves are powerfully instructive and still serve as the best outreach for this movement. Green Map System's digital platform continues to expand. With the launch of the social mapping platform, the Open Green Map (OGM) in 2009, several goals were achieved. Technological and financial barriers to online mapmaking were removed, and team management and moderation improved.

Moreover, OGM is designed to make the Green Map experience even more user-friendly by permitting community members around the globe to explore, customize, and enhance Green Maps online. Open Green Maps incorporate public insights, images, and impact assessments for each site. Each can be rated, updated, translated, compared and shared by the public. The data can be repurposed for different formats and uses. Indeed, entering GreenMap.org on any mobile phone's browser will provide the 'alpha' version of the mobile website and deliver a clickable list of "What's Green Nearby"™. This allows the phone's built-in map to pinpoint the green site's location. Anyone in the world is invited to add this functionality to their own website as seen at GreenMap.org/widgets. The Green Map iPhone App adds the ability to select a Green Map Icon, and then perform a proximity search of the green sites. "Data-sharing partnerships are in the works", said Brawer, "and we expect there to be exciting new innovations and 'mash ups' of the 11,000+ OGM sites in the near future" (Mulloth, 2010).
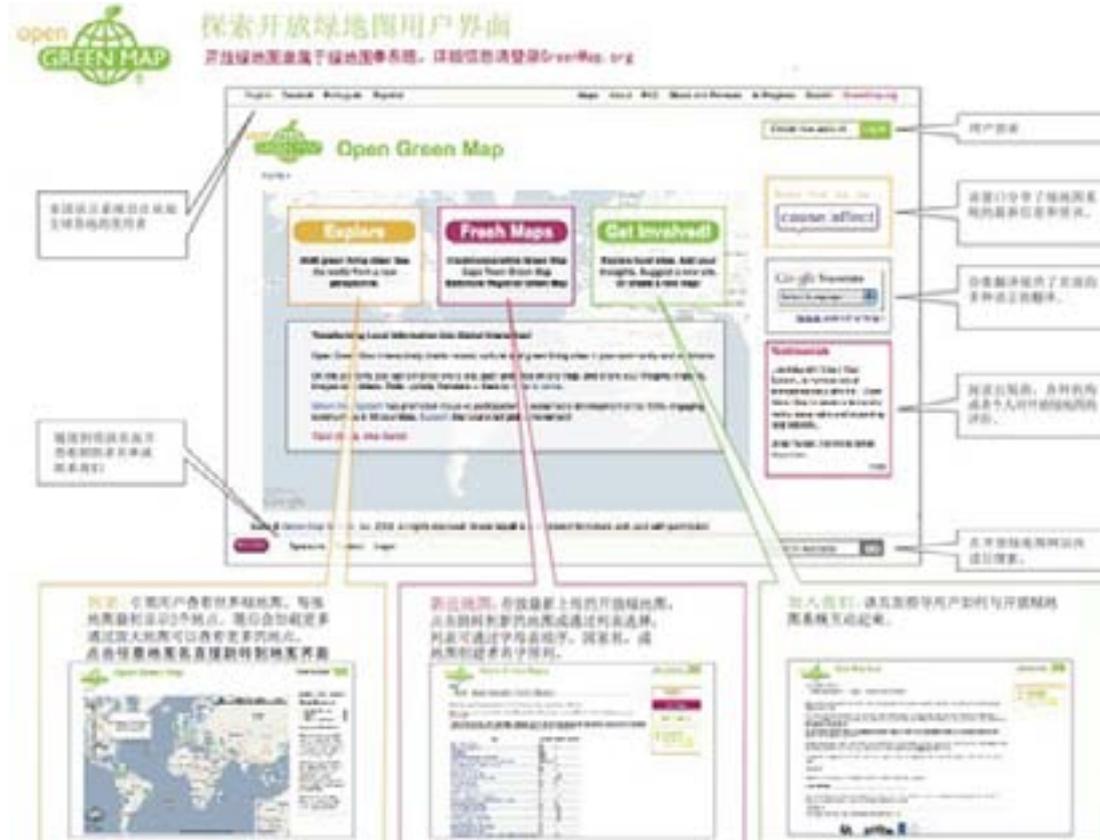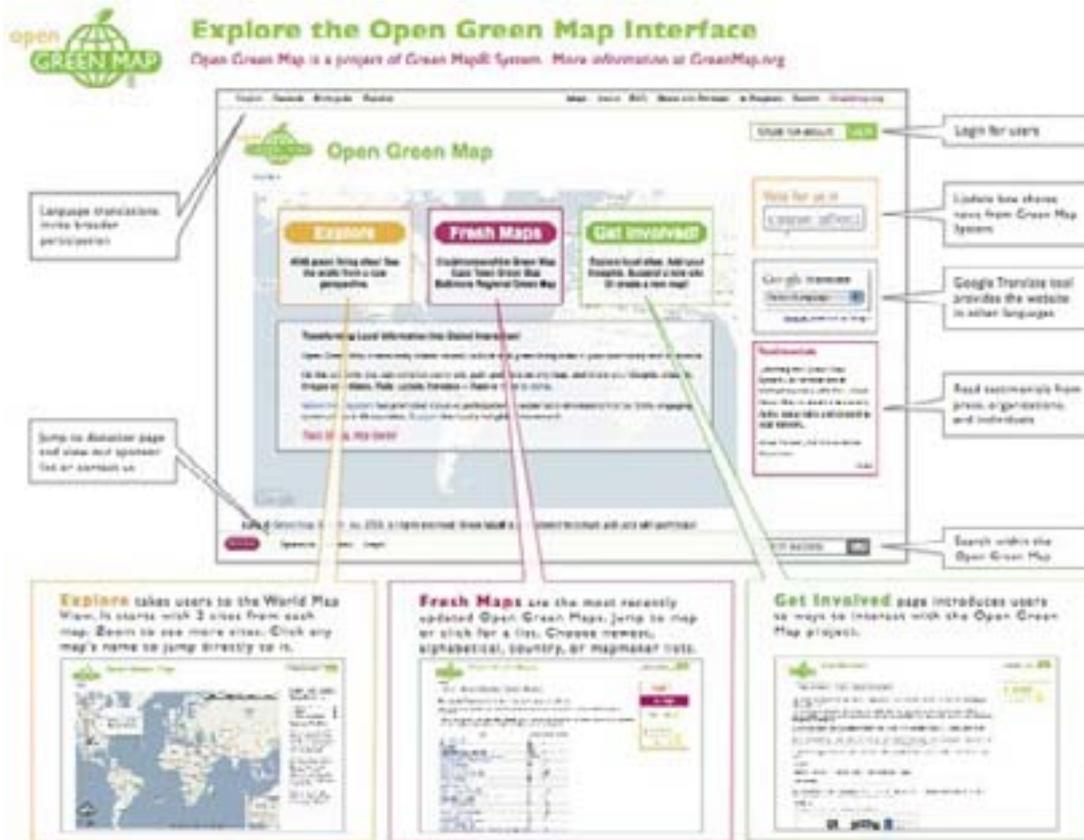
Caption: Open Green Map functionality (in Chinese and English)

Green Map System's Mission

In order to fully understand the work of Green Map System, it's crucial to recognize the value the organization places on the central and multifaceted role of maps in society (Horwitch and Mulloth, 2010). Rather than considering maps to be neutral and objective information sources, Green Map System strives to create a valuable role in society for maps and mapmaking as strategic tools that have the potential to enlighten, engage, and mobilize communities (Horwitch and Mulloth, 2010).

Through its Green Maps, the organization aims to provide skills, resources and overall awareness to the public about the possibilities of engaging environmentally and socially responsible behavior in their day-to-day lives. With inclusive participation its mission, Green Map System strives to educate and empower individuals and communities around the world to chart their progress toward a sustainable future. By encouraging this process on a global scale, Green Map System strives to promote a sustainable global environment, healthier climate and help individuals discover their communities from a fresh perspective, engaging with local assets and issues and supporting green jobs and a low-carbon economy. With 55 countries involved since 1995, the synergistic strategy is "Think Global, Map Local."

caption: Green Maps and materials

A Unique Model

Green Map was developed in the "gift economy" model, in which services are rendered without expectation for concrete reciprocation of goods, but rather, outcomes, whether they be new tools, methods, text etc. are shared. Either distributed freely or sold, a Green Map is above all intended to increase community participation. Since its inception, Green Map System's services have evolved to become a toolkit to be utilized and accessed by communities around the world. Each local user is expected to contribute a modest support fee or service each year. By providing an open source map and a set of universal icons, Green Map System encourages and eases the process of map-making. It is through this service that Green Map intends to foster and facilitate change. As a result of adaptable mapmaking, a cooperative environment is established with local Green Map teams sharing information as they gain valuable

skills in collaborative decision-making, project management, community organizing and communication. This model benefits from inter-cultural perspectives, which foster community-oriented decision making in support of professional, institutional, youth and grassroots project leaders working to highlight the emerging green economy, celebrate the uniqueness of home, and protect biodiversity.

Merging the worlds of design, IT and local knowledge, Green Map System hosts one of the earliest internet-based collaborative development programs, a true forerunner of today's open source movement. Its locally authored profiles and online store helps individuals find and utilize the maps they seek. The organization's small international staff, local board, and global advisors continually consider the map users as well as the mapmakers' needs, and how to inclusively engage participation from both to foster sustainable community development (Brawer, 2009).

Innovative and Significant Mapmaking

The production of each Green Map employs a unique research method, reliant on place-based knowledge, needs and community support. Such reliance on informal resources promotes local knowledge while illustrating the significance of place-based individuality. Each locally-led project is offered access to collaboratively developed technologies, including the Green Map Icons, an online tool center, the Open Green Map social mapping platform, mobile website, and iPhone App. These local projects can opt to involve Green Map System staff or regional support hubs in strategy development or training, a launch celebration, promotion or network building event.

Each of the 500+ published Green Maps help bridge the gap between how community members and governmental agencies perceive community well being and take action on opportunities for social inclusion. Green Mapmaking incubates new skills in critical assessment, collaborative project management and communications for the emerging green economy. Utilizing social networking and an approach to media that is simultaneously local and global, Green Map System can alert more communities and decision-makers about the opportunities provided by Green Maps and the amazing local impacts the organization has supported worldwide. Green Map System was early to recognize the digital network's potential to expand development and outreach and continues to work ahead of the curve. The most recent endeavor is the release of a series of widgets, intended to make the Green Maps and multimedia available within other websites.

Continued Local Focus

Green Map's global office continues to develop a local Green Map project for New York City as well. The Green Apple Map was originally conceived to help visitors and residents connect with the emerging sustainable network in New York City. While the city housed many sustainable initiatives, there was a lack of unity amongst these various projects, resulting

in inadequate communication that subsequently inhibited the development of a sustainable city. By documenting every site engaged in sustainable practice, environmental consciousness, and cultural and societal growth, the Green Apple Map was the first step in proposing a solution to these problems.

More than a dozen unique editions have been published charting the city's energy, composting, youth perspectives, and comprehensive views. Each of these efforts tests out a new theory and results in a new model (often with documentation) to share worldwide. Bicycle tours, exhibitions, community-engagement planning processes, train the trainer workshops and other applications piloted in New York have similarly been replicated. This continued work in the site of the original Green Map has fostered invaluable relationships with other organizations, and such locally oriented cooperation has fostered preexisting means and highlighted new ways for New York to make progress as a sustainable city. As noted by Karen Overton of New York City Partnership for Parks, one of Green Map System's local partners, "not only is Green Map an exercise in education but it is also a tool for social change. The map that young people produced in Red Hook is now in the US Congressional Library. It can be used as an effective social and political tool to request services. Our organization looks forward to working on more projects with Green Map System" (Mulloth, 2010).

Caption: Hands-on engagement

Measuring Success

Mapping a wide breadth of sustainability relies on informal sources, local knowledge, and personal experience; it follows that the methods for measuring success will take a similar form. With a wide world of media formats that can display Green Map System's data in different ways to meet a variety of audience needs, data sharing could become a key indicator of success. The extent to which the Green Maps are being accessed and utilized by the public can be concretely measured through website traffic monitoring, fans and followers on social networking sites such as Facebook and Twitter, and the dissemination of map information via widgets and other sharing resources. Another metric by which to measure success includes consideration of accolades, press coverage, honors received by Green Map System and locally led Green Map projects, and the website highlights international recognition dating back to 1998 (Awards and Recognition for Green Map System, 2010). While in this

section of the website, users can explore articles by the media, newsletters, press releases and the Green Map blog, sharing news from projects and the organization. Links to social networks are found alongside.

The organization, its boards and network incorporate a method of continuous assessment of progress, participation, presentations, metrics and revenue model institution. With its new online service section, Green Map also aims to encourage using its portfolio of resources and skills, all of which tend to promote healthy ecosystems, enterprises and education, to enhance public understanding and opinion and to heighten impact. Reaching and engaging new sectors across the world, and transferring tools and replicable models, socially beneficial technology, experiential learning and ecological literacy are but a few of the outcomes.

An additional method for measuring success considers temporality. Green Maps have been continually published since 1995, often resulting in significant, positive impacts. By observing the participating communities at periodic intervals, the level of impact each mapping project has had can be measured and evaluated to determine success. Such measurements might consist of analyzing the number of new businesses and non-profits created, changes in city infrastructure, acres of land preserved and other trends. Below are several case studies detailing successful Green Maps.

Yarmouth, Nova Scotia

The Yarmouth Green Map serves as an archetypal example of young stakeholders and important steps in the map-making process. The Yarmouth Green Map focuses on natural areas and spaces suitable for recreation. Data was collected using volunteered services from local students, who participated in fieldwork. The Yarmouth Green Map was instrumental in raising awareness of the area's recreational importance, which subsequently led to the preservation of Yarmouth's Broad Brook riparian zone.

Caption: Yarmouth Canada Youth Green Map

Kyoto Bicycle Route Map

In 2001, Green Map System directed the bicycle initiatives and eco-transportation of the Kyoto City Environmental Policy Department's "Miyako Agenda 21 Forum." The organization published the pocket-sized Kyoto Bicycle Route Map in the same year. This Map suggested four cycling courses and hotels that support biking. The results of the released Bicycle Route Map were the Velo Taxi and one coin bus service launch in Kyoto's central area. Moreover, KCTP, a rental bikes delivering service, started as a result of this map's influence and received the annual grand prize of Kyoto venture business in 2002. Finally, the publication of the bicycle route map helped to prompt the creation of Kyoto's light rail transit, which was implemented in 2005.

Green Map Cuba Network

In 2000, the Green Map Cuba (Mapa Verde Cuba) national network took shape. It has helped create exchanges, provide manuals, training and documents the experiences from all parts Cuba. All projects are based at elementary and secondary schools, universities, neighborhood and popular councils, community revitalization workshops, elder's groups or ecology centers, and each mapmaking team has its own coordinating group and its own unique strategy, including poetry, music, theater and dance. Green Map Cuba has supported 115 communities in producing elders, cultural personalities and biodiversity-themed Green Maps. The network has achieved reforestation, playground reconstruction, herb gardens, sports facilities, improvements on public parks and cultural places, and elimination of waste dumps. Documentation can be found on YouTube, including the outstanding video 'Gotica Y Gotica' (Drop by Drop) (Gotica Y Gotica). Green Mapmakers from Victoria Canada have provided important support, and collaboratively, co-produced the community guidebook, "Mapping our Common Ground."

Wujiang China

Power supply manufacturer Delta Electronics at their Wujiang plant undertook Green Mapmaking as a corporate social responsibility project, resulting in significant savings of CO2, water, waste and money. Guided by a network of Green Mapmakers based at Taipei's Society of Wilderness and the company's foundation, employees at Delta Electronics developed a mapping process that found more sustainable ways to run their factories and then documented the results. According to Bruce Cheng, the Chairman of Delta Electronics in Taiwan, "...our colleagues enjoyed a collective creative experience completely different from their everyday work. At the same time, through on-site inspections of each factory, they were able to fully explore their work environment and discover green areas they had never noticed before..." (Delta Electronics – World Wide Measurable Impacts, 2010).

This program spread to all of Delta's global factories and corporate campuses. They have even created an animated e-learning tool that extends the principles of environmental care and sustainability discovered in the workplace to the home and

communities of Delta's 50,000 staff members (Company Green Maps, 2010). Energy and other efficiencies, cultural change, and stronger links to the surrounding community are among the notable outcomes of Green Map System's CSR program.

Caption: CSR Green Mapmaking with Delta Electronics

Conclusion

Although only about 20% of the company's money and other resources are for traditional business practices, Green Map System's growth has been fueled by the incredible creativity and innovativeness of the people involved (Horwitch and Mulloth, 2010). As a resource for better cities and better lives, Green Map System is continuously expanding because it encourages collaborations, diverse partnerships, and local community involvement. The previously mentioned case studies reinforce that each new Green Map has the potential to initiate positive societal and environmental change in a local community. Each map also contributes to the domain of Green Map System, strengthening the presence of the organization. In effect, this is a positive feedback system, a system whose lifecycle has an additive effect on the participating parties. Inherently a sustainable system, Green Map System owes its claim as a social innovation to the ability to sustain its own growth.

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Carla Cipolla   Nadia Carvalho
Designing a new food system
for Federal University of Rio de Janeiro (UFRJ)
A "Slow Food" perspective

Abstract

The Federal University of Rio de Janeiro/Brazil (UFRJ) started the twenty-first century decided to be prepared to "a future marked by transdisciplinarity and the universalization of higher education ". In this context, among many other actions, takes shape in UFRJ a new project for its food system, particularly focused on the service provided by the "university restaurants", considered as a key issue in university communitarian life.

This paper presents the development of this project which is based on two main questions :What does differentiate a restaurant located in a university from other ones? Which "mission" a university restaurant could specifically have?

The project is being guided by the Slow Food approach, on which the relation between food (good, clean and fair), knowledge and pleasure is promoted. In this perspective consumers are "co-producers", and the university restaurants are places on which consumers/students can know about how food is produced, and actively contact and support those who produce it. The university restaurants are also being conceived to promote food research activities in the university, favouring a multidisciplinary academic approach in the science and culture of food,

This paper describes the principles, first steps and the lessions learned in this project.

1. The UFRJ Food System today and future plans

The UFRJ Food System is organized today under a industrial approach, serving 2,500 meal per day. For a low price, students can have a complete meal. It is composed by two restaurants called "Central" e "Letras". The System also includes procedures to control the quality of trailers, kiosks and private restaurants established in the UFRJ Campi.

After a long period of clousure, the university restaurants system is being renewed, including the construction of ad-hoc buildings. The project plans to serve over 5,000 meals by 2011, also due to the opening of the restauant called "CT". Next, in 2012, the opening of "CCMN" restaurant will provide more 2,000 meals each day.

Based on this expansion and new buildings, the new project of the UFRJ Food System - particularly focused in the service provided in the restaurants - is being coordinated by the second author of this paper, also as her PhD research, with the involvement of teachers from the Production Engineering Programe/COPPE, the Institute of Nutrition and the UFRJ Innovation Agency. It involves also other actors, like the the Lemongrass group (the student movement of agroecology in the University), the Association of Biological Farmers - ABIO and the Association of Agroecology –AARJ, both based on the state of Rio de Janeiro.

The project is an ongoing activity, a participatory design project on which the various aspects of food system (products, services and communication) around the UFRJ university restaurants are designed to promote initiatives for social innovation for sustainability (Manzini, 2007) in the sector of food provision and education, particularly considering a "Slow Food" perspective (www.slowfood.com).

Fig. 1: One of the University Canteens being build on Federal University of Rio de Janeiro (UFRJ) Campus. (Credit: UFRJ Imagens - Marcella Martha)

2. Project principles: the relation between food, knowledge and pleasure

The new project of the UFRJ Food System is being guided by the following questions :

• What does differentiate a restaurant located in a university from other ones?

• Which "mission" a university restaurant could specifically have?

Here, the work hypothesis is to consider the connection between food, knowledge and pleasure. This approach was adequately synthesized by the Slow Food approach (Petrini, 2005):

"We believe that everyone has a fundamental right to pleasure and consequently the responsibility to protect the heritage of food, tradition and culture that make this pleasure possible. (…)

Slow Food is good, clean and fair food. We believe that the food we eat should taste good; that it should be produced in a clean way that does not harm the environment, animal welfare or our health; and that food producers should receive fair compensation for their work.

We consider ourselves co-producers, not consumers, because by being informed about how our food is produced and actively supporting those who produce it, we become a part of and a partner in the production process."

Based upon these statements, some points were defined as principles to guide the UFRJ Food System project (composed mainly by the university restaurants):

• linking producers and co-producers;

Consumers in the university restaurants needs to be informed and become part of and partner in the production process (as co-producers) supporting by their consumption a specific kind of locally produced food (good, clean and fair food). The university restaurants could showcase products of excellent gastronomic quality and offer the opportunity to meet its producers.

• taste education;

It means to stimulate students, teachers and employees to rediscover the joys of eating and understand the importance of caring where their food comes from, who makes it and how it's made, i.e., to know the meaning and origins of each taste.

• crossing academic and traditional knowledge;

The university restaurants could be related to food research activities in the university, promoting a multidisciplinary academic approach in the science and culture of food, i.e., the university restaurant project itself as an opportunity to bring together the research of the academic and scientific world and the traditional knowledge of farmers and food producers.

3. First challenges in this ongoing project

A essencial requirement of this project is how to organize the provision of food to make up the menu to be offered in the restaurants, able to effectively perform the principles listed above.

In the strategy of promoting a good, clean and fair food, those involved as providers are family farmers of organic products, established in the state of Rio de Janeiro, the same state on which the University is placed. Here the project is facing two initial challenges:

• the availability of locally produced food to be provided by family farmers of organic products, to meet the demand of 2,500 lunches per day (and which is planned to strongly increase until 2012);

• the legislation in the public sector to allow this specific type of qualitative food purchase (the UFRJ is a public university).

3.1 First challenges: Identify and support food producers

It was identified the difficult to stablish a continous provision of organic food produced by family farrmers. The challenge to find out how to stablish this provision is being faced up through a participatory process. The director of the UFRJ Food System and teachers of Institute of Nutrition invited all the involved actors to discuss, particularly Lemongrass group (the student movement of agroecology in the University), the Association of Biological Farmers - ABIO and the Association of Agroecology –AARJ. It was observed that it is necessary to held closer to family farmers in order to understand its dynamics, difficulties, interests and possibilities to provide the food required. In this sense, the idea of a Fair has emerged as a strategy to initiate the mapping of local producers, open a conversation (Freire, 1996) and give support to them.

This indication guided the organization of the event and fair called "Sabores e Saberes" (Tastes and Knowledge Fair). The event promoted lectures, workshops and cultural events on the theme of "clear, good and fair" food. Various cooperatives and farmers in the State of Rio de Janeiro had exposed and commercialized its products. This event strongly involve undergraduates, and is serving for the establishment of partnerships with potential suppliers to the system of university restaurants.

From this event, a weekly organic fair was organized, placed in the garden of the main restaurant builiding in the Campus. Every Thursday, the university community can purchase organic food and meet its producers.

But the Tastes and Knowledge Fair is not targeted only to bring organic food to the campus. It organizes also workshops to producers, to improve their planting and food processing techniques, themes required by them. The workshops are organized and offered by Nutrition and Biology undergraduates, under supervision.

The workshops and the Fair itself are working as exchange moments, on which the undergraduates and their supervisors are also learning from producers: their mindset, their way to relate to food, and other issues .

Fig. 2: The "Sabores e Saberes" Fair organized in the UFRJ Campus,
(at Central University Restaurant). Various cooperatives and farmers

in the State of Rio de Janeiro expose its products.
(Credit: UFRJ Imagens – Marcos Fernandes)

Fig. 3: Students visiting the "Sabores e Saberes"
Fair /Tastes and Knowledge Fair.
(Credit: UFRJ Imagens)

Fig. 4: Students, teachers and producers have
opportunity to meet in the "Sabores e Saberes"
Fair /Tastes and Knowledge Fair.
(Credit: UFRJ Imagens)

The contact with the producers, through the organization of the Tastes and Knowledge Fair, has generated a process of collective definition (co-design) of the characteristics of the project for supplying food to the restaurants in the university. Some key issues were raised, which express the strategy that is taking shape through this participatory process.

• Define the menu according to seasonality;

• Producers adjust their production to the restaurants menu (coordination between producers and restaurants demands);

• Arrange an infrastructure in the university to receive and store products and organize the logistics of the food provision;

• Encourage other stakeholders in the campus (other restaurants, bars and ocanteens) also to buy from these same producers, diffusing "good, clear and fair" food approach in the campus;

• Organization of all suppliers under a "cooperative".

• Rethink the service design of the restaurants to comunicate the food quality (examples: table covers describing the characteristics of each food product, activities to be promoted during the waiting time in the queue, training the staff, etc)

All this issues are under development and represent the actual stage of the project.

Fig. 5: Stakeholders meeting during the "Sabores e Saberes" Fair
/Tastes and Knowledge Fair. (Credit: UFRJ Imagens)

3.2 First challenges: outsourcing

Food preparation in the restaurants is outsourced. Therefore the management of the service suppliers is a key issue in the UFRJ Food System organization. The proposal of the inclusion of "good, fair and clean" food in the university restaurants will require the definition of the food suppliers of these outsourced services, following the principles previously described.

At the moment, based on an agreement with the actual outsourced service provider, one day per week a salad will be included in the restaurants menu, composed by products supplied by the family farmers contacted (that are being organized through the contacts and the activities promoted by the Tastes and Knowledge Fair). This first initiative (one salad) is a pilot and will serve to better understand and test our hypothesis and make a step further in bringing the good, clean and fair food to the university.

4. Perspectives

"Eating is an agricultural act" and "produce must be a gastronomic act" are emblematic statements that, according to Petrini (2005), should help us in the choice and acceptability of food. For us, these statements are guiding a process targeted to bring to the university community not only food, but also knowledge and, specially, pleasure. Fair and clean food is

also good, i.e., a source of delight and joy. For us, in a design perspective, ensure the quality of the product (the food) offered in the university restaurants is the first step. Other elements are part of the project, as have been defined in the participatory process: the service provided in the restaurants and how to communicate the value and the quality of the food offered. These elements are being interconected and articulated to promote, aligned with the Slow Food principles, a view of the university restaurant as a space of conviviality, i.e., from the late Latin convivialis, from Latin convivium - banquet, vivere - to live. In this mood, everyone is being invited: producers, co-producers, students, teachers, researchers, public administrators. The project here is targeted to create the condition for this convivium take place.

We are looking foward other initiatives in a promotion of a better, cleaner and fairer collective dining in universities. Share sucessful examples and open conversations regarding good existing solutions and how to overcome challenges will be of great help.

Fig. 5: Speaker Rogério Dias, Agroecology coordinator from the Brazilian Ministry of Agriculture, Livestock and Supply – MAPA participating at "Sabores e Saberes" Fair /Tastes and Knowledge Fair. (Credit: UFRJ)

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Product Design for Building Citizenship

Public Space, Participatory Design and Citizens

Abstract

One of the most critical factors to consider in planning urban systems is the level of understanding and commitment that citizens establish regarding them. It is far more difficult to build and maintain civil property when its users act as non-citizens. This is to say, when people fail to develop a sense of belonging or personal interest (emotional, intellectual or pragmatic) to their own city. Methodologies developed for participatory design can be essential tools for fostering both citizens' involvement and commitment to their city. They furthermore promote a useful exchange of information and ideas between authorities and the public that can ultimately result in building cities with core identities that reflect the social values of its citizenry.

Introduction

Anthropologist Marc Augé (1995) defined the concept of "non-places" to refer to spaces without identity, which fail to bring about a meaningful relationship between its users and the space itself – i.e. places without content. Similarly, we will use the term "non-citizen" to refer to urban inhabitants that do not meaningfully "inhabit" their own city.

For Heidegger, to "inhabit" a space implies that individuals establish an integral relationship with the space itself. In the case of a city, it implies an interaction beyond utilitarian purposes. To do so not only raises the level of happiness-fulfillment of a city's individual residents but also raises the possibility of its becoming a sustainable urban system. One of Manzini's (1995) proposals for "minimizing the amount of materials and energy used per unit of service" and moving to sustainable design strategies and lifestyles suggests that planners provide "urban recreational facilities over forced tourism". This principle posits an alternative to the betterment of the local quality of life through improved purchasing power of the individual (allowing for frequent leisure outings). It asserts that quality of life can be improved by cultivating a healthy, stimulating and friendly environment within the city, which itself improves individual happiness-fulfillment through the individual act of "inhabiting". Fifteen year later, this proposal is still relevant to sustainable urban design.

Depending on the city, distinct factors contribute to the phenomenon of the non-citizen. The first and most obvious stems from the parent term from which the non-citizen concept is born, i.e. non-places or spaces void of meaning that foster indifference in their users. In other words, non-citizens appear where there are non-spaces. (Fig. 1)

In more cosmopolitan cities, mobility emerges as another key factor. Students travel abroad for months or years; corporate employees are frequently asked to work at different branches in other, often nearby, cities; and people don't own the apartments or houses where they live, consequently changing neighborhoods constantly. These facts in conjunction with the accelerating pace of city life impede the development of committed, satisfactory and/or emotional relationships between cities or neighborhoods and their ever-changing residents.

Meanwhile, in cities like Mexico City, poor relations between the public and private sectors and the citizenry at large constitute a systemic breakdown that makes the possibility of adequate interaction between the people and public urban spaces all but impossible. Residents are rarely consulted during the decision making process, even when the implementation of those decisions directly affect their everyday life. Even when citizens are consulted through democratic efforts like ballot measures, many are never convinced that the results truly

reflect the wishes of the majority. Unfortunately, a long history of corruption, impunity and authoritarianism perpetuates a stubborn lack of faith in Mexicans for politicians and the so-called democratic procedures they administer. As a result, the average Mexican perceives any attempt by the authorities at consulting the citizenry as a mere simulation of democracy that gives false authority to the in-fact unilateral decisions taken by governments.

The Design of a City from the Inside

We may agree that "a house can be designed from the out-side-in or from the inside-out" (Simon, 1999). However, taking into account the deference design methodologies give to multi-, inter- and trans-disciplinary approaches to solution finding, then it is perhaps more apt to say that the house is better designed from both the inside-out and the outside-in. This means that for urban design both macro and micro processes are critical, i.e. the layout of key public transportation routes and the planned use of neighboring territories (as with the case of Curitiba) are as vital to the overall urban concept as the graphic design of city street signs or of the furniture used on playgrounds.

In this sense, it is useful to adopt an open definition of design that allows for softening the divisions between urban, architectural, industrial and graphic design. We thus propose understanding design as "the planning and production of systems", keeping in mind the perspectives of each individual discipline and the complexity of design problems each confronts. If we recognize the city as a networked system of interconnected artificial and natural elements, where each node reveals yet another system upon closer inspection, then it becomes useful to structure urban planning via the cooperation of various actors who attack the problem on a diversity of scales.

Nowadays, when we think about the city from a macro-scopic perspective, turning our concerns, for example, to the amount of cars traversing various routes every day or the time of the day to best activate street lighting systems, it seems peculiar to include micro-scale considerations, such as the cognitive processes involved in pedestrians crossing cross-walks or the emotive nature of sunsets amid the urban landscape. And yet, these cognitive-emotional connections between citizens and their city do occur and must be taken into account in the fostering of residents' sense of belonging and commitment towards the city and the development a healthy and functional civic culture.
The theory and methodologies of industrial or product designers can be very valuable in the consideration and planning of these experiences and relationships between people and cities, or inhabitants and their habitat. As seen throughout its history, this discipline studies via a wide range of perspectives the relationship between individuals and objects on a human, or ergonomic, scale. That is to say a scale where direct visual and/or tactile contact is established.

Many corporations have benefited from the understanding of design, and through its application, they have been able to produce such positive responses from the users of their products as empathy, trust and the perception of a satisfactory experience, despite the potential downside of such effects, including lingering brand expectations, etc. Thus, designers can play a central role in obtaining a positive attitude or relationship between users, products and the corporations that manufacture them. We can similarly examine the possibilities of urban design through this model, where the users are the citizens, the product is the city itself and the corporation is the city government.

The Urban Public Space

A public space is one which belongs to a society and which has been built by it. It is the consequence and representation of the history of achievements and failures of the urban policies and social participation to which it has culminated. Ideally, public space should be a platform in the reach of everyone, where speaker and audience have complete freedom and its omni-presence makes explicit the belonging of any and all passersby. "Urban aesthetics is the result of the collective effect of small individual changes…" (Friedman, 2004). It is therefore the result of collective expression and can be read as an indicator of the social, economic, political and cultural conditions of a community. (Fig 2.)

The city is the highest form of modern public space and represents the triumph of the capitalist economic model. A variety of distinct relationships emerge within the urban space. There are those that come about spontaneously as a result of day-to-day or random occurrences and others that are the result or response to embedded elements within the urban dynamic. All of these add to the possibilities of cities existing as fluid and fertile places for dialogue. Everyday encounters give urban spaces the potential to detonate social change and, at the same time, provide evidence of collective responsibility in the guarantee of harmonious coexistence.

Nevertheless, there are now tendencies that endanger these qualities of urban spaces. For example, closed shopping malls exist in part to somehow limit access to areas that are supposed to be public and so become semi-public. This is done in an effort by the owners of these gathering areas to have more control over the kind of individual allowed to gather there. Another is the imposition of foreign architectural designs by multinational corporations, such as seen with McDonald's or Office Depot. These designs were originally conceived from and for specific, non-local contexts, whose standardized aesthetics frequently disrupt local discourses. "Around the world, many of the architectural designs of buildings that represent (commercial international enterprises) are decided upon far away from the cities where they are built and are proliferating out of control, a situation that forces an alteration in the urban context and, in many of these cities, the loss of identity." (Cortés, 2004).

More than a decade ago, Manzini (Manzini, 1996) called on designers to develop projects that are respectful to the local ecology with regard to both the use of natural resources as raw materials and the psychological and ethical values put into circulation by the objects and signage (including advertisements) – defined by Ugo Valli as semiotic ecology. However, it takes but one day walking through Mexico City to see how much work

is left to do. This is evidenced not only by the proliferation of frivolous advertising but also, and more central to this paper, by the design of gathering spaces like parks, plazas, bus stations, public buildings, etc.

Objects have meaning and contribute to the creation of stories, values, communicative interactions and, therefore, behaviors. While public authorities maintain little influence over the products sold by the private sector – beyond the regulation of their production and use of public space in their sale, they do have power over and responsibility for the layout and design of the city. Due to the significance objects may hold and the previously mentioned properties of public spaces, government should be both concerned and excited about the educational potential of public spaces, as they can be of great value to the building of a civic or even national consciousness in the population.

Let us then consider the positive effects produced by public activities, like the exhibitions mounted on the main avenues of Mexico City, such as along Reforma Avenue, or the free concerts offered in the city's main plaza, or Zócalo. These peaceful, mass gatherings promote a respectful environment along with the creative and intellectual stimulation of the citizenry. Consider also smaller benefits like seating in public buildings or at subway stations (almost non-existent exist in Mexico City), installations capable of providing a cordial welcome for users. Let's think about the meaning and function of placing adequate garbage containers around the city, which help residents maintain the city's cleanliness as well as foster a sense of committed responsibility in the task. Conversely, consider such repressive examples as the Berlin Wall or other barriers that have resulted in the violation of the artifacts, which are seen as an impairment to freedom and mobility.

What does it mean then to design the public space of a city? If we take into account that the history of design as a professional activity has largely coincided with the global expansion of the capitalist system, it is no surprise the development of theory and practice of design has been defined mainly by its close relation with private enterprise. Nevertheless, it is clear that this knowledge is of great value for public issues like city planning, despite the fact that our governments, such as ours in Mexico City, have yet to fully capitalize on this potential.

Mexico City

In August 2003, three monuments (each around eight meters high) were installed on Miguel Ángel de Quevedo Avenue (Fig.3). This street is one of the oldest in the south of the city, and is inhabited almost from edge to edge by very old trees and younger bushes that are renovated constantly. In order to install these sculptures it was necessary to remove some of these trees and bushes, a fact that made many neighbors angry. They complained about not being asked when this decision made or before action was taken:

"Shortly after the opening of the walkway, Coyoacán residents gathered around 500 signatures of protest, demanding that the sculptures be removed in light of their effect on the urban environment, further complaining that several trees were thrown away in the construction of the monuments and the 80-m2-pedestrian platform that now surrounds them." (Bravo, 2007).

The monuments were never removed, and some consider their intrusion to be violent due to their size and the ways they were built. Our mistrust of authorities brings us to believe that the action was taken solely for the benefit the artists, who were in turn likely to be good friends with the government officials.

Similarly, citizens may also intervene in public space without waiting for an agreement with other neighbors. Some people place permanent furniture on the sidewalk in front of their houses to enjoy fresh air on free afternoons. These objects express the need to utilize open spaces within cities that is not satisfied in other ways. However, they can also become obstacles for pedestrians that have no other choice but walking onto the street instead, themselves in turn becoming dangerous obstacles for cars.

There are also those that deny, in sometimes highly aggressive ways, the use of the sidewalk in front of their house for parking to allow for the entering and exiting of private garages, under their assumption that they de facto own these public spaces and are only protecting themselves against invasions. Other problems occur with unregulated, informal commerce in the public way that do not regard public safety, hygiene, taxes or other social responsibilities in their activities. Normally, such commerce takes place on the streets affecting car transit, but in a better organized society, the city could open parks, plazas or other sites to merchants in a regulated manner (Fig. 4).

Key problems come into play here, including the lack of a civic culture based on mutual respect and responsibility, the lack of spaces to accommodate the massive number of cars and people, in addition to the misuse of existing spaces, etc. Nevertheless for this paper, we wanted to focus on the potential of designing public space as a strategy for constructing healthy relationships between authorities, citizens and public spaces.

Created in 2008, Mexico City now maintains a Public Space Authority. According to its charter agreement, this organization "…will have the function of participating in debates on public space matters … will participate in actions regarding the restoration of urban forests … will assist in the design and planning of public works and services … will participate in the planning of transportation and public transit projects … will assist in the promotion and development of tourism infrastructure and will promote the conservation of historical, archaeological and artistic resources located in public spaces of the city." (Cuenca, 2008)

This government initiative is the expression of a certain awareness for the need to incorporate prepared professionals into the city's planning teams. In this case, the job first went to Felipe Leal, an architect and the ex-director of the Architecture Department at the nation's largest university, UNAM. He is now the director of the Department of Urban and Housing Development, SEDUVI. His job is to carefully analyze and guide the actions that affect urban spaces. Even though you might say that it is too late for Mexico City, or that the city has grown too much to reverse any damage, it is important to consider that all the cities of the world will, in the future, not only be built, but remodeled, using the

ever-growing body of knowledge on adequate city planning and the role citizens play in it.

Unfortunately, yet another public works project in Mexico City seems to be underway with little or no account taken for the voice of the public. A west-side, city beltway project, running out to the cities Cuernavaca and Queretaro will affect a huge swath of forests that are supposedly under national environmental protection. The amount of civilian representatives allowed to participate in decision-making committees with this type public work is so small as to have any significant effect on the process, allowing politicians to have unchecked power while claiming they are preserving democracy.

It is clear that, in the case of Mexico City, government processes are too separated from citizens; and progress, as a process in which problems are solved without creating new ones, is not continuous since agendas change almost each new administration election. Therefore, it is crucial that we learn to work in more independent ways and closer to the communities who will "live" our designs, to find a way of building spaces that will help building communities who care about those spaces and so maintain them in good shape. Design has the power of creating strong and healthy attachments between users and their artificial environment by creating adequate solutions to pragmatic and emotional needs, and it is time for people in Mexico City to feel that they own their spaces and maybe that government can not and should not always be an intermediary in this bond. Just as designers have found industrial ways like the do-it-your-self product kits for users to participate in building their artifacts, they can help citizens build their cities. Participatory design is a methodology that is still finding ways to be efficient, but that has proven to be an important factor for users to bond with products since they are involve not only in constructing but also in the very fist stages of the design process.

Participatory Design

Participatory design, as a formal and methodic process, has its origins in the socialist systems of Scandinavian countries during the 1970s, amid an intensive technology buildup inside local industries. People were looking for ways to integrate the needs of workers into the handling of enterprises and in the direction of technology development. Participatory design was later used in England to develop computerized systems that would also be useful to society in a way that allowed non-specialists to assist in the process of socializing said technology.

In regards to processes of design that involve the user, Henry Sanoff (1988) recognized three key mutual benefits that emerge from adopting putting certain substantial conditions into practice – e.g. using methods that allow adequate communication between non-specialist users and specialist users in a way that allows specialist to use their knowledge design terms to help the former express more precisely their needs, or accomplishing effective actions that genuinely reflect a redistribution of power in decision making and a democratic process. These three main mutual benefits obtained include:

-a greater consideration of social needs and a more effective use of resources available in a given community;

-an increased feeling of empowerment in users, as well as a better understanding of the consequences (and I would add the potential benefits) of decision making;

-a more relevant and up-to-date source of information for the designer.

The first statement is related to an information exchange between actors that allows for establishing specific and realistic goals. Governments can increase their awareness not only of the social demands, but also of human resources (and possibly of other types of resources too) that can be useful in the construction of better cities. There are many examples in European and American cities of participatory design of green spaces, where users become not only designers but also volunteers that donate their work for building and maintaining the communal property.

In the second point, the author mentions the key potential of participatory design to fight non-citizenship. On one hand, the user-citizen's satisfaction is increased when he feels that he has contributed and that his opinion counts, and on the other, comprehension and tolerance of mistakes can bring about an empathic relation between citizens and their city. Let's remember what our parents were always telling us: "You will never learn the value of money, until you know how hard it is to earn."

The third point is currently related to a specific research methodology known as Participatory Action-Research, combining Action-Research (conceived of in the 40s) and the principles of participatory design. This research is primarily focuses on stimulating social change by fostering critical thinking, empowerment and participation of social groups where the research is taking place (Seymour-Rolls & Hughes, 1995).

It has long been demonstrated in politics how citizen participation brings about mutual benefits. In the first place, it means closer communication between administration and population, where each side gets to better know the needs and problems facing the other. As a second benefit, government generates greater trust in citizens, diminishing potential hostilities towards it, while citizen attain greater opportunity in the making of proposals and convincing governments to implement policies that benefit them. This process, in turn, makes it easier for politicians to legitimize their policies and for citizens to be more active (Irvin, 2010).

As we mentioned before, we should add to these benefits the fact that participatory design with public, urban space can also mean greater availability of a voluntary labor force. Neighbors interested in building and maintaining facilities within the city could then not only participate in making decisions about them, but also take responsibility for the products resulting from the design process.

In Mexico City there have already been experiences of participatory design in public and semi-public projects like parks and state-funded housing. Nevertheless, there is a constant political dynamic set in opposition to healthy participatory design that stems from several decades where political agendas and actors constantly rotated in and out of power with no continuity for longer term projects. This has become a huge obstacle in

light of the fact that governments are obliged to carry out legal proceedings and allot monetary support for the production of projects that, sadly, never make it beyond the conceptual stage. This fact can have an exponentially deleterious effect on the participatory process resulting in the loss of key benefits, like empowerment, empathy and trust.

Conclusion

Just as places can deteriorate and turn into non-places, citizens con lose their identity and ability to relate with the other, by which we mean places, institutions or other individuals. Through this process, they then lose presence and become non-citizens.

The educational potential of public spaces should make them a priority in cities like ours, where a low level of education is a determining factor in the failure and malfunction of a wide range of social systems and in the individual's inability to achieve personal goals.

Design as a discipline that has studied the relationship between people and their artificial environment is a crucial element that should help in building cities and citizenship, offering to the public universe the benefits that in the past it has proven to bring to industry and other private enterprises. Methodologies as participatory design can also offer ways for communities to solve their own issues in a more independent way regarding to governments. In the case of Mexico City, it is very important to foster the continuity of initiatives from administration to administration to ensure that the design research and planning carries through to satisfactory stages of implementation. Public participation also results in greater responsibility on the part of all actors in the process by raising the stakes both authorities and the public have on the final outcome.

Implementation of politics for participatory design of public spaces can benefit the relationship between inhabitants and their habitat in several ways, as well as improve the habitat itself and the individual's quality of life. Nevertheless, for this process to succeed, it is important to devise and detail a specific procedure that addresses each particular problem's characteristics in its discourses, methods and goals.

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Figure

Fig. 1: A non-place that is supposed to be a park

Fig. 2: An individual's attempt to defend his property from vandalism.

Fig. 3: Public sculptures that were placed withour the consent from neighbours.

Fig. 4: A car blocking the pedestrian sidewalk.

Ron L Gross
The Urban Hero as the Agent of Change / Towards the Future of our cities

Image 01: The Shifting of perspective in the architect's engagement (source: book + authors composite)

Abstract

In the process of teaching a course focused in the past & future of Urban Housing, discussions with students about the future of the City and its inhabitants has lead us to begin working with Urban Heroes. Like the Urban Flaneur for Walter Benjamin or the Urban Monad for Gilles Deleuze, the Urban Hero, as we called them, act as Agents of information, Agent to the city within a city, as Agents to alternative networks used in the city, and ultimately to the alternative Urban Life. (Benjamin, 1997)

This process of design was devised in an Urban design studio project which will be elaborated in this paper: 'Affordable housing for low income residence [temporary in this case], is one of the Studio projects. The agents of change in this project are the foreign migrant workforce living and working in Tel Aviv, envisioned as the community of agents. The "community" maintains an informal structure to its social organizations. When confronting the topic one is admitted into a closed society, in constant fear of deportation.

Consequently, the question arises as to 'How does the city produce the infrastructure as a positive outcome of a bottom up, fragile, community based process of design?' How can it enable a source of public life - Civitas, freedom of access and choice and provide a source or platform/stage for negotiating an added stratum of public life [Deleuze, 2001] as a first step toward multi-cultural integration and the normative practices of everyday lives. Negotiating difference and allowing plural inhabitations of our future transforming city and a unique form of affordable housing for low income residents were the ultimate goals of this process

driven investigation.

Through the exploration of a uniquely situated design studio this paper intends to demonstrate a precondition of sustainability in social innovation and the power of process in inverting conventional teaching relations to afford a unique re-reading of the city yet to come.

Keywords

This paper is the result of teaching architecture in a divided city, between groups of people living within networks that often are not formally, politically, geographically and economically accepted by others. This condition might explain how life is made possible within our growing complex cities? For us living and working in these urban settings, we might already be living in cities within cities? This is an idea I would like to propose as a hypothesis regarding the future structure of cities today.

Image 02: The Urban Hero, re-reading the city (source: film + authors composite)

Introduction: The Public Housing Estates of 1950's towards the privilege of self expression.

The course opens with a study of social housing, built in the early 1950's known as public housing. Following an increasing shortage of housing a reform movement emerged in an attempt to address the idea of constructing a new society based on equality found in the ideas of Garden City neighbourhoods. Ultimately it led to an accurate method of cost efficiency that bred, in thousands, the mass housing projects. The concomitant creation of standardized accommodation set an early major

criticism that set in quickly, almost simultaneously "…these were in fact merely settlements and not cities, reflecting a loss of urban qualities and effectively creating social wastelands" [Wolfrum & Nerdinser, 2008].

The resultant anonymity produced within the social housing estates, brought out a new relation between the private and public domain, it is within this realm that we begun our design studio inquiry. In a paper "National Home / Personal Home: The Role of Public Housing in the Shaping of Space" Profs. Hubert Law–Yone and R. Kalush analyse the major effort that involved the housing of the new Israeli immigrant; "These housing estates were part of a national effort to forget the immigrants old home and take part in the making of their new home, a new beginning." According to Law-Yone, this impressive achievement was not only in order to construct a new world but the establishment of a new society. [Kallush, 2000]

In this process Public Housing Estates served as an effective utilitarian construct. Within its repetitive form it soon took over, by repeating the white blocks and local landscape by overwriting the pre-existent and presenting a new landscape order. With a clear objective to be cost effective, one other primary objective was to create a healthy environment wherein every resident\citizen has free access to sunlight, fresh air and an open horizon, this 'housing machine' had two other objectives; establishing a new identity for the new immigrant and the foundation of a national identity. "…The Public Housing Estate fills the purpose of a physical and spatial shelter but also limits and controls free expression, personal and cultural." (Law-Yone, 2000). Herein lies the seeds of social unrest.

Observing these public housing estates today, a question arises as to their economic and social relevance. Are these viable residential solutions sensitive to contemporary urban needs today? This environment not only represents a 'top-down' planning process, but it is rather a struggle between power and control of the State over the forces of local social resistance that ultimately constructed the identity of this environment.

The next phase of this process was to question whether forces of social résistance contribute to a 'bottom-up' design, establishing an 'interactive method' providing a basis for situated counteraction and ultimately the development of an alternative design strategy?

In his paper titled "Theoretical notes on 'Gray Cities'…" Oren Yiftachel suggests that "…Gray spaces contain a multitude of groups, bodies, housing, lands, economies and discourses, laying literally 'in the shadow' of the formal, planned city, polity and economy. They exist partially outside the gaze of the state authorities and city plans." [Yiftachel, 2009]

Image 03: The Urban Hero as the Agent of change (source: Chagai + authors composite)

"… A city is an unstable system, a living system which is in a state of continual decomposition, but which also continually reorganizes and rearranges itself, which expands and shrinks. One o f the actors or "agents" in the process of self – organization is the urban population …"   Arjen Mulder on TransUrbanisim [2007]

In the next stage of research for this study we applied to finding an "agent " that could expose the cities 'other city' as an aid to assist us in mapping an alternative network which he [alone] is familiar with; this is one of the reasons we chose to call the agent our 'Urban Hero'. Following 'new paths' in the city we soon understood how revolutionary this individual is in the role we gave him, not following the accepted norms and codes of our city. but by his alternative means of livelihood and a citizens self-expression, we were off to find out which city would that be?

Once an intimacy was reached with our Hero, together we shifted by relocating his life into a different city through the design of his first home in the 'New City'. This entailed the 'design of a new world' [Shapiro, 2006] and called for an alternative structure. A new community dwelling within an existing social structure allowed our students to be exposed to the full scope of design from bottom up. The shifting of the architects gaze allowed us to question many often untouched and sometimes prejudice & tabooed issues. In my opinion these needed addressing in the young architects process to admit the freedom of a new alternative enabling urban structure.

To assist in getting beyond our familiar preconceptions working bottom up opened space to establish new tools and measures. Identity is now addressed through interactive movement between these players, as opposed to through a normative process of formal social boundaries. This manner of working enables design to embody multiple cities, multi cultures, beyond the prevalent monocultures that often persist; "Let's forget the things and only pay attention to the relations between them" Georges Braque.

In attempting to address the potentials that lay in a process oriented investigation directed at the well being of urban residents sustainable social innovation underpins process. The readings of social structures laid in the 1950's have revealed some potentials concerning the future of our cities or the cities within our cities.

Image 04: The Urban Hero, building Identity and the places of worship (source: Chagai + authors composite)

The agents of change in this project are the foreign migrant workforce living and working in Tel Aviv, envisioned as the community of Agents. This "community" maintains an informal structure to its social organizations. When confronting the topic by engaging the community one is admitted into a closed society living in constant fear of deportation. Consequently, the question arises as to 'How does the city produce the infrastructure as a

positive outcome of a bottom up process of design?' How can it enable a source of public life Civitas, freedom of access and choice and a source or platform/stage for negotiating public life. Negotiating difference and allowing multicultural inhabitations of our future city and a unique form of affordable housing for low income residence formulated the ultimate goal of this process driven investigation.

'From Rag Town to Affordable Housing' a project by Yoav Elad & Amos Danilovich.

The project began with an early question; how does an informal urban condition become the foundation that supports the evolving self identity of a community of foreign migrant works and can architecture be part of an alternative support network?

In the neighbourhood of Neve Shanan, mapping of the pre-existing condition and the life of the Urban Hero, identified two parallel social networks. The one being the formal institutional arrangements, accomplished early on by a normative top down city town plan in the 1930's. This had established a formal infrastructure with a road system and property sub divisions, allowing its buildings and their formal address to the gardens and streets.

The second is the informal system, created by the neighbourhood citizens most of them constituting the foreign migrant workforce. This informal system is built upon the formal system in response to a community's emerging needs in places where planning officials had not succeeded in responding, or by policy that did not respect or accept other needs. "Gray spaces contain a multitude of groups . . . They exist partially outside the gaze of the state . . . " [Yiftachel, 2009]

The new communities informally changed the backyards of the urban blocks to establish their own socio-physical support network. The Nimby (Not In My Back Yard) syndrome that is common in other parts of the city does not happen here. In this case, it seems, Neve Shanan is the city's backyard and therefore the unusual, within a neighbourhood of unusual's, becomes normative!

The local communities of Neve Shanan have developed specific social codes that allow a unique relation diffusing the boundary of public to private, from the hidden to the exposed. For many, the urban condition of the backyard holds a negative connotation, however here, in the informal it is the inverse and establishes a positive nature. The backyard, like the deep interiors of the apartment and the most hidden spaces, serve this community as a focal centre. Public programs adjust to the changing needs so the necessary exposure of the community's institutions, those which help build their identity, clash with a reality that forces these individuals to socialize in private, and even in some cases, by hiding, to avoid deportation.

The project by Elad and Danilovitch proposes a basic residential environment 'inside' the existing built neighbourhood. Perpetuating the informal network that has 'naturally' evolved by realizing the backyard as their focal centre. A new and open network will allow for ongoing adjustment, expanding and contracting to the changing needs of this community.

Image 05: The Urban formal structure – how can cities live within cities? (source: Chagai + authors composite)

The focus of this project, once the migrant network is mapped, is to create the primary structure of a flexible 'urban block'. This system will create affordable housing alongside community institutions and basic commercial space. This proposed building block will have two primary elevations; the one on the existing neighbourhood formal side, and the other, the new urban informal elevation, to the backyard. This elevation inverts the traditional social housing 'front/back scenario and permits fluctuations of use when the cycle of a week ends at its weekend peak and sees the city come to life, of this 'new city'.

The proposed system will allow flexibility and low cost basic investment by a private developer. The system has three major components; the existing buildings, the new utility core and the structure of the new housing units and community spaces in-between; together forming one composite system.

The agency (the act of forming public inst.) of public Civitas brings the informal condition of migrant's constant state of nomadisim, to congregate and form the institution; the International Library, the Church, etc.

This need of collective Identity converges with education, only to try and assimilate within an exsisting infrastructure, network between 'the cities'.

When the plane of the city and its of commercial and market networks are open to acomidate the vertical condition of institution (i.e. the church) a new and basic formal structure is introduced in to the city, a netwok binding the other participating individuals to inhabit a city with a shared sense of identity.
This unique 'bi polar' state begins where the private and public meet, within the residential unit, the institution starts where the informal needs a formal gathering; in this case an alternative Civitas.

Conclusion: The future City and its enabling structure; Cities within Cities
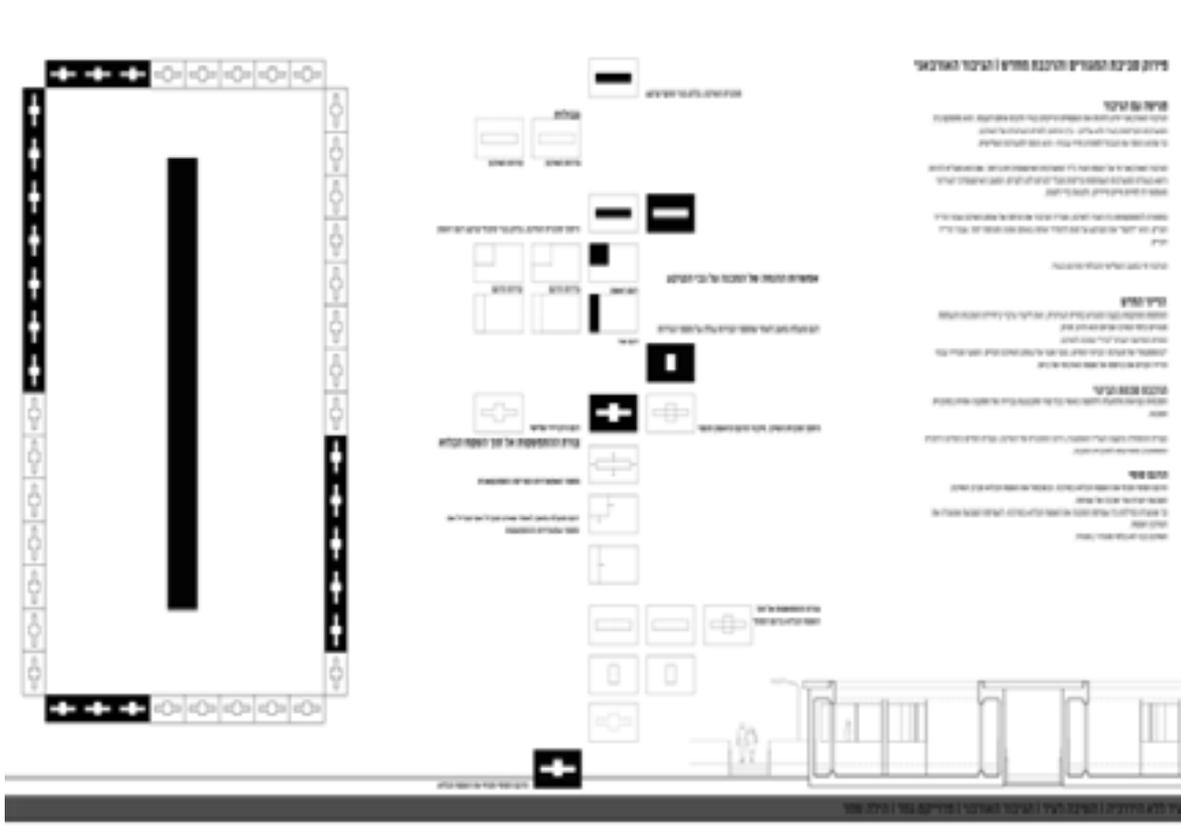
Hila Shemer

A meeting with my urban hero

"…My hero knows how to detect the public open space networks in the city and make use of them. I located his Apt. within and between the urban public infrastructure, between the passive elevation of the public housing block and Main Street. It is in this way that he creates a physical solution for himself, within the 'edge' establishing the 'third condition'.

The urban hero lives on the datum plane of the city by the busy commercial routes. Here, in these places he finds his space and natural support system. The busy urban routes have the benefits of immediate approach and retreat.

In return for living within the ground of the tenant building he defines a new gateway and better depth of field\identity of his new neighbours.

Living in the 'third plane' allows my 'homeless hero' to be unseen.

When admitting this 'third condition' to the urban neighbourhood of Bat yam, anew continuity of movement and identity of spaces is established. Between the public open space networks and the private house a balance is reached where one contributes to the other..."

The results were surprising; the process began with the mapping of the Hero's city and followed by relocating his life in a different 'city'. The design of his first home in the "new city" called for an alternative structure; a new community within an existing social structure forced our students to be exposed to and interact with a new world by designing for urban life from 'bottom up'.

Through the exploration of an interactive process this paper has attempted to convey unique dimensions of the design studio. It has demonstrated that a precondition to sustainability in social innovation lays in working with community and confirmed the power of process in inverting conventional teaching relations to afford a unique re-reading of the city yet to come.

The Home within the city is the basic unit negotiating the boundaries between the public realm with its formal orders and its relations to the private. Each of our project theses,
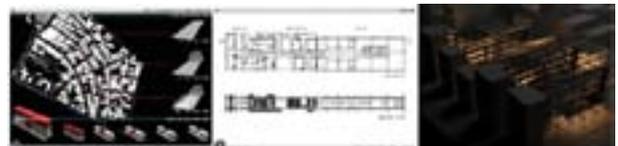
Opens the city to unique sub-cultures and marginalized societies. This permitted, in each case, a counter process of maintaining freedom of self expression; in the shape of unique urban identity and a potential new urban affordable housing. In a major shift in the power relations between private and public initiative, the initiative of the private becomes the enabling mechanism.

"…You cannot design a city, but you can help a city organize itself as a living structure – not by breaking down all barriers to the streams of information and commodities, but by allowing specific obstacles, channels…to be designed for individual streams, and thus be informed by the city"   Arjen Mulder on TransUrbanisim [2007]
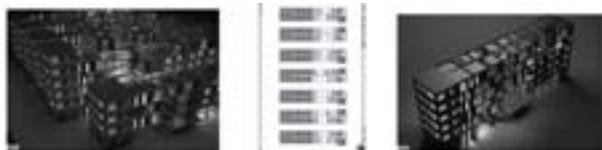
Image 07: The Urban informal public realm becomes the formal 'infrastructure', for cities that live within cities?   (source: authors composite)

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Design for togetherness

Virginia Tassinari   Nik Baerten

Abstract

The study of community life has long been an area dominated by fields such as sociology and urban planning. Increasingly however also the field of design steps in to actively uncover latent needs and potential within communities in order to jointly develop solutions and plant seeds of positive change. When assessing today's neighbourhoods' challenges, a crucial ingredient for resilience appears to be a positive sense of togetherness. Socio-cultural megatrends such as the individualization of Western society and the loss of social cohesion are frequently mentioned as threats to this sense of togetherness and consequently to healthy community life. Furthermore, both community members as well local authorities are rediscovering the benefits of resilient communities built around a positive sense of togetherness in contrast to those delegating responsibilities and problem solving strength to third parties. During a 3 month case study, product design and communication & multimedia design students from the KHLIM Media & Design Academy in Genk, Belgium, went out into the surrounding former mining neighbourhoods. Their core challenge: How can we - designers and community together - stimulate togetherness through design?

Introduction

Among the major challenges that today's neighbourhoods are facing is the stimulation of an active sense of togetherness. It is known to be a crucial factor in healthy, community life . Across the board, citizens and city councils are rediscovering the benefits of resilient communities built around such a positive sense of togetherness.

The study of community life has long been an area dominated by fields such as sociology and urban planning. Increasingly however also the field of design is stepping in to uncover latent needs and potential within communities, to develop solutions collaboratively and to plant seeds of positive change. As such, not only is design focussing on new challenges, e.g. social innovation, also the role of designers and hence their required set of skills and experiences are changing in order to be successful in these domains.

It is in response to these challenges that "Design for togetherness" - an ongoing project at the Media & Design Academie (MDA) of Genk, Belgium - was initiated by the authors of this paper earlier this year. We will address the first edition of the project, the approach taken as well as first results obtained and lessons learnt. Yet before zooming in on the project itself, it is important to understand the context in which it was set.

Context & challenges

MDA is located at the heart of the former mining site of Winterslag in Genk, Belgium, which is now being reshaped and rebranded as C-mine, a hotbed for culture and the creative economy, design and innovation.

Aside from landmark industrial architecture referring to its mine-related past, also the social fabric of the area bears testimony to a colourful history. With kids playing on the streets and elderly chatting in front of their houses, the former mining neighbourhood or cité as it is called, clearly has a Mediterranean feel to it. This comes as no surprise, since, as of the end of WW I until well into the seventies, various waves of immigrants have populated the area. People from Italy, Poland, Turkey, Greece, Morocco, Spain, Ukraine, etc. came to work in the mines and found a new home in the neighbourhoods constructed around the mining facilities. Different cultures grew up together, on the same streets, learned each other's customs, which throughout the years led to an original and tasteful cultural blend. Recipes ranging from couscous & pasta to souvlaki were exchanged. Inhabitants celebrate religious feasts in their neighbourhoods and share all kinds of dishes carefully prepared for the occasion; the local Flemish dialect has come to incorporate a wealth of words and expressions from the native languages of the

immigrant population, etc.

The closing of the mines (last closure in the late eighties) sent shockwaves through the local communities. At first, as in many former mining areas across Europe, an atmosphere of disappointment, anger, fear and sorrow because of massive job loss but also because of uncertainty about the future took hold of the people left behind. Gradually the social fabric of the former mining communities changed. The shared experience of working together in the mine – a hard and often dangerous activity - which created a strong bond between people, who after all entrusted each other with their lives, disappeared from everyday life. Daily contact between former workmates became ever more scarce. A whole generation of people was retired early, others had to seek new sources of income elsewhere, often in nearby towns. At the same time, individualism increased within the surrounding society. One can easily see how these developments affected the once so tightly woven social fabric.

As time passes, new generations of people grow up or come to live in the neighbourhood, for whom the shared experience of the mine is no longer a personal one, but rather one of hear-say. The balancing act of preserving what is left of the mining past and caring for the future of new generations is a day-to-day challenge for both the communities and the local authorities. The generational disconnect between the two challenges puts even more pressure on the sense of togetherness within the neighbourhoods.

Furthermore – as in many villages and towns – most of the small neighbourhood shops and workshops have succumbed to the battle with supermarkets on the outskirts of town, sucking trade and economic activity further out of the neighbourhood centres. As such, also in this community, local entrepreneurship is falling or stalling, hence having a negative impact on the vitality of the community. Re-activating such activity, bottom-up is a clear challenge for the future.

Visually speaking, the towers of the mine still dominate the skyline and seem to watch over the streets and houses of the surrounding neighbourhoods. Not only did the mine provide a sense of shared social identity, as an organization it was also materially responsible for its "community within the community". It took care of the social safety and wellbeing of its people. It built houses and set up schools and healthcare facilities. Its offices were the single point of reference and service to many people. The mine was a sort of subsidiary authority to which people would turn in order to solve their problems. While this instilled a feeling of safety amongst people, according to some it also nurtured dependence.

Nowadays, it is a broader trend in many Western European local communities: the better a city takes care of its citizens, fulfils their needs and solves problems for them, the more the citizen becomes citizen-customer. People turn to local authorities when they encounter even the simplest of problems, most of which could easily be solved within their communities.

Although the enhancement of a community's capacity for bottom-up, participatory problem solving is a general contemporary challenge, the cités are a particularly interesting working context. With the tightly woven social fabric of the not

so distant past still very much present in the minds and hearts of many and with a shared set of challenges ahead, there is fertile ground on which to build.

When it comes to togetherness, the local authorities also recognize the important role of the many cultural and sports-related associations in the area. They are a strong binding element in the social fabric. However, the city council also understands the fragility of these entities and the challenges they face. Once lively and with a large member base, quite a few are now challenged by a balancing act between the ageing of their core member committees and the shifting needs and interests of the younger generation. As with the mine itself, pictures and trophies decorating the walls of the clubs are often a reference to the past, proudly yet melancholically staring one in the eye. Signs of nostalgia to some, mere historical references to others, they are omnipresent in many ways. Old mining equipment populates the territory as totems to the past, solitary pieces of urban art. The bright past is also visible in nostalgic musical congregations such as for instance in the miners' choir and the Alpini choir (cf. Italian community). Dressed in traditional ways and because of their "folkloristic" character, they are welcome guests at many local happenings. But when too much becomes folklore, what remains of today? To what extent can the local community resist a shift towards becoming as artificial an entity as the glass snow globes in a tourist shop? How can the dynamics of the glorious past be meaningful in the present and help build towards a bright future?

The assignment: design for togetherness

The city of Genk continues to work hard to help and stimulate the cités with a varied range of initiatives. They were early adopters when it comes to the introduction of neighbourhood managers as go-betweens between the local communities and the city. Also, among other initiatives, they support a series of artistic projects, devised to bring youngsters hanging around the streets back into the fold. With so many efforts ongoing and new ones continuously under way, what can design do? How can it support and positively affect everyday life in the cités? While there are many traditional design challenges, ranging from new systems for waste collection to the redesign of local playgrounds, there are also challenges that run deeper than the bricks and mortar.

Of all the changes that the cités went through and are going through, one underlying challenge clearly stands out, i.e. re-awakening, stimulating and enhancing togetherness within the local communities. Design can and should work on interventions that reinvigorate the bonds between people, that help to spot 'rooms for improvement' in people's neighbourhoods, support them to devise their own solutions, to realize their value as a community. While much can be done from the top, such change clearly also calls for a co-creative and bottom-up approach, which embraces rather than replaces.

It is from such a people-centred spirit of design rooted in context and participatory in nature as well as from a strong belief in its transformative power that "Design for togetherness"

grew. During a first case study , we sent our students out into the surrounding cités. Their core challenge: How can we, as designers, stimulate togetherness through design interventions with and within the community?

An open yet structured approach

In preparation of the project, we made an appointment with the responsible for neighbourhood development, who kindly took us on an insightful guided tour through the cités in the vicinity of the academy. He explained their history and pointed towards some of the practical challenges neighbourhood managers as well as the city were currently facing or were likely to face in the future. At the same time also the many positive features of life in the cités became apparent. Positive dynamics already present within the communities served as seeds for solutions on which we decided to build.

Before sending them out on a field trip, the students - a multidisciplinary class of 2nd year product design and communication & multimedia design students - were asked to brainstorm about what togetherness meant for them. What were elements that brought people together in the past? How did togetherness in society change over time? What were the factors that played a role in driving that change? Not only the past was to be addressed however, also the future. In order to stimulate a systemic understanding of the topic and its dynamics, a low threshold foresight technique called a future wheel was used to explore causal relationships between possible future developments and togetherness.

After laying out a common ground of understanding of the notion of togetherness, students were sent out on a first field trip through the cités in the vicinity of the academy. They were asked to document their walk in a visual journal, by taking pictures, recording video or sketching. Experiencing the places and talking to the people first hand, immediately helped to set some prejudices about the area aside and inspired students in terms of possible focal points for their design efforts. Some felt that the green environment and the gardens could offer an interesting point of departure from which to build towards togetherness. To others it were the cultural associations already present in the neighbourhood that looked promising, or the stories they heard from people on the streets, etc.

In order to provide a means to document the process and keep ideas flowing in-between meetings, we asked students to keep a personal sketch- and scrapbook. In it, they could write, draw or paste their own ideas, but also inspiring articles or images they found elsewhere, research results, etc. Aside from being a means of documentation, the booklets would also offer a way to discuss their work with others, including their peers, something for which we reserved ample time at the start of each session.

Subsequently, the students were challenged to come up with a first series of design propositions. By means of inspiration, a series of projects in the area of design for social innovation ranging from urban farming initiatives to citizen journalism was presented to them. The typology of projects presented, turned out to be new yet inspiring to most students. They were asked to do some further background research on the topic of togetherness and social innovation and present a set of projects that resonated with them or their own angle from which they wanted to tackle design for togetherness.

Feedback and suggestions from ourselves as coaches as well as their peers led to a first tuning of their ideas. In order to further facilitate the shift from inspiration to ideation, the students were sent out into the former mining communities once again. This time they were instructed to employ a few design research methods that would help to inspire and inform their designs further. They were asked to combine two typologies of design research methods, i.e. observation and asking questions. Methods ranging from simple "fly on the wall" observation, to "guided tours" by local inhabitants, simple "questionnaires" or more complex "cultural probes" were carried out by the students on their second trip into the cités. A selection of IDEO's Method Cards (IDEO, 2003) provided additional help to students in planning their design research where needed. While the exercise and its findings helped some to tune their existing ideas, it also motivated several students to leave their original idea behind and shift their approach.

If there is one element that sets design for social innovation or design for change in general apart, it is process. Even students with a strong initial focus on a product, e.g. new street furniture, had to realize that their role as a designer would (have to) go further than merely designing the furniture as such. To help them elaborate upon the process side of design, students were asked to sketch out the envisioned user experience in a simple storyboard. This allowed them to identify the various touchpoints in the 'service' that they would be providing to the community. Furthermore, they were challenged to take into account everything from the earliest phases of for example letting people know about a design intervention all the way to dealing with the recycling of waste. Aided by roleplay and/or persona-based techniques, questions such as "what happens before that? or after that? or between this and that step?", "how could I design it as part of my system?" helped to increase the level of detail. This exercise was metaphorically referred to as "peeling the onion" and helped to enrich ideas for products, services and experiences further. A selection of Experience Design Cards (Shedroff, 2009), provided additional support to students to critically question the user experience of their designs.

Last but not least, a one-day lo-fi prototyping workshop was organized to stimulate thinking with one's hands. Various objects and touchpoints core to the user experience were made tangible in balsa wood, paper, cardboard, textile, etc. The intention of the exercise was not to give mere three-dimensional form to some of the designs as a means of 'presentation', but most of all to enter into physical dialogue with one's ideas, to play out alternatives in front of one's eyes and in one's hands rather than in one's mind only .

As such the shift from inspiration to ideation was organized in an open, yet structured manner. Throughout the process, several iterations of coach and peer feedback, as well as inspiration, further background research and refinement took

place.

A peek at four design propositions

It is impossible to do justice to the breadth and wealth of material produced together with the students. The following is a short description of a selection of four design propositions that aim to tackle the challenge of designing for togetherness starting from different angles.
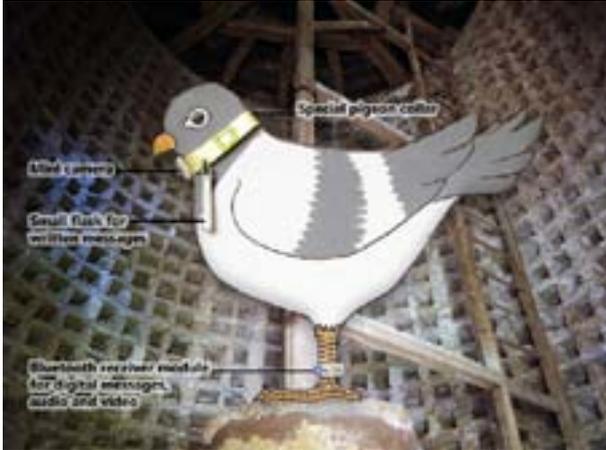
Cultural Couriers

Early on in the process, after engaging in conversation with several inhabitants of the cités, Vincent Olislagers was struck by the stories told by the people, especially those recounting bygone times or referring to their countries of origin. The mere act of listening represents a valuable moment of social interaction. Although elements of melancholy and nostalgia are clearly present, such stories also contribute to the formation of an integrated identity for second and third generation inhabitants of the cités. On one of his many trips into the neighbourhood, Vincent also became fascinated with a peculiar kind of national sport in Belgium, i.e. pigeon racing. To him, it symbolized in a kind of poetic way the thread between the inhabitant's current home, Belgium, and their countries of origin, between the sentiment of being at home and far from home at the same time. Combining these two elements, Vincent developed a system allowing families to borrow a pigeon and take it along with them on holiday as they visit their home country. There, either on a tiny scroll of paper or via a chip inside the pigeon's id-ring, people could send 'home' small stories or images about their trip. The pigeon would be released and fly back to Belgium, where others would await the stories to arrive. The pigeons would fly into a specially crafted exhibition space at the club, stories would be revealed and spark conversation amongst the people present. The stories would provide material for street conversations, gossip even and as such enhance the sense of togetherness and social identity. In a very spontaneous, yet also poetic way, the designer facilitates the natural process of telling and sharing stories, simultaneously breathing new life into the social fabric of an existing sports/cultural association.
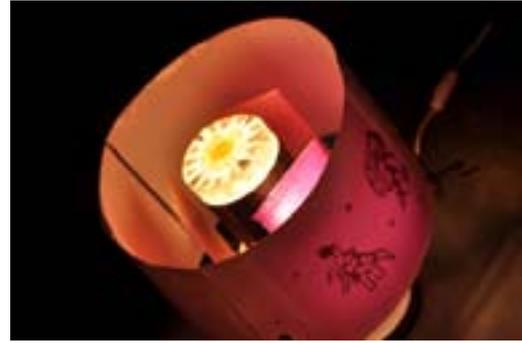
Continuity

Stories also played a central role in Chris Muller's project, who was interested in the way traditions were able to bring people together. Would it be possible to create new traditions for the future? How could they be created? Chris discovered stories, myths and legends were like seeds out of which traditions could grow. A second element that fascinated him was the way in which the physical environment would contain landmarks related to traditions and their underlying stories. In case of the mine, the towers for example were constantly within eyesight. In search for new points of reference, attention-grabbers for new stories and traditions, Chris sought inspiration in zeppelin culture, the Thai sky lanterns and the Balinese tradition of the shadow theatre. Inspired by these, he designed a lantern. It would be put in front of houses where people would gather to tell and listen to stories. The colour of the lantern would signal the nature or atmosphere of the story being told (e.g. adventure, romance, fantasy, etc.) and allow people to influence the atmosphere of the next session by changing the colour. The lantern would also feature a carrousel-like 'story calendar' of shadow puppets, each of which would portray one of the cultural entities present in the cité. The calendar would advance on its own, beyond the direct control of people, so that every culture would have its turn to stand in the 'lantern-light'. The stories would grow over time and the happening as such would become a sort of mythical event that would resonate through town. By providing room for new stories to be told, people would share time together, discover and understand each other and each other's cultural backgrounds in new ways. By appealing to all generations, including children, and by playing with the poetry of images, people would rediscover the joy of dreaming together. "Continuity" would enhance a sense of belonging to the place and set the social(izing) gears in motion.

Bikes4Genk

Driven by a search for more sustainable mobility and a willingness to narrow the generational gap in the cités, Alec Van Peel explored how bike rides could bring people together across generations. After all, biking offers plenty of opportunity for social encounter. But how could one get people out onto the streets, on their bikes and in touch with each other? Alec designed a system in which a fancy bicycle for young people would charge a swappable battery that could power a nice semi-electric bicycle for the elderly. As such the latter ones would no longer have to remain housebound because of a steep hill or fatigue. Chargers and consumers would both be able to get a top quality bicycle at a low price and be matched to each other. As soon as the battery of the elder person would run low, it would send a signal along with its location if necessary to the youngster, his/her 'energy buddy', who could come to swap batteries. Charging cycles would be monitored and allow young and old to gain credits to pay off the loan of the bicycle. By designing physical contact into the service, an opportunity for further social interaction between the generations is created and togetherness is enhanced. Young and old would help each other out and learn to enjoy each other's company.

Garden bridge

Widmer Berckmans was struck by the way in which a railroad separates two neighbourhoods and hinders social interaction between people. Merely facilitating the physical connection would not be enough to bring people together across their 'frontiers', so Widmer started to look for an element that would draw people together and have them share an in-between space and joint activity. As such, his design aims to create an area covering the existing road with community gardens and recreational space (e.g. a playground, a picnic park, etc.). The landscape would ramp up towards the covering area from both sides, enhancing a sense of continuity. People from both neighbourhoods would work side by side in the community gardens and receive credits in return. Produce would be sold through a local shop for credits or money, in order to involve also those not actively working in the gardens. Growing food in a sustainable way would offer plenty of opportunity for people to interact, to get to know each other and to enhance a sense of togetherness.

Other design ideas proposed by the students included a community barter centre, a matching service for skills and needs, a social waste management system, a creative sports challenge and much more.

Some conclusions & future plans

It was clear from day one that the topic resonated with the personal experiences of most students. The decline of social cohesion, its causes and consequences, challenges and opportunities were recognizable within their own neighbourhoods as well. To some students, the project clearly transcended the perception of 'a school assignment'.

While accessible as a topic as such, introducing "togetherness" as a design challenge however proved to be challenging to a far greater degree. Many initially struggled to move beyond a pure consumer product orientation, beyond top-down and outside-in solutions, to shift to a more process-based angle on design etc. Thorough and repeated inspiration by means of examples of projects that showed alternative ways, proved most valuable in this respect. Therefore, in a follow-up edition of the project even more time and attention will be devoted to analyze and compare challenges identified by the students, to projects elsewhere on the globe focussing on similar issues.

It is too early to judge the design propositions in terms of their envisioned impact on catalyzing togetherness in an enduring and sustainable way. The course as currently organized took place within a limited timeframe, which did not offer the necessary space nor budget to move beyond inspiration and ideation to implementation. It is our conviction however that short burst-sessions of co-design and co-validation would prove valuable in aiding the students to tune their ideas, to keep a closer eye on expected impact and to learn how to build capacity for their concepts amongst their envisioned user base. It is also likely to help them to overcome their sense of "inability to bring true change" much earlier on in the process. Moreover, from a didactic point of view it is worth to stress the importance of keeping the long-term perspective alive throughout the design process as much as possible.

Provided with only a theme, several students initially felt at loss, seemingly confronted with too big a challenge and too much freedom of how to go about it. They experienced difficulties to formulate their own brief and subsequently select and plan their research activities. Nevertheless, continuously presented with critical feedback, illustrative examples and a 'toolbox' of methods from which to choose, most students quickly found their way. Many even started combining and appropriating the generic methods to serve their own particular needs. While moments were reserved to present and share results of their research activities, clearly true methodological learning in this matter only comes from doing and from personal experimentation.

The shift from a product to a more process-based view on design – a common notion in service design for instance – and seeing design as a tool for social innovation was an eye-opener to the students in many ways. Most importantly perhaps

it adjusted their view of what it means to be a designer and to have impact through one's designs in unexpected ways. The experience also gave them a taste of the shifting role of designers towards facilitators of processes in a socially responsible way. They have come to realize that design is about more than the shape or functional value of objects and that it is – especially in cases like these – never a solitary act, but one of collaboration. They also learnt that in working with social challenges, it is key to restrain from over-designing, to work bottom up by embracing positive elements and built upon dynamics already present within communities, use them as springboards, platforms on which to elaborate and/or help others to do so.

This was a first, exploratory edition of a project which we plan to continue working on in the coming years. Although the course itself is finished for the students involved in this first edition, their design propositions will be further assessed, evaluated with the community and may serve as an inspiring starting point for next year's edition of "design for togetherness". In order to maximize room for the students to explore the topic of togetherness under as little constraints as possible, it was a deliberate choice in this first edition not to involve the local authorities as "clients" or "coaches" of an assignment. They did however help to inspire the project in many ways. The outcomes of this year's edition of "design for togetherness" will be presented to them for feedback and future collaboration.

Last but not least, in the spirit of togetherness, we look forward to share learning experiences from a didactic point of view as well as the design propositions as such, with others working on related themes within and beyond the context of design education.

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Virginia Cavalcanti

Application of the Triple Top Line Model in the critical analysis of a methodology that takes a social approach to design:

the university laboratory called The Imaginary,

Recife/ PE Brazil

Abstract

Sustainability is a concept related to several matters and as an isolated idea has no meaning. In seeking to head towards a sustainable society, traditional theories are guided by the triad of economics, sociology and the environment and formulate strategies that are to be applied to and/or evaluated against social actions. This format, however, generally encounters the obstacles of perspectives that are almost insurmountable, such as the dialectical complexity of the issue. Seeking solutions that will allow a dynamic overview of the interaction of the dimensions involved is fundamental for a systemic understanding of this scenario. Arising from this, this paper sets out to analyze the Triple Top Line model, proposed by McDonough and Braungart (2002), and to compare it with the action developed by the Laboratory called The Imaginary, by taking the community of potters from Cabo de Santo Agostinho as a case study. The methodological approach has a dialectical perspective, and also considers the dimensions of culture and prosperity as complementary to the dimensions originally proposed by the Triple Top Line model. The results show that, by conducting continuous critical evaluation, it is possible to make advances on the traditional concept of the static equilibrium of the economic, social and environmental dimensions by incorporating into the analytical model put forward by the Laboratory, new nuances and points of view so that opportunities for sustainability and social innovation may be systematically analyzed.

Keywords

Design, methodology, sustainability, social innovation

Introduction – The Production of Goods and the evolution of the concept of sustainability

The capitalist economy is defined by O'Connor (1989 p. 37) as "a set of processes for producing merchandise i.e. goods and services, which are produced in processes controlled directly by economic agents, using other merchandise as inputs, the exchange of which is regulated through an integrated price mechanism". It was this environment of a system of producing merchandise in which the profit for investors and the application of the monetary surplus for business growth led to forming the first vision for sustainability; in this case, focused on the company and on the ingenuous perspective of its survival which was said to be observed only through the process of the accumulation of wealth.

This deterministic view, focused on the economic return on investments, has a dual and reductionist focus in that it considers, at one extreme, natural resources as being absolutely inexhaustible or, at the other extreme, their scarcity as a barrier to the expansion of capital. Moreover, labor is considered abundant which makes it viable for there to be reserve armies of job seekers, thus making it possible to manipulate the mobility of labor and consequently to pay low salaries. The problems arising from this type of approach which has been shown to be suicidal and dehumanizing require that a new political and scientific paradigm for capitalism be defined and one which considers there should be a more complex vision as to business growth.

In the environment in which production chains formed by suppliers, collaborators and consumers it was shown that they could no longer guarantee the hoped for continuous and stable economic results. In addition there has been an observed increase in the competitive landscape in the universe in which companies find themselves; the seminal book Cannibals with Forks (Elkington, 2000) put the following question, metaphorically: "Is it progress if a cannibal uses a fork?"[1] To answer this strange but pertinent question, Elkington proposed drawing up a conceptual blueprint which visualizes the three-pronged fork as representing the three pillars of sustainability, which for him are: economic prosperity, environmental quality and social justice. In this view, the pillars are seen per se and by the interrelations among their peers. This is how the sustainable development approach has emerged, the basic proposition of which is economic efficiency associated with social and environmental effectiveness, a probabilistic formulation that takes the uncertainties involved in the process into account.

This new paradigm is compatible with Kuhn's vision[2] of a normative standard capable of taking into consideration the essence of today´s complex social phenomena, in response

to the crisis of science which had by then been established, and the theories of which no longer had answers for the new complexity. The new approach to development as a normative paradigm permeates many areas of knowledge and the study of their interrelationships.

Conceptually the Brundtland Report (1997) states that sustainable development is that which meets the needs of the present without compromising the possibilities for future generations to satisfy their own needs.

Development cannot be reduced to a simple quantitative growth; quite to the contrary, it requires the intervention and stresses the quality of human relationships with the natural environment, and the need to reconcile the evolution of socio-cultural values with the rejection of whatever process that leads to culture being de-characterized. On the other hand, it is sustainable because it must respond to intra-and intergenerational equity.[3]

The concept of sustainable development rests on the economic, social and environmental tripod and captures the phenomena from a three-dimensional and interdisciplinary point of view that forms a vision that is coherent with the complexity of the issue and goes beyond binary, dual, and deterministic functionalist analysis. This three-dimensional focus responds to the issues of minimum need and sufficiency so as to understand reality (MONTIBELLER, 2004). Sustainability is, therefore, a relational concept and as an isolated idea has no meaning.

Therefore this article sets out to analyze the Triple Top Line model, proposed by McDonough and Braungart (2002), and to compare it with the actions undertaken by the Laboratory called The Imaginary in the craftwork community of Cabo de Santo Agostinho.

Management of Design in the Universe of Sustainability

In the midst of the production of consumer goods and culture, design acts as a producer of past, present and future scenraios. It is an activity that mediates the relationship between manufacturers and consumers, industry and society, production and the environment; one that uses tools, techniques and models to configure innovative solutions capable of prompting a process of change in the behavior of these agents in favor of their being directed towards and seeking to develop activity centered on sustainability and its three pillars.

Kazazian (2005) reinforces the need for design to take a systemic approach given the current complexity in the production, consumption and disposal of goods. According to the author, it is no longer possible to speak today of a product in isolation; more is required and more is expected. In an attempt to make such a need emerge, authors such as Dias (2002) and Cortez and Ortigoza (2007) raise the responsibilities and conflicts on sustainable development by stressing what today they call the ecological footprint, i.e., "the ecological footprint of a country, of a city or of a person corresponds to the size of the productive areas of land and sea needed to generate products, goods and services that support their lifestyles "(WWF, 2010).

In this sense, the management of design, or the

management of the actions and activities of design by seeking the efficiency and effectiveness of the results, becomes a strong ally in constructing systemic findings, i.e., so that they encompass not only the artifact, but all the nuances which involve its conception, production, consumption, use and disposal, which is how Martins and Merino (2008) and Manzini and Vezzoli (2008) present these.

Manzini and Vezzoli (id., p.20-21) further stress that design, while an activity of conceiving artifacts from the standpoint of sustainability, can act on four fundamental levels of interference, which are:

•The redesign of the existing one – this deals with improving the consumption of matter and energy, besides facilitating the recycling of materials and reusing its components;

•Projects for new products and services that replace the current ones – these deal with individualizing those which offer the most environmentally friendly services in relation to the other ones;

•Projects for intrinsically products-services – these offer a new (more sustainable) way that seeks to obtain socially valued and radically pro-environment outcomes;

•The proposal for new scenarios that correspond to the sustainable lifestyle – this deals with undertaking activities at the cultural level that tend to promote new criteria for quality, and, prospectively, modify the very structure of the search for results. (Manzini and Vezzoli, 2008, p. 20-21)

The management of design, in this scenario, can contribute to a harmonious union of all the levels cited above and so as to achieve more consistent results.

The Triple Top Line Model

The contribution of Elkington (2000) called the triple bottom line an approach that allows a balance between the economic, social and environmental dimensions to be sought.

For applications in social enterprises (HART, 2005) proposes an approach anchored on the economic, environmental and social impacts represented in sub-triangles in which the measurable positive or negative results of the social interventions in each of the dimensions are recorded. Represented by the central triangle, the guideline for the development of the proposed actions is that the problems solved must be greater than the new problems caused by the social intervention.

With a view to supporting product development (McDONNOUGH and BRAUNGART, 2002a) propose The Triple Top Line Model which considers that the economic, ecological and equitable dimensions should be represented in fractal triangles[4] represented in sub-triangles as shown in Figure 1. The visual tool of the fractal traingles seeks to understand the dynamic interrelationships among the economic, ecological and equitable dimensions instead of only trying to find the balance between them. The representation in fractal triangles enables the generation of a logical sequence of questions with a view to acknowledging the impacts of a dimension and its repercussions on the other ones.

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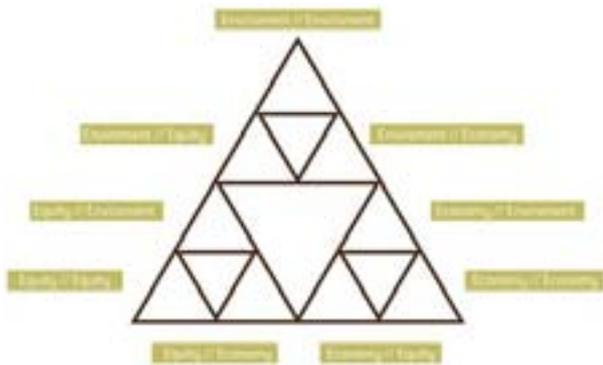
Figure 01 – Triple Top Line Model
Source: McDonough and Braungart (2002a)

The Adaptation of the Triple Top Line Model

Given that the proposed case study is a study by the Laboratory called The Imaginary on the intervention of design in craftwork communities, the scenario of action identified is the environment of social entrepreneurship and compiling definitions for this.

The first of these, cited by (OLIVEIRA, 2008), is that of the Schwab Foundation which speaks of the exchange between agents of society who aim to propose the creation of useful ideas to solve social problems by combining practices and knowledge of innovation, thus creating new procedures and services; the creation of partnerships and ways/means to make interventions self-sustainable; the transformation of communities thanks to strategic partnerships; using targeted approaches based on market needs to solve social problems; and finally, the identification of the combinations of risk and value with criteria and wisdom.

The second is defined by (MELO NETO and FROES, 2002) which states that when we talk about social entrepreneurship, we are seeking a new paradigm. The objective is no longer the business of business but rather it is about social business, which takes civil society as its main focus of activity while its strategy is in partnerships involving the community, government and the private sector.

The adaptation of the model, as shown in Figure 2, was based on the simplified format of the fractal triangles proposed by (McDonough and Braungart, 2002b) and the understanding that The Laboratory called the Imaginary works on the development of products, processes and procedures for communities in vulnerable situations and ones that lack support for sustainable development.

The concept of prosperity built into the model can be defined as the set of actions that promote and benefit the members and community associations in a sustainable way and that focus on social intervention in actions that favor autonomy with responsible freedom. (SEN, 1999).

As to the concept of culture, we start from the understanding

that the culture of a people communicates its identity, values and customs to the world, and affirms its existence. Craftwork is a cultural pillar, with products manufactured by craftworkers, especially by hand. In a dynamic and technological world, giving value to the tradition of craftsmanship meets barriers as to the competitiveness of products produced at low cost and commercialized with a good profit margin. It is increasingly difficult to maintain the production of craftwork and the existence of craftworkers, who are socially engaged and who can market their products continuously.
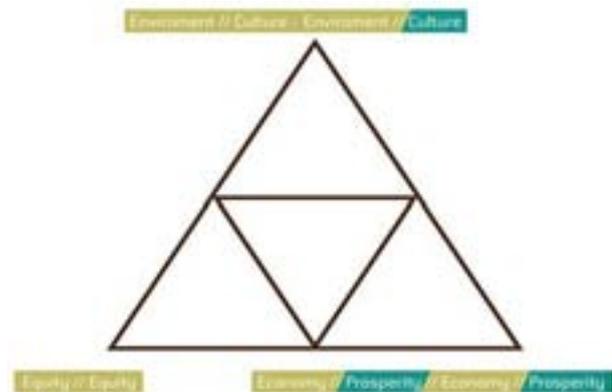
Figure 02 – Triple Top Line Model adapted
Source: McDonough and Braungart (2002b) adapted by the authors

In the case of interventions with social objectives, the perspective of time with regard to the medium and long-term and to the spatial dimension is essentially that of community which may come to be the territory in some very specific cases.

The challenge to be faced up to is a view that is increasingly humanized which seeks to reach, even in the context of capitalism, which seems to be in crisis in recent times, a new pattern of development that according to (SEN, 1999) is essentially a process of expanding the real freedoms that people enjoy.

The actions of the Laboratory called the Imaginary

The Imaginary, a research and extra-mural Laboratory of the Federal University of Pernambuco, is made up of professionals, teachers and students from different areas of knowledge with a focus on design as an instrument in the service of environmental, economic and social sustainability. The activities of the laboratory cover both industrial and craftwork production, the latter being the focus of interest of the article. The laboratory aims to establish craftwork activity firmly in Pernambuco as a sustainable livelihood, through interventions that respect the cultural values of the communities that produce handicrafts.

A multidisciplinary approach has been used in communities which range from the coast to the semi-arid interior of Pernambuco, with different profiles and several stages of organization and social mobilization. The focus of the intervention model is the craftwork community and its product,

and starting from the construction of the collective project, the actions are structured with the support of five anchors.

Management

This fosters the coordination, training and strengthening of groups, by encouraging them to construct collective agreements and to seek autonomy. The action favors the recognition and training of leaders, awakens self-esteem and raises the awareness of men and women craftworkers as to the value of their work.

Production

Based on the modes of production and on respecting the rhythm of life in communities, the Imaginary seeks to optimize production processes, improve working conditions and encourage the sustainable use of natural resources. The introduction of new technologies and tools ensures the quality of craftsmanship and adds value to the product.

Design

Each piece is developed by being based on giving value to local knowledge, recognizing traditions, skills and the use of materials. As a result, designer and craftworker create product lines in which shapes, textures and colors reflect the cultural and social values of the communities. The excellence of the product and its compatibility with market make it possible for the activity to be sustainable.

Communication

With the objective of generating information that can sensitize and mobilize public opinion to the value of craftwork and the rights of its creators, the Imaginary undertakes communication actions with a strategic focus. For each partner community partner in the project, a visual identity is constructed that reaffirms the history, culture and sense of belonging to a group by stamping a seal of origin and quality on what is produced by the community.

Market

This directs the production of the partner communities to specific segments of the market that are able to recognize the value added to the product, thus ensuring a fair remuneration and the continuation of craftwork activities. Giving value to the cultural references strengthens the relationship of these communities with the market, thus placing the activity as a pathway to development and social transformation.

Across-the-board issues such as quality and sustainability pervade the whole context as can be seen in the figure below.

Figure 03 – Model developed by The Imaginary Laboratory
Source: Archive the Imaginary Laboratory (2010)

The activities of the Imaginary are underpinned by a methodological strategy which is: participative, based on the understanding that the men and women craftworkers are subjects of their practices; collective, by means of encouraging the construction of collective agreements and recognizing leaders; individualized, through giving recognition to the skills and competencies of those involved, critical, in that it leads men and women craftworkers to make a reading of their own artistic doings; and contextualizing, as the intervention is grounded in the needs, wishes of and respect for the values of each craftwork community (ANDRADE et al. 2006, p.30).

Therefore the Imaginary team believes that by guaranteeing popular artists and craftsmen access to the consumer market through managed and sustainable actions, it will be promoting giving value to the culture and organizational forms of communities, thus ensuring the modernization of craftwork production.

The case study of Cabo de Santo Agostinho

Cabo de Santo Agostinho situated in the south of the Atlantic Forest Zone of Pernambuco has the largest industrial hub and port in the state, a backdrop of magnificent beaches, and cultural manifestations of long-standing. The local production of ceramics began when Brazil was a colony of Portugal when bricks and tiles were produced for use in buildings of the sugar-cane plantations. The ability to work with clay and the potter´s wheel is a tradition that has been maintained to the present and the municipality produces utilitarian and decorative pieces which are sold throughout the state.

The initiative for the activity undertaken by the Imaginary was a reaction to the desire of a group of potters who sought opportunities to glaze their pieces. At that moment, the craftsmen were considering as an alternative the use of a low-temperature kiln and glazing that contains lead in its formulation, such as red lead (zircon), a recurrent practice in potter communities in the State.

Liaison between SEBRAE[5], the local government and the Laboratory called The Imaginary allowed the group of potters to become aware of environmentally correct alternatives. The construction of the new project for the group was collective and the participation of the craftworkers was voluntary. The group was formed from craftworkers, mostly male, who used to work in the old potteries, and was attended by master craftsman Celestino Mota, who is highly experienced and is known as Sr Celé.

Cabo de Santo Agostinho is recognized as a redoubt of skilled ceramists and potters who are responsible for supplying water filters, jars and jugs for various localities in the state and region.

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Figures 3, 4 and 5 – Potter working on a wheel
Source : Archive the Imaginary Laboratory

In the first instance, the successive visits of the technicians from the Laboratory called the Imaginary, to the Mauriti space, where a number of potteries are located, enabled the way in which the group worked and got on with each other to be recognized. The importance of the leadership of Mr Celé was soon noted. The formation of the group of potters has kinship as a particularity. There are brothers, uncles, cousins and nephews who work together, sometimes on different tasks, but in the same activity. Each master-craftsman has his space, usually a shed with potter wheels and they share the finishing space, where there is a single pug mill (maromba), which is close to the stalls where the raw material rests. The buildings are very rudimentary, and somewhat ramshackle, and potteries and homes are difficult to tell apart.

Firing is undertaken in three wood-fired kilns that are used by all the crafworkers in the group. The use of wood is a worrying aspect, for even though salvaged material is used, such the remains of pallets, other types of wood, possibly coming from the remains of the Atlantic forest in that vicinity, can be seen.

Figures 6, 7 and 8 – Firewood kilns in the firing area of cermaic pieces - Mauriti
Source: Archive the Imaginary Laboratory

The clay, which comes from a quarry belonging to the Port Complex of Suape, has a very good plastic quality, and extraction is carried out with the permission of the Suape company and CPRH[6]. The clay is donated and it is only extracting and transporting it that is paid for. The Association of the Ceramists of Cabo is responsible for nominating those who will remove and transport the material.

The Association of the Ceramists of Cabo was founded in the eighties and the issue of withdrawing the clay was the mobilizing factor. Initially the Association was very active, but over time lost political space, with few people seeking to be involved in managing it.

It was against this background that at the meetings with and in conversation with the craftworkers, favorable and unfavorable aspects, and opportunities and threats were raised. This resulted in an action plan that included market issues, production, product, and management.

Figures 9 and 10 – Façade of the new centre of craftwork production in Cabo and internal facilities of the Cabo Center of Production of Craft Pottery.
Source: Archive the Imaginary Laboratory

The production process and the means used for production were assessed and the object of several complementary projects, supported by other partners. Through partnership with the BNB – Bank of Northeast Brazil it proved possible to make available a kiln powered by gas. The Town Hall of Cabo de Santo Agostinho, in addition to providing space for the construction of the kiln, built a Center of Craftwork Production, in line with the recommendations of the technical staff of the Imaginary. The lay-out considered the dimensioning and the flows required for production activities (configuration, glazing, and firing), supply and distribution.

Figures 11 and 12 – Annex and gas kiln in the Center for Craftwork
Source: Archive the Imaginary Laboratory

Replacing wood with natural gas was possible with the support of the Pernambuco Gas Company/ Copergás. The use of gas makes it possible to fire clay at high temperatures, meets environmental requirements and ensures product quality.

A new electric wheel was developed in partnership with the Ministry of Science and Technology. The project is the result of analyzing the use of conventional wheels, in which the positioning of the shaft makes it difficult for the potter to position himself. The new wheel takes way the shaft that supports the turntable, thus allowing the potter to be positioned in front of the wheel without the discomfort of having the shaft between his legs. Eight new wheels are being built so that the master craftsmen might share their knowledge with young people in the community and thus the tradition and liking for the activity. Vitrification, which first motivated the group, demanded more research from the group.

The partnership with SENAI[7] made it possible for a student and technicians to join and begin to do research into enameling. Today, besides the glazes created and tested, a new group of young people have been trained to handle and apply glazes. In this stage it was possible to include women, who until then had only been involved when participating in the fair and exhibitions.

In the initial project, a new more powerful pug mill was to have been installed within the Mauriti space. The processed raw material was to have been transported to the Production Center. However, the difficulty of access by trucks to the Mauriti space forced a change. Thus, a finishing area was added to the Production Center so as to set up the new pug mill. This equipment, which had already been purchased, when installed,

will also allow residues from the ceramic industry to be used with original prime material. The resulting mixture besides contributing to diminishing reducing the use of the natural resource, thus allowing extraction from the quarry to go on for longer, has been showing first-class results both in relation to its plasticity and its porosity.

Figures 13 and 14 – Lamination equipment and vacuum extruder
Source: Archive the Imaginary Laboratory

The dialogue between designers and craftsmen fed the development of new products. Understanding skills, recognizing sources of reference, knowing markets and discussing prices were argued for so that the craftsmen might create new forms of utilitarian pieces that value the culture of the local area, thus adding more market value.

CERAMISTAS DO CABO (Ceramic craftworkers of Cabo) is the name of the group and the image of the potter and the wheel represents the group. The trademark is put on business cards, labels, packaging and all supporting material such as order books, receipts, etc. The creation of the trademark reinforced the sense of being a group while, at the same time, it positioned the product better in the market.

Figures 15 and 16 – Graphic material produced to support and dissemination of products
Source: Archive the Imaginary Laboratory

Working relationships between the craftworkers, designers and technicians in this process have been going on for close on 10 years. It can be observed that the incentive of collegiate management is richer with respect to the quality of decisions. However, this requires more time. Despite the collective use of spaces and equipment, the commitment to each other and the feeling of co-responsibility among craftworkers is still fragile. The importance of Mr.Celé to the group as a beacon of honesty and competence is evident. However, on account of the way he positions himself as protector within the group - the great father, the provider – this generates dependent behavior that often

impedes a more entrepreneurial attitude.

Figures 17 – Products designed in partership Imaginário and craftsmen
Source: Archive the Imaginary Laboratory

The involvement of young people is an alternative to prod the group into taking up a more entrepreneurial attitude. The courses on manipulating and applying enamel and experiences with firing mobilized young people and women which signal good results in this direction.

Collegiate management is the model discussed for the management of the Craft Center and includes, besides the representative of the Association and of the Ceramistas do Cabo group, representatives from the university, SEBRAE, the Town Hall of Cabo and partner companies. The role of collegiate board is to assist in the planning of the Center and to seek partnerships that will widen the dialogue of the craftworkers with those in their surroundings and with the market.

Application of the Triple Top Line Model to the case study of Cabo de Santo Agostinho

Given the description of the community of Cabo de Santo Agostinho and the intervention of the Laboratory The Imaginary, an overview of the application of the adapted model is given in the table 1 which establishes a comparison of the three dimensions already incorporated into the concepts of prosperity and culture.

prosperity/ economy	Equity	Environment/ culture
How can the use of new technological resources favor the prosperity of the group?	Appropriation of the resources with the inclusion of new participants in the group	Rational use of raw material (fewer losses in the firing process)- / Giving value to the local references
Improvement in the quality of the product through professional qualifications and incorporating young people in the job market	*How do the new Technologies generate impact on the process of collective production?*	Controled withdrawal of the material in the quarry / Promoting the survival of the culture through re-signifying tradition
Sustainable use of the raw material, management of the quarry and processing and use of industrial ceramic residues	Sharing knowledge and solidarity in the formation of the group (Mr. Celé)-	*What is the impact of the use of raw material on craftwork activity and on the preservation of local culture and traditions?*

Virginia Cavalcanti

Application of the Triple Top Line Model in the critical analysis of a methodology that takes a social approach to design 427

Table 1: Application of the Triple Top Line Model to the case of Cabo de Santo Agostinho
Source: production of the authors

The intervention methodology of the Laboratory The Imaginary shown in Figure 3 has been systematically tested and adjusted to the particularities of the approach being that of a community study. In this sense, the analytical perspectives through the economic, environmental and social dimensions have been based on the conceptual development and the social innovation obtained.

The critical view on the methodology in use offered by the adapted Triple Top Line Model with the inclusions of the factors of prosperity and culture through the fractal triangle tool served to generate dialectically new questions as well as the dynamic recognition of new responses. Within this vision, the economic value and the quality of the products developed while, at the same time, new processes and forms of infrastructure made it possible for the impacts on the environment and culture to be effective.

The comparison between the filter, local tradition, and the lighting totem given in the table 2, exemplify the impact of the laboratory The Imaginary, which by giving value to the community's participation and collective creation, shares new concepts and technologies that add value and broaden markets.

		Filter	totem
Steps of production (quantity)		07	04
Raw Material	[R$]	1,12	0,45
Finishing Cost	[R$]	0,10	0,02
Man x Hours (quantity)		1,73	1,18
Hourly value	[R$]	2,16	20,76
Market value	[R$]	5,00	25,00
Indicator of added-value		1,00	9,52

Table 2: Indicators of value added
Source: production of the authors

Results

The actions undertaken by the partners established in Cabo de Santo Agostinho together with the group of potters show the repercussion of the dimensions proposed on the adaptation of the Triple Top Line Model, as shown in Table 1.

The answers to questions drawn up in order to check their compatibility with the scenario investigated confirmed that the intervention is on balanced tracks in the relationships between environment / culture x prosperity/ economy x equity.

Within the context analyzed, however, we recognize that there is still the persistent difficulty of meeting the dimension of prosperity/ economy, more effectively, from the perspective of commercialization bearing in mind the low visibility of the various niches in markets at the current level of development of the arts and crafts market in Brazil. This is an area of opportunity in the process of intervention and one that is being worked on by means of strategies for adding value and increasing the reach of markets, such as that demonstrated by the very recent application of vitrification.

Furthermore, according to the case study, what is a preponderant factor in the search systemic results and ones that aim at balancing the dimensions of the adapted Triple Top Line is the use of design management in the broad sense of the actions of the Imaginary Laboratory; especially with regard to the axes of the model of activities: production, commercialization, design, communication and management.

As to the repercussions of the case study of Cabo de Santo Agostinho on the adapted Triple Top Line Model, it may be stated that the management of design functions as a link for synchronizing and making actions cohesive that will allow the three dimensions of sustainability to be achieved: prosperity/ economy; equity; and environment/culture.

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Notation

1. The original question which appears right at the star of the preface of the book is that of the Polish poet Stanislaw Lec – Would it be progress if a cannibal used a fork?

2. Vision proposed by the scientific thinker Thomas S. Kuhn in (KUHN, 1991)

3. This is a question of the relations of balance in meeting the needs for survival between the degrees of direct or indirect descent at the present moment and in the future.

4. It is understood that a fractal is a shape without an apparent scale and consists of parts which are self-referencing between themselves. The fractal is a tool and not a symbol and can be actively applied when projects are developed.

5. SEBRAE – Brazilian Governmnamental organization in charge of small and middle size enterprises development.

6. Estate organization in charge of regulation and fiscalization over the use of natural resources.

7. National Industrial Training Service.

Angelica Garcia

The models of sustainable creative thinking in displaced communities in Colombia

Summary

The method applied to the Zonna-Ipes project, which has as its objective the sustainable development of the garment industry, recognizing the particular aspects of the Internally displaced population that resides in Bogotá, has as part of its goals the creation of innovative alternatives of intervention, based on four components: the design of products and services, production, ways of associating and merchandising.

Although the method follows the tools of the design thought process, the project phases collect the personal experiences of the community in creative terms, these show signs of bottom-up. In this manner, when the experiences are overviewed with analytical thought and are combined with a series of help dynamics through Creative Workshops with this population, it allows for the recognition of their own capacities, which at the same time contribute to generate opportunities driven from the top-down, which enables the possibility of reinventing themselves as promoters of their new condition.

Thereby the process that is developed empowers the persons and the community, giving them control over the issues or topics of interest that are their own, enabling them to transform their new life projects.

The internally displaced persons in Colombia live mostly in Bogotá, where they work in the garment industry. In this framework, the models of Creative Thought detected among the internally displaced persons in Colombia, are the means by which individual knowledge creates innovative initiatives.

Creative Thought is understood as a new way of combining ideas to create innovative solutions. This includes characteristics such as sensitivity, an attitude of continuous questioning, asymmetric thought, taking risks and permanent curiosity.

The individual patterns of creative thought (conditional ingenuity), are articulated with specific knowledge in design (scientific thought), are then used to create solutions for practical necessities, producing models of Creative Thought that can be used in the academics of design or in similar projects of social innovation for communities.

In this framework, the models of Creative Thought detected among the internally displaced persons in Colombia, are the means by which individual knowledge creates innovative initiatives for the groups that are the components of the project.

KeyWords

hought model, sustainability, innovative initiatives, social innovation

Topic: Sustainability and social innovations

Introduction

Sustainable models of creative thought for displaced communities

Creativity is understood as the ability to create new ways of accomplishing tasks. This ability depends on self-repeating or original thought to find solutions that propose new ways of doing things.

In this way, Creative Thought consists in achieving a combination of ideas and concepts that result in original solutions. (Gilda Waisburd, 2009)

The objective of becoming acquainted with the models of Creative Thought among the communities of internally displaced persons in Colombia, specifically those that are in the city of Bogotá, is to have the opportunity to recognize the skills that have allowed these persons to develop new ideas, methods and solutions, that have increased their quality of life on both personal and social levels.

The Creative Thought models found in this group of persons correspond to the resulting development of important experiences; these have acquired a purpose in the way they behave as individuals, and cause the motivation they have to discover new ways of doing things to grow.

Subject

According to Forero (2003), the forced displacement of persons in Colombia has been becoming an extremely complex phenomenon, in which coexist multiple causes and multiple modes that affect the civilian population .

The forced displacement of persons affects large sectors of the Colombian population, predominately in rural areas, but the effects vary among the different groups of persons and additionally have a more severe effect over some groups that are especially vulnerable. According to statistics and specific studies, the internal displacement of persons affects in a crucial manner the women who are heads of household, children, and

the Afro Colombian and Indigenous communities.

According to the International Committee of the Red Cross and the World Food Program (2007), the analysis of the necessities of internally displaced persons is defined by a concept that in literature of human development is known as "sustainability system" or livelihood. This concept has developed during the last 15 years and is defined as the "control mechanisms that an individual, family or other social group has from income or funds that can be used or traded to satisfy necessities. This can be information, cultural knowledge, social networks, legal rights and also physical resources, such as land and tools". (CICR-PMA, 2007)

Therefore this system of livelihood is identified by three factors:

 • Sensitivity

This is in reference to the capacity of rapid response to change.

 • Flexibility

This implies the capacity of recovery from having suffered a crisis, adapting to the new circumstances.

 • Sustainability

This is the result of the interaction between sensitivity and flexibility and implies the capacity of remaining within livelihood. Therefore sustainable livelihood is that in which individuals can confront and recover from internal or external shock and create opportunities for future sustenance.

These factors are maximized according to the ability of a displaced person to recognize that the creation of their livelihood is the social construction of that which seems natural and obvious in their interaction with peers, but that it also implies construction processes that are more complex.

Method

1. Participants

Of the internally displaced persons that are engaged in the Zonna-Ipes Project, there are 160 participants that are divided into four groups according to the Creative Thought Models that have been identified. They are represented by women (85%) and men (15%).

2. Creative thought models

According to Rodríguez (2008), the basic problem in learning has always centered on knowing how people mentally represent their knowledge of what surrounds them, how they work with those representations and how these are built, rebuilt and adapted to different contexts. In the acquirement of the representations, the importance of models based on the functional value of the mental images used in the construction of the representations is highlighted

From this perspective, importance is given to comprehension, interpretation and the descriptive process that contribute to the construction of knowledge, more than in the definition of rules that make it possible. (Tamayo & Sanmartí, 2003)

So, mental representations respond to hypothetic construction that people have to understand and explain a phenomenon, which can vary greatly in content. When people confront a determined phenomenon, the content of the mental representations that they build depend on the individuals' needs, necessities, interests and emotions. In the instance of internally displaced persons, it can be observed with the approach of creativity seminars, how they respond with four clearly distinguishable forms of mental representation, allowing for re-discovery of their own abilities and making it possible for them to remain within their present "livelihood" in Bogotá.

Thereby, the structures of Creative Thought are evident in all the Workshops , the following examples correspond to the Market Segment Workshop of the bottom-up phase.

2.1. Creative Thought Model 1: Knowledge Multipliers

This Creative Thought Model corresponds to characteristics that were notorious in eleven (11) of the internally displaced persons, such as the permanent capacity for observation of their surroundings and the persons in it, behavioral analysis, detection of favoritism, unsatisfied needs and their natural identification. These characteristics have enabled them to find individual capacities for the collection of information about the society, in which they find themselves, developing new ways of creating specific products and services for the productive activities of the garment industry. These new methods are transmitted naturally to their peers thanks to the communication skills they possess.
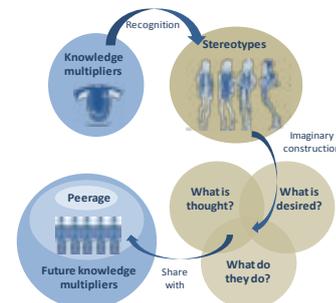

Figure1: Creative Thought Model 1

An example for the subject of the Creative Thought Model 1 is in the knowledge these persons have of manual techniques and handicrafts, which were acquired voluntarily before their current condition of being internally displaced, skills that have been a resource not only to generate income but also to influence their peers. Also, the strategies created in making productive the results of their work which enables their livelihood, becomes relevant when it is possible to transmit these two types of associated experiences to their practical knowledge

The creativity in these persons is based on possessing an immaterial capital that allows them to fend for themselves in any environment in which they happen to be.

During the Workshop, it was possible to see how the precarious conditions in which the activities were accomplished by these internally displaced persons, has allowed for the development of defined forms of creativity and innovation, which is tangible and manifest in their personalities, it is in

the way they address their peers where their creative abilities materialize, and that have been exercised during their many productive processes. Among these aptitudes are the capacity of persuasion and to clearly express ideas, expressing manual techniques such as weaving and embroidery through composition with graphic mediums such as printed illustrations and freehand drawing.

The rescue of natural patterns for the individual plastic composition unique to the activity of these persons, allows for definitions such as proportion, use of color by association or disassociation and equilibrium in the different forms of representation.

2.2. Creative Thought Model 2: The Art of Creating Together With Love

The persons that make up this Creative Thought Model possess characteristics that are strongly related to the emotional makeup that we have as human beings. This means that the motor that drives their creative capacity and the ability to resolve problems is affection.

Through emotionality, this group of seventy eight (78) persons promotes a different discourse to contact persons that can support their productive activity, nail down new clients, promote sales and widen their network of referrals.

So hospitality has become for these persons the way to satisfy specific necessities of their garment industry clients; around a cup of coffee and in a familial atmosphere, solutions are sought that cater to the individual clients' needs, that allow these persons to obtain income for themselves and their families.
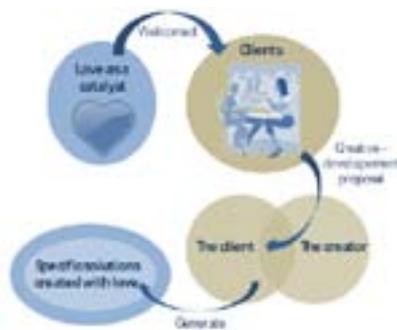

Figure 2: Creative Thought Model 2

For the Creative Thought Model 2, the alternative development strategy is based on the increase of social power, beginning with the strengthening of economic and communication capacities, arising from the family nucleus and local community.

In the Market Segment Workshop the ways of comprehending and representing reality become evident, as are the ways of confronting circumstances and proposing solutions that obey behaviors previously negotiated with other social activities. In this manner, the Internally Displaced population structures its own daily behavior. Therefore, altering mental construction already defined by previous experience, means threatening certain actions and the invitation of others.

2.3. Creative Thought Model 3: Creating Networks

This Model of Creative Thought begins by considering as fundamental for the development of productive activity in the garment industry, the different ways social interaction generates mutual benefits. Thereby the dynamic exchange of technical knowledge and life experience allows these twenty five (25) people to generate solutions from the complexity their capacity offers in creating all the necessary elements for the development of solutions. The most relevant characteristics of this Creative Thought Model is its condition as a system open to the permanent search for contacts and answers that involves persons that identify themselves with the same necessities and problems, and that organize themselves to maximize their resources, which include: command of the techniques of garment confection, access to raw material, available labor, payment options, among others.
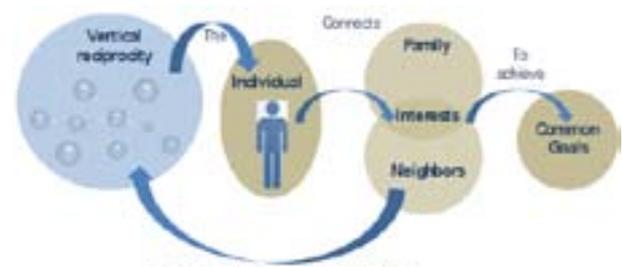
Figure 3: Creative Thought Model 3

During the Workshop for the subject of the Creative Thought Model 3, the characteristics expressed by Durston (1999) were revealed, as relates to confidence and vertical reciprocity , qualities that contribute to the sense of group cooperation, be it by recognizing close family ties or by interaction between neighbors.

During the Workshop, the persons were able to recognize their value in the production chain that they represent in the garment industry. Insofar that the value is recognized, the beneficiary is conscious of the characteristics that make him/her

different from the others, creating value for the service provided through the individuals work. This was accomplished by means of voluntary assignment of roles in the creative process itself, from the definition of the client and his/her expectations, on up until the attainment of group composition graphics.

2.4. Creative Thought Model 4: Integrated Reciprocal Service

The thirty five (35) internally displaced people that have developed this type of Creative Thought show an informal way of exchanging goods and services, which is the result of some of the dynamics of the informal economy. This exchange process allows these persons to offer their technical knowledge and labor to companies in the garment industry. The way this productive activity has developed allows them to acquire some conditions for improvements, such as the betterment of production facilities, payment options for raw materials, possibility to work from home and to be able to spend time with the family, especially the children.

This Creative Thought Model promotes reciprocity as a

means of achieving not only material and economic benefits, but also the personal methods of doing things and knowledge acquired through the practices of production.

Figure 4. Creative Thought Model 4

For example, for the Creative Thought Model 4, the frequent repetition of confidence and cooperation exercises produces a growing disposition for collaboration in community life. Different types of social capital are consolidated as is seen by the ability to self convene, define collectively necessities, identify viable action alternatives and formulate and execute initiatives.

This Thought Model presents a higher level of empowerment, from the individuals' perspective; it is associated with self confidence, decision making, life with dignity (according to the values of these persons) capacity to struggle for individual rights, independence and liberty of action during the creative process.

Results

Identifying these types of Thought Models has enabled the internally displaced persons to recognize themselves in their new urban environment and define their ideas of it. This enables us to clarify, that the mental representations are those that people really have in their head and is what guides them on their use of things.

In the process of building these representations, there is the influence of visual perception, comprehension, reason and symbolic interpretation. All these are guided by the technical knowledge people have, previous life experiences, the manner in which information is processed and by the motivational aspects determined by the context in which they are created, which will affect, naturally, the way in which they construct knowledge. (Arana, 2001)

The mental representations that these persons have, their emotions and values, has allowed observing and knowing how they use reason, how the process of practical-cognitive has originated and how the changes of these representations has occurred.

Even then, aside the reaching of these objectives, it became evident that for each one of the four (4) Creative Thought Models, value acquires a different connotation. This is related to what we know as knowledge of the world; it is not the result of induction or the construction of general hypothesis, but that which is determined by culture, history or social context. (Rodríguez, 2008)

Finally, the empowerment is a process that allows these persons – who assume themselves as subjects or actors of their own lives and decisions – the possibility to act based on the awareness of their own interests and in acknowledgment of their own capabilities.

Conclusions

The Creative Thought Models shown allows to confirm that the forms of representation built socially by internally displaced persons has become a vehicle for more dignified individuals, capable of creating productive dynamics and peerage participation with those in similar life conditions.

The innovative character of these new mental structures on the ways of doing things, acquires value insofar that these networks of collaboration are characterized by motivations and manners of doing, that until the last few years would not be imaginable in the context of displacement itself and now is clear as Models of Thought that allow the ongoing construction of their reality, considering this as a dynamic process; the reality is reproduced by the behavior of these persons with their interpretations and knowledge. (Rodríguez, 2008) So it can be observed:

• New ways of organizing that are not based "on the mass participation for the creation of service" (British Design Council, 2004)

• The boundary between user and producer of a service is not clear.

• It is impossible to distinguish between those that create the service and those that use or consume the product.

• The interactive development among peers, based on the principle of sharing different skills and knowledge.

The modes of comprehension differ among themselves in the four (4) Models of Thought, but they do not depend fundamentally on the validity that is desired, but the vicissitudes of social processes such as communication among people, negotiation practices, and conflict resolution, among others.

This allows for different forms of construction depending on the mental structure of every individual, being alike among themselves and are greatly and mutually reinforced by the richness of the persons involved (degree of diversity of mental forms of representation), real values, everyday situations and means of organization.

Furthermore it can be projected that the Creative Thought Models of internally displaced persons, are useful not only in the creation of new forms of productive development and betterment of social dignity, but also as dialog between adopting and developing creative forms both locally and globally where this population type is relevant.

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Angelica Garcia

Application of the ZONNA methodology in creating sustainable productive practices for the poor people of Bogota-Colombia

Abstract

There are Institutional entities that work in the social sphere and support the community, in this case the Institute for the Social Economy of Bogotá – IPES (Instituto para la Economía Social de Bogotá) and the Los Andes University (Universidad de los Andes), unite strengths and experience in a venture Project of innovation and design for the clothing sector with displaced persons

With this alliance, the project parameters are focused on the sustainable development of the clothing sector, based on the identification of characteristics of the displaced persons that live in Bogota; thereby the objectives are to generate innovative alternatives for product design and services, production, associative possibilities and sales (components).

The method proposed, beyond integrating three disciplines, is based on the design thought process, which brings together the dimensions of creative thought and analytical thought. The Project works with 160 beneficiaries in four pilots that have been structured according to the defined process. The design thought process determines four frameworks that likewise are related to the four before mentioned components. The first framework is identified as deep observation, and has as its objective to approach the activity of the clothing sector given the particular characteristics of the population. The second is in charge of organizing the information to be able to rethink the existing scenarios, creating different intervention possibilities. The third prioritizes decision making, this phase is defined as imperative. In the fourth, efforts are focused on producing a synthetic solution, creative, competitive and different from prototype approaches

Finally, the method contributes to the Project through the following:

• Obtaining information that supports the construction of innovative alternatives for intervention.

• Redefine the population in associative terms and the techno-productive capacities as related the product and services in the value chain of the clothing sector.

• Participative scenarios, in which the persons acquire knowledge, develop capabilities for self-management and generate a culture focused on venture and creativity.

• Space for discussion, production and proliferation of knowledge of the alternatives of economic development for the persons for which the Project is focused.

• Provide consulting for product and services development as part of commercial and productive realities, supported by markets that are clearly identified and sustainable.

The results of the Project are consolidated in a case analysis and provide repeatable method tools that can be used within other communities that have similar characteristics.

The project is ongoing at the moment.

Project Team
Project Coordinator: Freddy Zapata
Project Advisors: Natalia Franco y María de los Ángeles González
Technical Coordinator: Constanza Téllez
Consultants: Angélica García, Johanna Andrea Poveda y Alejandro Caicedo (first phase).

KeyWords

Zonna methodology to create sustainable production dynamics for low-income persons

The experience of social design and innovation with displaced persons, or as are also identified today persons with subjected rights, conforms with the associative arrangement of the Institute for the Social Economy of Bogotá - IPES (Instituto para la Economía Social de Bogotá) and the Los Andes University (Universidad de los Andes) under the aligned scenario of the social sphere of community support.

The proposal has as its objective the creation of intervention alternatives according to the following:

•Generate flexible strategies for the efficient use of human talent and resources of the production system.

•Propose participation features of the production units to create and develop products and services from its competitive advantages.

•Propose associative systems that provide collective answers to promote self-development and undertaking among the production units.

•Generate tools focused on increasing the sales opportunities of the products and services of the production units.

The displaced persons that make up the Project are defined as a diverse conglomerate, not only at the sociocultural level but also as relates to the product and the production dynamics that they exercise as part of the productive chain of the clothing sector of which they are part. This group is also dispersed geographically in various areas of the city of Bogotá, situation that affects directly their activity, as their lack of self-knowledge and representation in the national and world scenario is diminished due to their limited possibilities to participate in businesses or markets different than those already explored. Likewise they have difficulties in accessing financing or credit programs that support the continuation and growth of the productive activity; this then, in relation to the buying of raw material, hiring labor, access to technology, specialized training, consolidating a public corporate image, registering trademark and sales results, among others.

This situation affects the competitive stability of the production units, being these understood as the capacity to respond collectively to goverment initiative or what other entities propose as scenarios for their participation.

For this Project, recognizing these people is more than the psychosocial situation in which they find themselves as displaced persons or as working in one of the productive scenarios of the country. We are making reference to the human capital (attitudes, desires, emotions and feelings) that each has developed in the reconstruction of their lives and that of their families; these capital aspects are the structural axis and difference force that surely enriches the generation of design products, promotes the production units and motivates the associative character and venture.

The Project beyond assuming as its structural axis the abilities developed by these persons for their own success, should provide the augmentation of their sense of self-worth and identification as social and productive beings, thereby it will promote in them the capabilities that has allowed them to develop

confident relationships with the medium and the group to which they now belong; furthermore it will be possible to guarantee the sustainability of the exercise throughout time as each individual is recognized as part of the whole, this will accomplish that the result is accepted, maintained and defended against situations that arise, in such a manner that the person will be capable of assuming his/her part as an innovative component.

To structure the Project from the viewpoint of the individual capabilities is a challenge for the method used by "ZONNA de innovación"of Andes University (Universidad de los Andes) . In other words, to change for a moment the design thought from its centered focus on the user to a focus centered on the beneficiary is a

strategy to empower and boost the community to create viable and applicable models, that will lead to better processes of production, innovation, markets and sales of the products and services, as well as the strengthening of the associative relationships, among the productione units.

Method
Participants

The persons that will benefit with the Project are 160 productive family units (85% are women and 15% men) selected by IPES based on previous training processes (association creation, design of business models, product design and production in the clothing sector) and awareness related to the objectives of this proposal. The Project will provide a slot directly through its activities to a representative of each productive unit, which should be responsable for the continued participation and feedback to the rest of the unit.

Materials and Procedure
Zonna methodology

To be able to achieve the proposed objectives, the method proposed by "ZONNA de innovación" of the Los Andes University is used, which emphasizes working on the thought design process from a multidisciplinary point of view. The projects developed under this scenario generate social impact when the innovation is centered from and for the persons, whereby the quality of life is affected by the creation of value. We are making reference to the value that is integrated to the viability of the business, the technological feasibility, the knowledge and human creativity that

satisfies the changing needs of the marketplace.
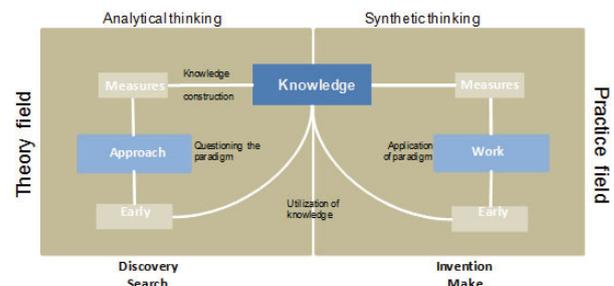
Figure 1. Fundamentals. Investigation and Aplication Relationships

Moreover, there has been a change in the relationships in the theory and methods of design that Beckman y Barry (2007) identified with the name generational. In the first generation the designers focused on decomposing a complex problem into a series of small and well defined problems and according to this, if it were necessary to search for experts in other fields of knowledge to solve these problems; this would take them to develop a design process in which many small tasks could be accomplished, optimizing each in an individual fashion. The second generation focused on the "social being", here the design was more focused on the individual from viewpoints of their psychological, social, cultural and reproductive aspects, that is the vision the designer made of this, therefore there is less of a need for experts to be able to develop solutions, as it is the persons that generate the solution, reducing interpretation and being sure of greater impact on consumption.

From this it can be confirmed that design questioned the procedure for the way to focus the exercise, it went from providing solutions to the problems, to a process of

APPLYING THE ZONNA METHODOLOGY TO CREATE SUSTAINABLE PRODUCTION DYNAMICS FOR LOW-INCOME PERSONS IN BOGOTÁ-COLOMBIA

formulating the problems, in which arriving to a good starting point from the collective point of view of a complete team (so that the resources needed commit to solving a problem) became an essential factor.

As society has evolved, so has our capacity for design. Owen (2007) described the design process as a "the summary of recognizable phases, and is, although not always in the same order, almost always begins the the analytical phase and the analysis of the search and comprehension, and finishes with the phase of experimentation and invention-synthesis" , as is shown in Figure No 2. Cyclical Process of Creating Solutions.
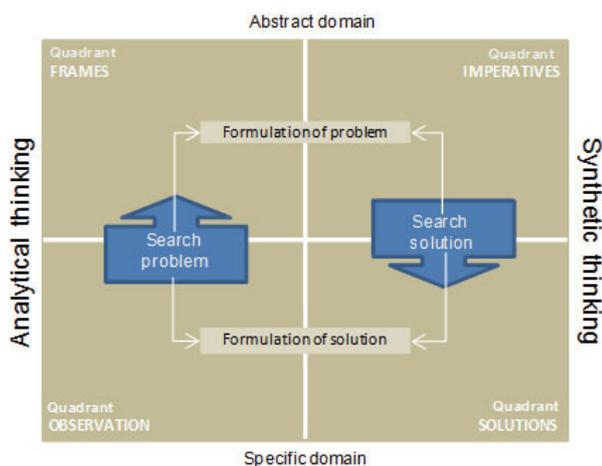

Figure 2. Cyclical Process of Creating Solutions

So, Owen proposes a model that considers design as process of development of self-knowledge, in which are found those who create as synthesizers of knowledge into new constructions, arrangements, patterns, compositions and concepts that make tangible the expressions of what can be.

Lately, the theories and methods of design are focused on providing a unified vision of design as a process of formulation and therefore a solution to problems that implies players from different fields of expertise.

Furthermore, in practice it has been seen as the codification and formalization of the innovative processes that require the execution of transverse knowledge, this due to the complexity of the challenges that demand design intervention. An example of this are the social challenges, which require solutions that are client based or on that of the needs of the user; it is said that incorporating the thoughts of the consumer in the quick development of prototypes, allows further progress than the conjectures that thwart efficient solutions. This design focus then is defined as optimist, constructive and of experience, dimensions in which the needs of the consumers of a product or service are debated and the means by which possible solutions are offered.

From there that the approach of the ZONNA IPES Project requires a multidisciplinary focus as mentioned before, among the areas of design knowledge, administration and engineering. These three fields unite the components of the logic framework in the following manner: Administration links the following components (3) venture-associative and (4) economic resources –marketing. Design for its part is related with the components (1) productivity, (2) product- design and (3) economic resources- marketing. Also, engineering works with the components (1) productivity and (2) product- design.

This means that the obtained results form a scenario of interdisciplinary innovation is not only centered on the creation of products and services that are directed to what is human, the process itself is a development of the human dimension to satisfy objectives for people. In this manner the scenario for innovation is based on our capacity to be intuitive, recognize patterns, for the construction of ideas that acquire emotional importance, beyond being functional, and to express ourselves by means beyond words or symbols.

For the case of this Project, the beneficiaries (the displaced) in the role of product and process creators, with the support of professionals, are encouraged to synthesize their knowledge and experience in new constructions which make tangible the expression of what they may be.

In figure No. 3 Innovation as a learning process. Incorporation of Design Thought . , is possible to see the aspects related to the ways of design thought in the practice, in the four quadrants that configure the methodology process used in the Project. The first quadrant is called observation, it objective is to approach the situation to understand it, and here the inquiry made is done in terms of the project's four components: productivity, design, associability and income production from marketing. The frames, called like this because here the information to restate the existing situation is organized and possible intervention paths are configured from the formulation of new problems. In the third quadrant the priority is to make decision or to take intervention paths, this phase has been called imperatives; here the value of the proposal is defined. The last and fourth quadrant is focused on finding a tangible, synthetic, and creative competitive solution.4

foundation of both.
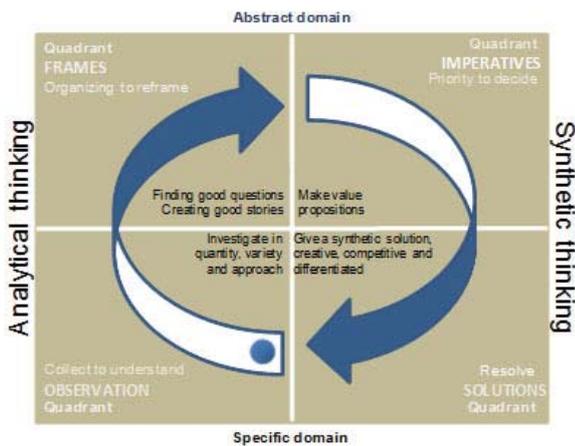
Figure 3. Innovation as a learning process. Incorporation of Design Thinking

From this perspective, the quadrants that will be called phases in the IPES Project, will be related to the logical framework in its fourth components productivity, design, associability and income production from marketing. The four methodology phases are worked on in sequential, progressive and accumulative order. The phases are interdependent, which allows superimposing activities, meaning that the knowledge developed in one of them is a source to develop the other phases. (See figure No. 4 Components and Phases of the IPES Project).
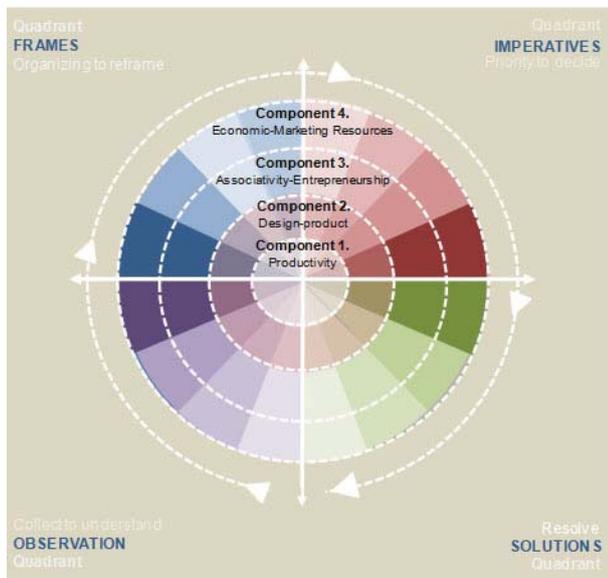

Figura 4. Componentes y fases del proyecto Zonna Ipes

The development of such phases is supported on feedback model , so the records and development of each phase is simultaneously constructed; in this way to work under a global perspective standardizing different behaviors into articulated, integrated and hierarchic units is possible.

In an specific way each of the components works with other methodological tools at the same time consolidating the dynamics of each phase, where the creativity workshops is the

Creativity Workshop

Innovation is understood as a process that seeks a creative solution to a concrete problem or need, therefore creativity and innovation are two concepts that are related. Thus creativity has a close relation with the individual and the way it works out its problems, works with the information it has and uses previous experiences and combines them with new solutions structured from its need.

The displaced population has an important feature, the ability to create product and services centered on the human, meaning, feelings intuition and inspiration, these are features that in this population consolidate the basis of the rational and the analytical. This behavior is due to a pattern of natural resourcefulness of the population, in which people build a reference system form their close reality and put it into practice through communication processes within a group dynamic. On this basis, the creativity of the displaced population should be constructed from self-learning and recognition processes for they generate experiences and discourses that are legitimated in real and practical life.

For the encouragement of the group's own creativity the following will be taken into account:

•The environment, this refers to the aspects related to the social climate, which have an impact on the creative projection.

•Self-knowledge and criticism, which will allow us to know the abilities, interests of the individuals. To instruct on perception will make people more sensible to details, observation, and taste for experimentation.

•The habits to relate, compare, divide, split, broaden or reduce are mechanisms inherent to the creative thought.

•The ludic sense of life, to physically play with objects, and to mentally play with ideas, to venture to explore new fields.

•The habit to plant in the unconscious is very important to alternate meditation and relaxation; during these moments one achieves high levels of response or solutions to problems.

•Persistence, discipline, method and organization.

•General climate of good communication and dialogue, it is vital for everyone's assurance that all are able to listen and to be heard.

•Specific creativity techniques such as: brainstorming, remote relation detection, synesthesia, model study, description exercises, imaginary description of improvements, and mental transformation of things, among others.

In this way the dynamic of the creative model links and integrates particular objectives of the specific workshops in the Project, as follows:

F1/ TEA workshop
F1/Strategic Triangle workshop
F2/Value Chains workshop
F2/Segmentation workshop
F3/Change Theory workshop
F3/Trust and Negotiation workshop (Out door Traing)

Results

The main objectives of the Zonnalpes Project are:

•The generation of information that supports the construction of innovative alternatives of intervention.

•To re-dimension the population in terms of association and technical-productive capacities in relation to the product and service in the value chain of the area.

•Generation of participatory scenarios in which people acquire knowledge, develop self-management abilities and create a culture towards creativity and undertaking.

•To generate opportunities for discussion, production and dissemination of knowledge on economic development alternatives for the population.

•To advice on development of products and services embedded in production and commercial realities supported by clearly identified and sustainable markets.

To date, the Project has made progress in achieving some of the proposed objectives since its inception. After finishing the approach to the observation phase based on information acquired from the knowledge of the beneficiary, the culmination of the phase frames (insights), focused on creating new scenarios of action for the population from what is valuable, and reaching the stage of imperatives (ideas) under development at the moment, we can present frames of reference as result of the consolidation of the most valuable and relevant aspects of the analysis and findings in terms of the four components.

PILOTS	FOCUS FOR FRAME DEVELOPMENT	HYPOTHESIS FOR REFERENCE FRAMES
Pilot 1	Product with brand development	To develop a portfolio of unique products created form an own imaginary and respect for everyone's ideas, that tell a story, hand made with replicable techniques and shown to clients that seek for differentiation.
Pilot 2	Design with service	To develop a service portfolio that allows creating just the right products, made with love from individual homemade work, friendship bonds, positioned from the clients satisfactory experience.
Pilot 3	Differentiated service with technical challenge	To develop a technical services portfolio based on the union of strategies and task distribution. Applied to orders of specialized clothing, with a functional character, offered through a network of contacts.
Pilot 4	Service strategy for volume	To develop a portfolio of satellite like services from processes of direct negotiation, complementary task coordination and productive alliances that generate commercial products in fashion tendencies using personal methods of confection, focused on required quality standards.

Figure 5. Hypothesis for frameworks for each pilot from the four components (productivity, design, associability and marketing)

Thus, during the development of phase 2, capital coming from the application of the methodology is generated; these funds are reverted to the clothing sector as part of the same process of development, through productive activity that people develop in real life. Therefore the results of this co-creative project (developed with the community) are not just immediate but the greatest benefit allows sustainable forms of long-term operation of production units within the clothing sector.

The results of the project for Phase 2 are beneficial for:

•The displaced population dedicated to activities in the clothing sector.

•The national clothing sector.

•The academy, research groups in design or that develop projects with a similar community.

Such benefit is obtained according to the emphasis that project assumes in each of the different phases, for phase 2 as follows:

•At the end of this phase, there are 4 stages of work that present business opportunities for project beneficiaries. To date, these scenarios have already been socialized to the beneficiaries according to the four pilots.

•During the development of this phase, an investigation of the characteristics and needs identified during Phase 1 was done through workshops and tools given to beneficiaries. Thus, the results were the particularities of each pilot and their characterization was outlined in terms four components.

•The characterization of the pilots was the most important and valuable input to develop the proposal of reference frameworks for the population, opening the way to the display of new scenarios for the producers to achieve a potentialization of their

abilities and to approach new business platforms from innovation.

•These methodological and application processes have had an impact on the population generating bonds of friendship and mutual collaboration among them. Progress in a process of dignifying the population that develops along with a methodological basis process of the project is notable.

Conclusions

One of the biggest obstacles in the adoption of the though of design to develop a project is simply fear of failure. The idea that experimentation during the process is wrong, as long as this experimentation is a source of knowledge, may be hard to accept. Nevertheless, the design, besides thinking about the culture will generate prototypes as part of the creative process, which will serve as ways to validate ideas along the way (Brown & Tim, 2010).

The connection between the process of innovation and the learning process is important for two reasons; first, the learning process is something that we go through everyday, as we get and process new information. It's a process that we all are very familiar with which provides a comfortable ground to analyze a development of innovation. Second, with the objective to create a team that really participates in the innovation process, we have to understand that these people must have different preferences and perspectives to approach all the stages that learning demands, this allows people to operate in a more comfortable way, being really innovative from their specter (Beckman y Barry, 2007).

The importance of the methodology of design thought in social projects, lies in the degree of innovation that runs from the time of the adoption of the need to its development in partnership with the people and the team. Companies around the world have adopted this methodology in their developments because it allows them to be more innovative, differentiate your brand and bring their products and services to market more quickly (Brown & Tim, 2010).

In the social field, design thought goes beyond traditional boundaries established by the public institutions, profit institutions, and nonprofit sectors. By working closely with customers and consumers, design thought provides high-impact solutions that emerge from below rather than being imposed from above (Brown & Tim, 2010).

The people-centered innovation allows the rediscovery of their own behavior patterns through which we can promote new ways of doing things so differently to traditional mechanisms that people want to impose to different social groups without regardless of their original context and its particular form of life.

Who works with the ZONNA methodology is aware that the generation of good ideas relating to products, services and business models do not depend on the genius of individuals but on the development of some skills and tools inherent to observation, creativity and management, which can be acquired by anyone.

Design thought as a dimension that complements analyti-

cal or scientific thought incorporates a wide range of characteristics of creative thought and a number of special qualities of distinctive value for decision-making. Thus, the beneficiaries (the displaced population) in the role of creators of products and processes with support from professionals are driven to synthesize their experiences and knowledge in new construction, arrangements, patterns, compositions and concepts that are tangible expressions of what they can be.

The methodology for dealing with the Zonnalpes case can develop and manage innovation and sustainability of production units, offering the opportunity to use, under realistic conditions, a viable proposal while encouraging the team, beneficiaries and professionals to develop skills that lead to the consolidation of relevant and valuable solutions for today's market. It also allows the team to assess the ability to work in an interdisciplinary way towards concrete results, where discipline and perseverance, pillars that potentiate any approach to creation of products, service or business plans are present.

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Sustainability and the 'Weakness of the Will'

Abstract

This paper explores a role for design in overcoming barriers impeding our adoption of more sustainable patterns of consumption, specifically a 'weakness of the will' or the failure to do what one knows to be right. The authors suggest that it is rather easy to condemn overconsumption but altruism and environmental awareness have proven ineffective motivators and proposed strategies to address the issue are often dominated by green products and technologies, rather than addressing the underlying personal motivations that foster overconsumption in the first place. The authors present design strategies that address behavioural change and, more fundamentally, propose that design revisit the notions of pleasure and self-interest in the context of sustainable consumption in order to inform a new generation of sustainable ways of living. The paper concludes that, because of its capacity to research, imagine, visualise and communicate alternatives, design is well positioned to propose more sustainable ways of organising and experiencing daily life, which may more fully connect to people.

Theme : Sustainability & social innovation

1. Introduction

The notion of akrasia, which principally refers to the 'weakness of the will', is of particular interest in the context of sustainability. While, as citizens, we often know how we should behave, we do not necessarily act accordingly. Considering that the project of a more viable future calls for significant changes in our consumption habits and lifestyles, this exploratory paper discusses the role of design in relation to sustainable consumption, including the authors' work on product design and sustainable consumption, where a study conducted among sustainable consumers, who not only consumed greener products but also consumed less, started to show that self-interest, together with ecological considerations, motivated more sustainable lifestyles. The paper also outlines how and where consumerist societies, on their own terms, may have failed in many important respects to bring pleasure into private and public lives and explores the implication of such notions

for product design theory and practice. Product design has an important role to play in support of social innovation, as designed artefacts embody and reflect our commitments and help to co-shape our moral understanding of the world through the practices and social behaviours they engender. This paper principally stresses the need for new design approaches that broaden the debate surrounding design for sustainable consumption and identify initial directions aimed at overcoming our 'weakness of the will'.

2. Five thousand roses in one garden

The need for lighter patterns of consumption, especially in industrialised countries, is well recognised by the scientific community (Fuchs and Lorek, 2005; Mont and Plepys, 2007). Reducing consumption is now seen as crucial, as actual consumption patterns are increasingly offsetting the gains made by eco-efficiency improvements such as cleaner production and ecodesign of products (Jackson, 2006). It is apparent that it is no longer enough to design, produce and consume greener products. Further, the 1.7 billion members of "the consumer class", will have to consume much less while, at the same time, in order to properly meet their basic needs, as many as 2.8 billion will need to consume more - and differently (State of the World, 2010). In sum, given that we have a growing population with increased quality-of-life expectations, moving towards a more viable future requires addressing and changing both production and consumption patterns. Sustainable consumption implies not only opting for greener products, but also consuming less as well. This is especially challenging as it invites us to find ways to attend to our personal satisfaction with less material consumption, to do more with less, and more fundamentally, to find meaning in 'less'.

To use a poetic image that illustrates the idea of finding meaning in less, the little prince in "Little Prince" (1943) of Saint-Exupery had this conversation with the fox:

- "People where you live," the little prince said, "grow five thousand roses in one garden... yet they don't find what they're looking for...

- They don't find it," I [the fox] answered.

- And yet what they're looking for could be found in a single rose, or a little water..."

- Of course," I answered".

Likewise, and following this image, we are invited to find meaning and pleasure in possessing fewer goods over possessing many or to consider that something altogether different may be needed.

3. Akrasia or the "weakness of the will"

Despite evidence to suggest that well-being does not necessarily increase with consumption passed a certain level (Scott, 2009) and that consumer societies on their own terms have failed to bear out their full promise of happiness, few of us may initially find the prospect of having less and consuming less all that appealing. On this topic of happiness and materialism, Kasser (2002, p.xi) looked into consumerism and what he calls the "tragic tale of modernity" and writes:

Desires to have more and more material goods drive us into an ever more frantic pace of life. Not only we must work harder, but, once possessing the goods, we have to maintain, upgrade, replace, insure, and constantly manage them. Thus, in the journey of life, materialists end up carrying an ever-heavier load, one that expends the energy necessary for living, loving and learning the really satisfying aspects of that journey.

Other researchers, such as Schor (1998) and Veenhoven (2004), have also discussed the personal costs that may be associated with high levels of consumption: financial debt in a context of easy access to credit; time and stress associated with working to support high consumption; time require to maintain possessions and, generally less energy and quality time to spend with family and friends.

Known as the 'value-action gap', awareness of environmental and social issues and concerns about the ecological impacts of our activities have so far not automatically lead us concrete action (Blake, 1999; Aoyaga-Usui, Vinken, Kuribayashi, 2003). Although, as citizens, we are increasingly aware that, for the "sake of the environment" at least, we should work to have a lighter footprint, it is less known that our actual consumption habits often have negative consequences for our own personal and social well being as well. As a consequence, our response is often limited to opting for greener products rather than questioning the quantity, value, and meaning of the things we acquire.

For Princen (2002), excess consumption can be understood through two "lenses" that should be addressed together: overconsumption and misconsumption. The former refers to an aggregate-level concept while the latter concerns, more directly, individual behaviours. The collective outcome of overconsuming is catastrophe for the population or the species. With misconsumption, the problem is "[…] that individuals consume in a way that undermines his or her own well-being, even if there are no aggregate effects on the population or species"(p. 33). As Princen puts it, humans misconsume when, for example, they fall into the advertiser's trap of "perpetual dissatisfaction"; when they purchase an item that provides fleeting satisfaction, resulting in yet another purchase; when they overwork to compensate for this behaviour and, in turn, with more income and less time, attempt to compensate by using additional income to consume more. A critical area of research lies at the intersection of misconsumption and overconsumption where individuals and society together can potentially benefit from improved consumption patterns.

At both levels, overconsumption and misconsumption, when we know how we should behave or act but do not, we are actually in face of the notion akrasia, often referred to as the "weakness of the will".

Akrasia is the failure to do what one knows to be right (Aristotle, Nicomachean Ethics, 1145a15-b20). It could be said that this is the failing most at issue in contemporary consumer society. We know that we should respect the complexity and fragility of life on our planet, we should reduce energy and material consumption, be open and unafraid in our dealings with others, exercise more, eat less, spend more time with friends and family, help those in need and more actively participate in the political life of our community. In many cases we actively desire to do right in such matters. But for the most part we fail. (Stewart, Lorber-Kasunic, 2006)

4. Design Contribution in the Support Sustainable Consumption

Condemning over-consumption is rather easy, but understanding the motives that could lead us towards consuming less and support a shift towards a less commodity-oriented society is no easy task. Object acquisition plays an important role in our lives and often responds to positive, even noble aspirations. For instance, we enjoy acquiring things because they create a reference point in time, remind us of things from the past and help us project our aspirations for how we want to be; they allow us to travel though cultures and through to time; to create events, obligations and to forge alliances; to create and develop new capacities; to express political, religious, spiritual beliefs including ecological commitment; and to assert our authority in materialising our worth through the objects we choose and choose to display (Hines, 2002).

As Fletcher, Dewberry and Goggin (2001) have noted, design occupies a unique position "[…] at the interface between consumers and the activities of consumption, which firmly establishes its potential to influence the environmental and social impacts of products and services and hence, to contribute towards the goals of sustainable consumption" (p. 213). Design is well equipped with the tools and exploratory methodologies to imagine and communicate alternatives, be they viable in the short term or exploratory and directed towards desirable futures (Walker, 2008). Perhaps, at this intersection, design can contribute to supporting sustainable consumption and, more generally, sustainable lifestyles by proposing more appropriate solutions and alternative ways to respond to these aspirations than just material acquisition.

Considering what has been discussed so far, how can design contribute to overcoming a 'weakness of the will'? The next section offers initial directions that could be helpful in further exploring this question, which are of particular relevance considering the pressing need for lighter patterns of consumption.

5. A Discussion on Practical and Theoretical Approaches to Design for Overcoming the 'Weakness of the Will'

5.1 Design and Behavioural Changes

Based on an analysis of models from social-psychological theories, Bhamra, Tiley and Tang (2008) have identified seven "design for behavioural change" (DfBC) strategies that can be put forward to support or enable users to adopt more sustainable habits and attitudes. Their practical model is summarised below as strategies that could be used to develop design solutions that directly address the notion of a 'weakness of the will'. These can also serve to classify existing design solutions that address the notion of sustainability in the use phase or as a means to support the development of new ideas in relation to 'the weakness of the will'.

Table 1. Behaviour changes by design (adapted from Bhamra, Tiley and Tang, 2008)

1. Eco-Information: design oriented education to make the impact of material consumption visible, understandable and accessible to inspire consumers to reflect upon their use of resources
2. Eco-Choice: design oriented empowerment to encourage consumers to think about their use behaviour and to take responsibility of their actions through providing consumers with options
3. Eco-Feedback: design links to environmentally or socially responsible action, through real-time feedback, to inform users about what they are doing and to facilitate environmentally and socially responsible decisions
4. Eco-spur: design oriented carrot/stick incentives to inspire users to explore more sustainable usage. Prompt good behaviour through reward systems and/or penalize unsustainable usage.
5. Eco-steer: design oriented affordances and constraints to facilitate users to adopt more environmentally or socially desirable use habits through the prescriptions and/or constraints embedded in the products design
6. Eco-technical intervention: design oriented technological intervention to restrain existing use habits and to persuade or control user behaviour automatically by design combined with advanced technology
7. Clever design: to automatically act environmentally or socially without raising awareness or changing user behaviour purely through innovative product design

This model provides interesting material as a starting point for design to address the 'weakness of the will'. Furthermore, it would also seem relevant to identify and consider the underlying reasons why people do (and do not) opt for more sustainable lifestyles or solutions. It is hoped that by broadening our conception of design for sustainable consumption, to take into greater consideration notions such as pleasure and user self-interest, we can help stimulate creativity and support more effective social innovation.

5.2 Design and Pleasure

On the notion of pleasure, in 2009, DDB Stockholm launched an interesting campaign for Volkswagen entitled "The Fun Theory." The campaign, which included a design competition (http://www.thefuntheory.com/award-entries), aimed at encouraging people to alter 'lazy behaviours' by showing that acting responsibly can be fun. One intervention that has been developed to promote the campaign is a musical subway stairs. The creators wanted to make taking the stairs rather than riding the escalator a bit more fun.

Fig. 1: Musical Subway Stairs, by DDB Stockholm for Volkswagen, 2009.

This initiative, which received tremendous attention from the public over the Internet, reminds us that pleasure may play a positive role in overcoming the 'weakness of the will'. In the context of sustainable consumption, apart from considering environmental and social benefits alone, pleasure benefits may represent an interesting route to further explore.

To give an example in 2009, a design studio conducted with undergraduate students at the École de design industriel, Université de Montréal explored how the notion of pleasure could be integrated into design projects. Entitled "Towards a Sustainable Kitchen: The Integration of the Notion of Pleasure", the studio was intended to allow students to experiment, in the broad context of the kitchen, a practice- and context-focused design process - in contrast to a product-focused approach. Three main elements were intended to support this objective: 1) instead of focusing on products, students were invited to identify both desirable practices as well as practices and habits that were problematic, from an ecological point of view, including issues that may prevent their adoption. 2) in relation to 1), they had to frame their project by stating what it is that the design solution is to do or to support, and not by stating that they are redesigning a given product; and 3) in imagining a design solution where they were called to incorporate the notion of pleasure. Students were invited to consult with users throughout the process, especially in the early stages of the project.

In his project "Mamo: Mobile Market", one student set out to promote and facilitate access to local seasonal produce while encouraging local economic development. The small urban aluminium vehicle, equipped with an electric assistance

to carry up to 150 kg of produce, can navigate throughout the city. In a few moments, the vehicle can be deployed to become a spontaneous market on any street corner. Supporting local commerce, Mamo could contribute to the vibrancy of local neighbourhoods and alter transportation and purchasing habits. In addition, several times per day, the vehicles can gather in strategic zones such as parks and metro stations to constitute more concentrated market spaces. The festive impromptu event created around the transformation of the colourful vehicle into a small market, the facility with which citizens would have access to tasteful seasonal quality produces, the social gathering that it could create, as well the bell indicating presence is inspired by the traditional bell used by the scissor and knife sharpeners who circulated the alleys of Montreal in the past, are elements that contribute to the pleasure to the

Fig. 2: Mamo: Mobile Market, by Guillaume Darjanou, 2010.

Lionel Tiger, an anthropologist, has developed a model in which he distinguishes four types of pleasure. This model, which focuses on user experience rather that on products qualities, could serve as a constructive basis for further tackling pleasure benefit issues in design in relation to the 'weakness of the will'. Tiger describes four main types of pleasure (Jordan,1999):

1) Physio-Pleasure: this is to do with the body pleasures derived from the sensory organs;

2) Socio-Pleasure: this is the enjoyment derived from the company of others;

3) Psycho-Pleasure: this is the type of pleasure that which is gained from accomplishing a task;

4) Ideo-Pleasure: this is the pleasures derived from 'theoretical' entities and values.

The broad insights provided by this model can certainly be helpful in the generation of sustainable alternatives to simulate ideation, not only to propose eco-efficient products but also solutions that maybe more likely to connect with people at a more personally and meaningful level. Jordan suggests that to achieve this, there are at least three issues that the profession must engage in: 1) understanding users and their requirements; 2) linking product [or other forms of solutions] properties to pleasure benefits; 3) developing methods [be they quantitative or qualitative] to investigate pleasure.

Pleasure and self-interest are traditionally seen as a major contributor to environmental and social problems but more recent research by the authors (Marchand 2008; Marchand, A., Walker, S., Cooper, T., 2010) suggests that self-interest and personal benefits derived from environmentally responsible behaviours can be part of the solution and can work in concert with altruistic motives (Kaplan, 2000; De Young, 2000; Soper, 2005).

5.3 Design, Self-Interest Motives and Barriers for Sustainable Lifestyles

A recent qualitative research study aimed at examining the perceptions and preferences of identified responsible sustainable consumers showed that pleasure and self-interest motives play an important role in the adoption of more sustainable consumption patterns (Marchand 2008; Marchand, A., Walker, S., Cooper, T., 2010). Responsible consumers, identified as people who not only opt for more ecological products, but also have reduced their level of consumption, were interviewed in the study and expressed the idea that consuming in a more sustainable way plays a positive role in the pursuit of the 'good life'. This took the form of a reduced level of consumption and preference for products or product-service systems that allowed them to invest less time, money, and care in replacement, maintenance or repair, and to seek more personal time, less stress and healthier lifestyles. The results demonstrate that sustainable consumption cannot only be motivated by altruistic and environmental considerations, but, significantly, by perceived personal benefits as well, including an expected increase in personal well-being. While the study showed that opting for environmentally and socially sound goods is often directly related to eco- and socio-altruistic motives, it importantly revealed that reducing consumption levels was more closely related to self-interest motives, notably in reaction to the negative effects of misconsumption, as described earlier.

While research into eco-altruistic and personal-oriented motives for sustainable consumption, and how these can be translated into appropriate design solutions, may provide valuable insights for how to overcome our 'weakness of the will', it is also important to take into account the barriers that may prevent us from adopting sustainable lifestyles in general.

Thogersen (2005) has compiled an exhaustive literature review on the constraints and limitations for consumers' ability to adopt sustainable lifestyles. In terms of 'external' constraints, the author identifies two main conditions limiting lifestyle change:

1) Cultural meanings and norms, which include the cultural, social and aesthetic norms, and;

2) Infrastructures and available alternatives, which, for example, comprise the layout of the city, the ready availability of alternatives and the quality of information about their ecological properties.

Furthermore, the author has listed five individual or personal constraints:

1) Limited time and money: budget and time constraints limit how much money and effort are to be invested in protecting the environment (note: consumers often buy products for their alleged timesaving or convenience capacity);

2) Limited cognitive capacity: sustainability competes with other issues, including issues that consumers need to deal with in their everyday life, and limited cognitive capacity restricts the person's awareness about the attention towards ecological problems;

3) Limited energy for volition and self-control: not only our cognitive capacity of limited, but also the energy resources that we draw on for decision-making. People may have difficulties dealing with more than one new issue in need of decision-making at a time, which has implications for the speed of change one can hope for. Rather than intensive changes in lifestyles, people will attempt to change their lifestyles gradually, one step at a time.

4) Limited knowledge about problems and solutions: appropriate knowledge is a prerequisite for environmentally conscious actions. People have to be able to understand the problem and how it is related to their own behaviour and what can be done about it.

5) Limited skills and task-specific knowledge: sustainable lifestyle changes require people to possess specific knowledge about how to perform new activities and may require new skills.

In a paper entitled "Interventions to Break and Create Consumer Habits", Verplanken and Wood (after Bhamra, Tiley and Tang, 2008) showed that approximately 45% of respondent's everyday actions were habits in the sense that they were performed almost daily and usually in the same locations. Habits that are part of our daily life may constitute particularly relevant grounds for intervention. Continued research into the barriers for consuming and having less, and not just green product design, is seen as important and timely if designers are to play an active role in the creation of new, more sustainable and perhaps more fulfilling, routines, rituals, and sources of meanings.

6. A Discussion on Practical and Theoretical Approaches to Design for Overcoming the 'Weakness of the Will'.

Sustainable consumption requires that we examine the nature of our relationship with the material world, including the social, environmental and personal impacts of our material culture. As citizens, it also implies that we more fully engage in reorienting our consumption patterns. According to Thogersen, at the moment, "[…] consumers in the rich parts of the world make less of an effort at changing their lifestyle in a sustainable direction than is desired by society and that is in their own collective long-term interest" (P. 143). This exploratory paper has provided a theoretical background for inviting design to investigate how its contribution could contribute to overcoming the 'weakness of the will' in order to facilitate the passage from "knowing what we should do" and "doing it". Initial directions in that sense that could be further explored have been discussed, including design strategies for behavioural changes, pleasure for supporting changes and perceived self-interest benefits in relation to responsible consumption and identifying barriers for behaviour change.

This paper has also discussed the contribution of design in the support of sustainable consumption and lifestyles, and emphasises the need for a reduction in consumption volumes. As consumers, opting for greener products is rather 'convenient' as it does not really threaten the organisation of our daily life. However, reducing the level of things that we buy is much more of a challenge as it implies new rituals, symbols, habits, attitudes, routines and totally new ways to invest in the material world. As sustainable consumption is not only about production and consumption, but also essentially about the way daily life is organised (Robins, 1999), this issue does concern the design disciplines who have the tools and potential to imagine, visualise and communicate new sustainable ways of organising and experiencing the daily life.

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Lara Penin

Amplifying Creative Communities in New York City

1. The project: Amplifying Creative Communities in New York City

Our current ways of living are proving unsustainable. But how can we change them?

Communities are no longer waiting for new technologies, stronger regulations, or market shifts to create more sustainable futures. People are initiating new ways of meeting their everyday needs. They are organizing efforts to improve the quality of their lives and the environment by sharing resources and ideas such as community carpooling, time-sharing, and community gardening. These "Creative Communities" are the basis of the project "Amplifying Creative Communities in New York City" led by DESIS (Design for Social Innovation and Sustainability) Lab and funded by the Rockefeller Foundation's 2009 NYC Cultural Innovations Fund.

DESIS Lab, a research lab at the School of Design Strategies, Parsons The New School for Design, proposes to advance the practice and discourse of design-enabled social innovation toward more sustainable cities. DESIS Lab investigates how design can enhance community-led initiatives in the development of more sustainable ways of living and working. In particular, DESIS Lab uses service design as a means of applying design expertise to problem-setting and problem-solving related to sustainable practices and social innovation.

The project "Amplifying Creative Communities in New York City" focuses on new ideas that are implemented locally and can make the transition to more sustainable societies. In particular, it proposes to:
• Listen out for Creative Communities in New York City that are taking quiet but significant steps toward more sustainable ways of living and working
• Work with these Creative Communities to learn about their social innovations
• Design with these Creative Communities to expand the capacity of their innovations
• Broadcast what we have learned about social innovations to other communities

This project represents one perspective on how designers and planners can generate sustainable and socially innovative solutions to urban problems. Our starting point is the belief many solutions are not visible—they are developed by small self-organized groups that seek to improve their lives and environment through collaboration. An important task of designers and planners is to identify and disseminate such innovations, i.e. to "amplify" them. In practice, DESIS Lab proposes to conduct an "amplification" process with communities in New York City in order to improve and expand their capacity for social innovation.

The amplification process is organized around three main actions:
• Mapping sustainable social innovations. This is being done mainly through student work in the course Design and Everyday Experience in Parsons Design and Management program. In this course—which provides training in basic ethnographic research skills—students interview residents, conduct photographic surveys, make observations, etc. Their findings have been uploaded to the Green Map platform[1].
• Communicating innovations through (a) exhibitions, (b) workshops, and (c) websites to stimulate change within communities. In this project the exhibition is used as a research tool. The first exhibition (August 5–September 15, 2010) was designed for the Abrons Art Center at the Henry Street Settlement[2] on the Lower East Side, where the artifacts on display were not final results but works-in-progress that were intended to solicit public feedback to specific questions about community needs and solutions.
• Designing scenarios and toolkits to stimulate the start-up of new initiatives. DESIS Lab (Parsons students and faculty) is collaborating with the design firm IDEO to develop a series of toolkits aimed at either improving existing initiatives or making new social innovations more accessible to the general public. These toolkits will take the form of a series of do-it-yourself manuals that provide storyboards with step-by-step instructions on how to start up a new initiative.

The project proposes to conduct amplification processes in two different neighborhoods. The first one focuses on the Lower East Side neighborhood of Manhattan where DESIS Lab is partnering with the Lower East Side Ecology Center, a not-for-profit organization, to reach out to local innovators. DESIS Lab is currently researching and analyzing how the Lower East Side is configured as a diverse mix of communities under the pressure of gentrification. Research has revealed different ways social innovations develop—from informal impromptu practices and physical manifestations of local politics such as community gardens, to formal efforts such as the activities of local non-profit organizations.

Figure 1: Project brochure

2. Creative communities, social innovation, and urban activism

The concept of Creative Communities is based on previous European projects such as EMUDE (Emerging Users Demands) and CCSL (Creative Communities for Sustainable Lifestyles):

Creative Communities are "groups of almost 'heroic' and innovative citizens, which organize themselves to solve daily problems towards a more social cohesive and eco-efficient sustainable way of living[3]."

We may call these interactions between people who cooperate "collaborative services[4]" or services that ask for the direct and active participation of the initiative's promoters and its final users. These initiatives often advocate alternative solutions to everyday urban problems such as housing, eating, commuting, learning, socializing, and health care.

Some efforts of this kind are already well-known models such as food co-ops, community-supported agriculture, urban farms, farmers markets, and bike-sharing systems. Other efforts are less-known—for instance, alternative mobility solutions such as associations that organize a "walking bus" of parents or grandparents to take children to school on foot or domestic micro-nurseries set up and managed by enterprising mothers.

The EMUDE and CCSL projects have collected more than 100 case studies of Creative Communities' initiatives around the world. This collection has helped define some specific criteria for Creative Communities:

• Propose solutions that help solve everyday problems
• Regenerate the social fabric
• Present a lower ecological footprint than mainstream solutions
• Reduce the demand for products
• Reduce the impact of mobility
• Represent experiments of new economic models
• Create decentralized networks or flexible forms of organization based on peer-to-peer collaboration and reciprocity among participants

The EMUDE project has clustered European case studies around everyday functions, such as eating, commuting, working, learning, housing, and socializing. CCSL has proposed a different clustering around service ideas (carpooling, micro-nursery, etc.). In the Amplifying project we are proposing a fresh look at these international case studies so that they may

be used to describe the kinds of social innovations that are currently being practiced, and they may be interpreted for the American public. One important conceptual first move was to "translate" the definition of Creative Communities into a language that would be understandable for the local community of social innovators.

DESIS Lab conducted an internal workshop with DESIS Lab members (professors, researchers, and students), professors from Milan Polytechnic and MIT, and project partners (the design consultants IDEO; the Green Map System director; and the community partner, the Lower East Side Ecology Center). The workshop's aim was to share knowledge about the history and context of the Lower East Side in order to inform the development of the project and its processes and activities. The workshop also aimed to build a bridge between other countries' lessons and the New York City/Lower East Side's ethos, to create a common ground for the project participants.

Working with the Lower East Side Ecology Center, a not-for-profit organization operating in the neighborhood for the past 30 years, we learned that the term "urban activism" would resonate better with local community members when discussing the concept of Creative Communities with them. The idea of urban activism appeals to the American tradition of protest and action, volunteering and community engagement of the 1960s and '70s, as well as the care for public space and neighborhood life advocated by Jane Jacobs's urban sociology and the Lower East Side's own history of resistance.

The next step was to make use of international case studies to guide the identification of local initiatives. But to do so, we had to re-group the existing collection of case studies into categories that could be communicated more easily to the local public. We browsed through the international case studies and defined five categories of Creative Communities' social innovations and urban activism worldwide:

• Transforming public space
• Enabling entrepreneurship
• Caring for people
• Bonding and bridging
• Promoting cultural empowerment

These categories were the starting points for our research into the essence of the Lower East Side's social innovations and urban activism.

3. A map of social innovations on Manhattan's Lower East Side

3.1 Community gardens: gateways for social innovations on the Lower East Side

The Lower East Side was chosen as the initial site for the Amplifying project "due to its high population density, diverse ethnic communities, history of resistance to gentrification and strong political capital. The Lower East Side Ecology Center described the neighborhood's transformation from the 1980s – when it was reminiscent of a burnt out city in post-war Germany – to the present time in which there are over 40 thriving

community gardens that connect local residents and increase their cohesiveness." [5]

The Lower East Side is a neighborhood in the southeastern section of the borough of Manhattan in New York City. Its boundaries have been a source of controversy, as historic boundaries were changed by real estate dynamics. In this project we have adopted the boundaries suggested by Community Board 3:[6] the East River on the east; the Brooklyn Bridge on the south; Pearl Street, Baxter Street, Canal Street, Bowery, and Fourth Avenue on the west; and 14th Street on the north.

In terms of demographics, the Lower East Side has historically been a heavily populated area of New York City. In the past, Jewish immigrants comprised a majority of the population in the area.[7] Currently, the neighborhood's ethnic diversity is remarkable, with significant Asian/Pacific Islander presence (35%), geographically concentrated in the Chinatown area below Canal Street, and considerable Hispanic presence (26%—enough to create a Hispanic nickname for the neighborhood: "Loisada"[8]).

The neighborhood economic profile, albeit in rapid transformation, is still relatively low. It has traditionally been an immigrant, working-class neighborhood, but it has undergone rapid gentrification in recent years. The median annual income in 2006 was $36,500, which is 46% of the citywide median income of $76,800. Forty-nine percent of the population receives income support (such as public assistance, Social Security, or Medicaid). [9]

It is in this context that the development of community gardens appears as a major source of social innovation on the Lower East Side. As a large majority originated on burned-out lots that the city inherited in lieu of tax payments (when arson was a common practice during the 1960s and '70s), these gardens were the result of a successful effort of community engagement to avoid the continuous degradation of the neighborhood. The famous "Green Guerrillas" and other organizations helped the community transform empty lots into enjoyable gardens. More importantly, these physical changes helped transform the perception of the area. According to Elissa Sampson, activist, geographer, and long-time resident of the Lower East Side, the community gardens were among the main reasons for the neighborhood's revival in the 1970s and '80s.[10] A city program, Green Thumb, helped by providing technical assistance to the gardens, and the gardens flourished.

The 1990s saw further changes in the neighborhood that dramatically affected the gardens. The then-new mayor, Rudolph Giuliani, did not renew the gardens' leases and the real estate dynamics changed completely, increasing property values. Many gardens were swallowed by new developments, and some of the historic ones disappeared forever. Since the gardens were tightly connected to each other, these casualties felt like major losses to the whole community. Still, 44 community gardens have survived.

3.2 A Green Map of community gardens

Although the Lower East Side was a deliberate choice for the Amplifying project, it was surprising for the researchers to learn about the importance of the community gardens in the neighborhood, their amazing diversity, and their significance in the everyday lives of residents. We also learned that the gardens represent the most important manifestation of urban activism on the Lower East Side.

We documented a selection of these gardens and interviewed their members to understand their efforts and motivations. Our hypothesis was that participants in the gardens were also likely to be participating in other innovative and sustainable endeavors within the community. In fact, our research helped uncover initiatives that were happening "below the radar," i.e. that were hidden from the sight of the general public.

Students from the Design and Management program at Parsons the New School for Design have documented 17 Lower East Side community gardens through interviews, photography, and film. A Green Map was created, aggregating all the data collected by students.
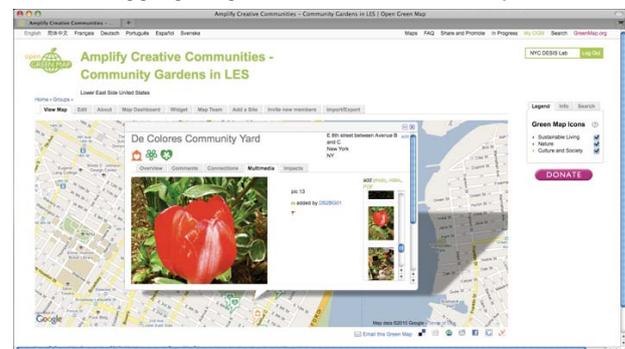

Figure 2: The Green Map: "Amplify Creative Communities – Community Gardens in LES [Lower East Side]"

3.3. Community gardens' urban activism on the Lower East Side: following the leads from the community gardens' stories

A closer look at the community gardens research led us to identify creative solutions for everyday life developed by garden members, as well as the neighborhood's main areas of unmet needs and service demands.

We selected nine gardens with stories of strong urban activism and organized them into a matrix, categorizing them into four main areas that represent a mix of existing social innovations and urban activism and perceived demands for new collaborative services. Criteria for this analysis included the potential for local job creation, micro/domestic entrepreneurship as a possible response to gentrification, and retention of the active and traditional communities.

The areas identified were:
• Taking care of the elderly
• Eating Healthy
• Retaining Cultural Identity
• Living Together
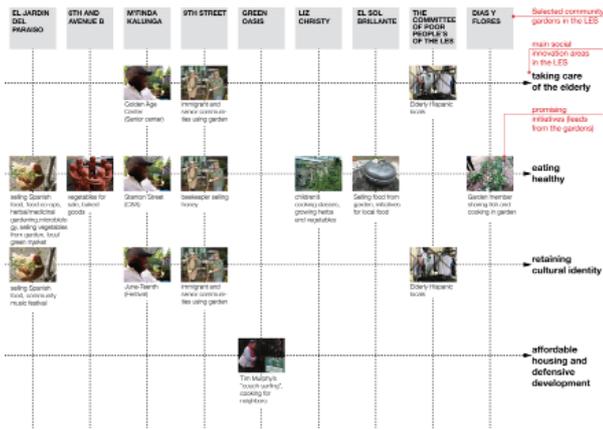
Figure 3: Categories of social innovation "leads" from selected
community gardens on the Lower East Side

This ongoing investigation is being carried out by students in the Independent Studies course of the Environmental Studies program. The students in this course followed the leads obtained from the community gardens research and conducted in-depth investigations into existing case studies. The results of this research will support the amplification process by informing the development of new service scenarios and amplification do-it-yourself toolkits.

4. Amplification by design
4.1 Exhibition as a research tool

Exhibitions are typically organized to show a final product. In the Amplifying project process, the exhibition is used as a research tool. It aims to establish a public conversation, consulting the general public about several specific issues and showing some in-progress results and hypotheses.

For the Lower East Side exhibition we envisioned five main sections, each one dedicated to a particular aspect of the research. Each section aimed to create a dialogue with the public about a specific topic by proposing a question about that topic and showcasing related research.
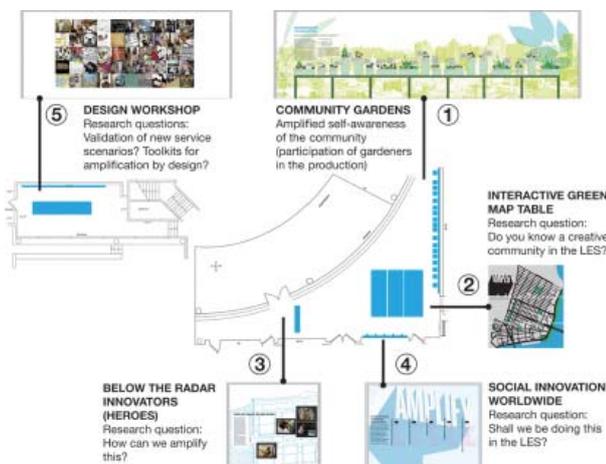

Figure 4: Exhibition as research: the different exhibition sections and
respective research questions

Section 1: Lower East Side Community Gardens "Installation"

This section of the exhibition showcased 17 community gardens as examples of urban activism in the neighborhood. The installation included a text description of each garden, as well as planters and similar artifacts produced in collaboration with the local community. A participatory method was used to accurately portray each garden through the eyes of the people who use them: members were invited to take part in an event where they would create physical representations of their respective gardens using their own plants.

In this section no research question was proposed. Instead, this collaborative installation was intended to enhance the self-awareness of community gardens as gateways for other forms of social innovation on the Lower East Side.

Figure 5: Community Gardens Installation, Section 1 of the Amplify
exhibition at the Abrons Art Center, with representations of gardens
created for the exhibition

Section 2: Interactive 3-D Green Map Table

A physical version of the online Lower East Side Green Map highlighting the neighborhood's Creative Communities was installed on specially designed tables and included elements (e.g. index cards) to enable public participation.

In this section we wanted visitors to help us identify other social innovation initiatives on the Lower East Side. The question to the public was: "Do you know a Creative Community in the Lower East Side?" We aim to use the public's input to lead us toward other initiatives and further mapping of urban activism in the neighborhood.

Figure 6: Green Map Table, Section 2 of the Amplify exhibition at the Abrons Art Center, showing index cards submitted by the public

Section 3: Social Innovation Corner

A closer look at the research with garden members led us to identify creative solutions for everyday life that members had developed, as well as four main challenges or areas of unmet needs:

• **How to take care of the elderly:** Traditional forms of support like senior centers are receiving fewer resources. How can we take this problem as an opportunity to rethink senior-focused services on the Lower East Side?

• **How to eat healthy:** Obesity, diabetes, and health issues related to food are a national and local challenge. How can we make the community's alternative food systems such as urban agriculture, food co-ops, and community-supported agriculture groups more accessible to the entire Lower East Side population?

• **How to improve housing and home services:** With the pressure of gentrification, living on the Lower East Side is becoming more and more difficult to afford. And community bonds are fraying. Can we imagine collaborative services that respond to these challenges?

• **How to benefit from our cultural diversity:** The Lower East Side has historically been a melting pot of the most diverse communities, accommodating people from all over the world. How can we transform this wealth of cultures into a productive celebration rather than a community characterized by language barriers and separation?

Included in this exhibition section were four short videos designed by Parsons students[11] that told stories about local demands, unmet needs, and existing innovative solutions in the neighborhood related to each of the areas described above.

Each video produced by students followed a three-part script:

Part 1: Explaining the context—a sequence with images and captions showing people, spaces, interactions, etc., providing some background regarding each area;

Part 2: Vocalizing local demands—a series of "guerrilla interviews" with people on the streets and in local businesses, gardens, parks, etc.;

Part 3: Learning from existing solutions—a sequence combining an interview with the leader of at least one promising initiative (identified in the researched community gardens) and elements of the solution.

In this section the public could use cards to answer the questions: "How can social innovation make a difference on the Lower East Side? What are the main issues at stake?"

Figure 7: Social Innovation Corner, Section 3 of the Amplify exhibition at the Abrons Art Center

Section 4: Creative Communities Worldwide

In this section visitors were invited to browse through international stories displayed on wall-mounted iPods to learn from their successes and choose ones that could be started up on the Lower East Side. A selection of case studies from global research projects such as EMUDE (Emerging Users Demands), CCSL (Creative Communities for Sustainable Lifestyles), and CCSLA (Creative Communities for Sustainable Lifestyles Africa) provided an international perspective on existing social innovation concepts and Creative Communities worldwide. As described earlier, the case studies were clustered in five categories: transforming public space, enabling entrepreneurship, caring for people, bonding and bridging, and promoting cultural empowerment.

In this section the question to the public was direct: "Should we be doing something like this here on the Lower East Side?" A voting system using stickers allowed the public to select the most inspiring international case studies.

Figure 8: Creative Communities Worldwide, Section 4 of the Amplify
exhibition at the Abrons Art Center, with wall-mounted iPods

Figure 5: The network strategy and toolkit implementation scheme

Section 5: Workshop

A workshop was organized to evaluate the scenarios developed by students in response to the mix of demands and research into existing case studies of social innovation and urban activism. Workshop participants, who included project partners, local experts, and designers, discussed the scenarios' feasibility, usability, and adequacy for local conditions and hypothesized about aspects of each scenario.

4.2 Amplification toolkit

Beyond the exhibition, what other ways can designers intervene to scale up social innovation? As noted earlier, socially innovative practices are often below the radar of the general public and need to be acknowledged and sometimes "normalized" to be accepted as valid and desirable. Therefore, designers have a key role to play: the transformation of existing hidden practices into models that can be reproduced.

In order to achieve this, DESIS Lab is proposing to build an "amplification toolkit"—a set of techniques, tools, and activities—to encourage individuals, local non-profit organizations, and policy-makers in the design field to develop solutions that promote sustainable lifestyles and sustainable and socially innovative solutions to urban problems.

The toolkit is a set of step-by-step instructions to help the user develop a sustainable practice independently.

The plan to implement a do-it-yourself toolkit series is part of a network strategy to integrate efforts among the different stakeholders—from policy makers at the "top" to grassroots innovators at the "bottom"—involved in the development of solutions to daily problems. Our research identified the possibility of empowering community organizations already in charge of specialized programs and activities (such as recycling and composting by the Lower East Side Ecology Center, partner of the Amplifying project) to use their local knowledge and embeddedness in the neighborhood to act as hubs of social innovation. Equipped with our amplification toolkits, these organizations in the "middle" could play a major role in the adoption and diffusion of sustainable service ideas by promoting a positive interplay between bottom-up initiatives, peer-to-peer exchanges, and top-down interventions.

5. Next steps

When the first amplification process is concluded on the Lower East Side, the results of all conversations conducted during the exhibition and workshops will be analyzed and uploaded on the Amplify website, the main repository of the project. A second amplification process is planned to start in November 2010 in Brooklyn.
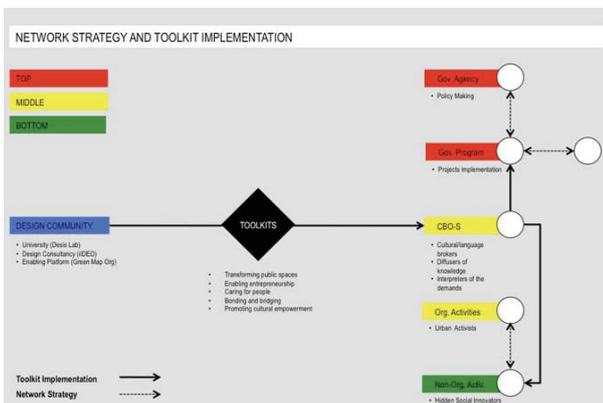
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Notation

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3 A. Meroni, ed., Creative Communities: People Inventing Sustainable Ways of Living in Europe (Milano: Edizioni Polidesign, 2007). Available online at www.sustainable-everyday.net

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7 "Historically, Lower East Side immigrants from Italy, Russia, Germany, and Ireland faced inadequate housing and taxing work conditions. By the turn of the century 8-10 people could share a 325-sq ft tenement apartment. Many of the immigrants had to find their 'sunshine' and create their lives in the streets, halls, churches, synagogues, parks and movie theatres outside of their tenement apartment." (Lower East Side Tenement Museum)

8 The Latino pronunciation of "Lower East Side" (Wikipedia, http://en.wikipedia.org/wiki/Lower_East_Side).

9 http://envisioningdevelopment.net/map

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11 Students enrolled in the "Amplify Social Innovation" course in the Parsons Environmental Studies program

Vincenzo Cristallo
From the knowledge society to diffuse creativity, from perceived identity to basic design: Conditions and opportunities for design-enhanced local development
Design visions, proposals and tools

Abstract

For ten years researchers at Naples University have involved students, teachers, local authorities and companies in an action-research project exploring the possibility to use the resources of design for sustainable local development. The research has produced positive outcomes as well as contradictory findings, but above all it has shown that any opportunity for 'territorial emancipation' can only succeed if it is supported by an interaction between the perceived needs and shared needs of the local community. It has also shown that any appropriate local development model must be centred on the role and contents of the 'knowledge society'.

Based on these premises, the aim of our work is to explore in depth four topics that we consider to be the cultural and scientific basis for the above premises. We begin from the role that knowledge and its technologies play in local development; then we establish a more updated dimension to assign to the concept of creativity applied to the territory ('diffuse creativity' meant as original responses to needs); we then move to the core of the concept of 'local' by stressing the irreplaceable role of identity in the re-configuration of sense and the use of the territory and we conclude by proposing a model of design which acts for the territory in that it spreads from the bottom upwards and by means of basic tools, that many can understand (basic design) – a design which is feasible but above all is able to play a 'narrative' role

Understanding the local system

'Understanding to act and acting consciously'. The following pages will attempt to decode this phrase in four perspectives stemming directly from the variety of experiences produced by applied research on the field, considering the limits and potentials of the local system and the recent appearance of more sustainable and better understandable models to interpret ongoing phenomena.

In areas where development is full of contradictions and fluctuating, and is based on a process implementing physical and social resources, the concept of sustainability is only possible when addressing a society open to knowledge and diffuse creativity, i.e. an appropriate response to everyday problems.

From these observations a critical process begins and develops gradually: it starts from an unavoidable cognitive front which is needed to act on local development (the function of the 'knowledge society'); it continues by establishing a more up-to-date dimension for the concept of creativity applied to the territory ('diffuse creativity' as originality of the responses to various needs); it shifts to the core of the concept of 'local' marking the irreplaceable role of identity in the processes to re-locate sense and the use of the territory ('designing identity'); it concludes by outlining a model of design acting for the territory because it is able to spread from below and with basic instruments (basic design), it is therefore understandable and implementable by many, but above all it is capable of playing a 'narrative' role meaning representing and visualising the complexity and uniqueness of a given territory.

The capital of diffuse knowledge

Today, anything presenting itself as a local, sustainable development model stresses the role and the tangible contents of the 'Knowledge society', i.e. a society which for years has been said should outline a new type of society organisation in which each and every economic, cultural, social and productive activity is based on knowledge.

The knowledge society is founded on a diffusive use of technology, namely information and communication technology. At present, this analytical perspective is still struggling to deploy itself as a fully accomplished scientific paradigm; we are in a perspective that still maintains the typical features of the metaphor of knowledge, while we wait for it to turn into the new paradigm – source of new economic, social, political and cultural meanings of the whole global social system (Vespasiano 2006). A metaphor that, above all, awaits to be verified within local development.

In the general process of change in which social organ-

isations and local territories are involved today, the constant creation of knowledge tends to act as an extremely important competitive factor (Pievani e Varchetta 1999). This knowledge creation process as a competitive advantage for the challenges set by global economy – and in a cosmopolitan localism – (Manzini 2005) at last turns the human resource from a dependent variable to an independent variable, and brings back to light the economies of the mind, that is, the economy of creativity, of complexity – two expressions synthetically coinciding with the idea of local identity assets.

We are clearly facing a revolution involving, above all, the sphere of mentality and philosophy which characterises production, consumption and lifestyles. In a context characterised by the power of technological innovation, and thus by the disappearance of all the figures involved in a direct relationship with certain tools or machines and by the appearance of figures with farther reaching competences, it seems clear that the new, successful professional skills will be oriented to relations-information-decision (Serreri 2000). In our setting we would say professional skills able to provide 'appropriate creative strategies'.

The importance and extent of the problem of creating and improving one's competences (meant as the outcome of an ever-changing learning process) are linked to the fact that this problem concerns both the individual and the enterprise, the school and the family, space and the territory (Pepe 2003).

It is in this perspective that Jacques Delors places the definition of competence, within one of the four pillars of 21st-century education, learning to do, the other three pillars being learning to know, learning to live together and learning to be. Delors' goal clearly is to implement the strategic coordinates of the knowledge society, hence a competence is the raw material for learning to do, something that will be very different in the third millennium to what we were formerly used to, as it will be linked to the supremacy of the cognitive and informative element as a key factor in production systems.

As the industrial society comes to an end, the idea of professional skill is due to disappear too. This is especially true for those skills relating the abstract ability to perform a task in favour of a competence based on versatility, participation, self-awareness – all necessary ingredients for concrete hypotheses of local development.

Expanded creativity for local actions

The theme of diffuse knowledge is accompanied by that of diffuse creativity. Creativity is a complex, ambiguous theme, and yet it remains a constant 'philosophical condition' in each and every design. When imagining a sort of continuous, diffuse creativity, the stress is also placed on the possibility to generate needs in a given context and responses applied to the territory, with a bottom-up, gradual, forward process.

Thus designing in a creative way does not only mean to provide original solutions, but establishes a fundamental principle of sustainability and appropriateness of the design process which many can provide, because creativity is a latent feature of everybody, not only of a few privileged ones. Indeed, Albert

Einstein stated that imagination is more important than knowledge, meaning it can provide a cultural contribution and create new knowledge.

We therefore view the issue of creativity as the ability to give new, unexpected solutions to various categories of stimuli, and for this reason it can be applied everywhere, from the organisation of individual lives to the search for solutions to big collective problems, from art to technology.

Avoiding the commonplace whereby creativity is a talent bestowed on few individuals only, we come the idea of a 'genius' which is present, in a more or less explicit way, in everyone and is meant as the ability to look at things 'from another point of view'. Many studies on creativity state exactly that it is necessary to recover and to re-activate the potentials we have, to 'lubricate' some connections, some synapses in the way we see (Vimercati 2000).

One who wants to 'become' creative must re-learn to look, and the design activity – especially when it concerns services and the territory – proceeds within an uninterrupted observation process: observing, looking with curiosity to find what you are looking for or, simply, find out what is happening. This assumption is valid both for what we may describe as everyday creativity and for the intention to touch on areas of greater awareness. Both highlight that creativity is meant as something that is expressed through us, rather than 'squeezed' out of us (Vimercati 2000).

Diffuse creativity is a social asset, it is generated by the interaction of several minds making up a sort of collective mind, it has no professional ambition, gives a sense to common good and is also seen as an experience of languages. The social dimension of creativity produces the socialisation of people in general and of those with the same need to experiment, the same creative horizon. Further down is also a creativity of growth, a 'creativity of resistance' which, if it does not coincide with the world of youth, is certainly part of it.

Diffuse creativity is also a triggering factor for sustainable technological innovation, since its aim is often not to find a creative response to a problem, but to use creativity to make up a new need for many, and this is the essence of technological innovation (Legrenzi 2005).

If we consider the environments with the highest degree of creativity we must look to Richard Florida's theories (Technique, Talent, Tolerance), which analyse those places and territories with a close relationship between empathy/tolerance and creativity.

There are no recipes for creativity and innovation. One may only train and try to be prepared to overcome the obstacles on the road to new solutions, taking on a critical attitude, being curious about what surrounds us and taking nothing for granted (Legrenzi 2005).

Creativity is, then, a process, not a state, and it entails life-long education and self-education. Education also derives from exchanges with those working with the same languages, experimenting the same pathways. Exchange, example, encouragement, the 'short circuit' of the group are all major opportunities in a training process leading to the improvement of one's creative

strength (Vimercati, 2000; Cavallin 1995, Cavallin e Sberna, 1995)

Developing identity to develop the local

The issue of identity and its possible design as a prerequisite to promote local development has been a constant argument of action-research carried out locally through design resources. It is not, however, a clear-cut concept of identity, made even more ambiguous when compared with positions on the field which are dissimulated behind a pre-set representation of its value, mainly experienced as a sense of belonging, almost a defence, sometimes contrast. Nevertheless, the constant effort (even considering the difficulties many have in accepting a more changing meaning of identity design) was one aimed at establishing that such design meant, above all, considering a more up-to-date vision of 'localism', contemplating its complex nature, the focus of a plurality of meanings that can be referred to a set of cultural, normative, economic, political and symbolic aspects. A rather significant outcome, that experiences in the past few years have reached through an interpretative model developed on solid themes, such as access to resources, protection and use of the cultural heritage, enhancement of the environment, sustainable development. Finally, a localism whose contents are constantly updated and which examines the value of typical resources according to a definition ascribable to the sequence in the product-context-identity relationship. Such a chain, when referred to economic studies, ensures that the territory be interpreted as a 'diffuse company' and recognises in it economic models, often 'informal', where the originality and quality of produced artifacts results from the combination of local resources and the typical nature of the goods, the result of a 'productive habitat'.

It is to this collective interpretation of identity viewed as the cultural matrix of places, territories and cultures, that one may attribute a crucial value for local development viewed as a resource to be recognised, protected and communicated.

Matching the design activity with the issue of identity thus increases the possibility of creating relation systems between development and the enjoyment of local goods and the design of appropriate dynamics for their use within scenarios in which local resources are reappraised and re-delivered through the specialised competences of strategic design and services as well as of the communication and product systems.

This argument leads to assert that the design system, with the aim of giving 'shape' to the intuitions, cultures and know-how of a territory, becomes a potential engine for the development of the territory inside complementary systems of goods and services and shows the driving role of the cultural heritage in developing local systems. 'Developing the local' through design, then, means to shift the focus of the propositional activity from the subject to the context – that is, the territory.

The action of design on the local scale must therefore provide solutions to improve the living conditions of those who live there, and enhance systemic processes of social, economic and technological innovation taking into account the specificities of local resources by adopting the approaches of different disciplines and aiming at acting in several contexts (social, economic, cultural).

In conclusion, towards the territory design can play an 'agent' role (being a potential instrument for social and economic emancipation) and a 'narrative' role, as it can depict the different components with the various values existing on the territory (which, like in a screenplay, means representing a subject in the most suitable way for it).

Basic design as a competitive tool for the territory

For a design activity like the one described in the previous section it is possible to define a new figure of designer that we may call 'intermediate': a new figure able to become an integral part of a diffuse, complex productive texture and to devise 'creative strategies'.

In this scenario research and education in design play a major role in putting forward the typical resources of design as basic design to enterprises as well as local decision-makers. This is an even more positive goal for those realities where the relationship with the design system has no structural value, thus becoming liable to inductive solutions and, as we have said, intermediate ones.

The basic design activity wishes to originate specialised competences in the proper processing of the products as well as in setting up working teams able to develop diffuse design activities matching the characteristics of the territory. It is not a matter of following educational hypotheses leading to false competences or, worse, introducing overlapping roles, but rather of tuning professional training on the requests of designers working in local companies who are trained to integrate into the various organisational and productive levels with flexibility and creativity. Also, the urge for a productive activity focused on organisational adaptability remains, in many cases, the only possibility for small- and medium-sized enterprises to access ever-transforming markets while maintaining their commercial shares and brand identity. An identity, historically supported by design, which is even more necessary in those economic and productive contexts like the south of Italy which are in search of means to assert themselves in a complementary way to the original contexts. Design asserts itself as a factor for the interaction between the technical-productive and the socio-cultural dimensions of the goods and services produced.

Present-day entrepreneurial culture, in terms of the ongoing changes in design-oriented production, is the result of the ongoing organic changes in industry and design, which reflects the fall of all barriers between enterprise and society. Since the 1990s the industrial cycle has reached its greatest expansion, coming to include also the non-industrial sector. Identifying this expansion requires those who deal with reinforcing education in design to recognise that entrepreneurial culture has become a mass culture, meaning that a new framework has been set up in which a global economy lives side by side with a social-local economy based on the individual's ability to be an instrument for diffuse design and to develop personal micro-enterprise models.

(Yet) another strategic, elementary function must be as-

cribed to design – which always determines the shape of the product – i.e. bringing together all the aspirations, competences and experiences of a territory into a network. A competence that, starting from ICT, may reflect the complexity of the ongoing changes between the product system and the end user, between technological innovations and traditional activities, between enterprises and the district, between individual capacities and team work, between local development and real development.

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Feeding Milan. Energies for change. ("Nutrire Milano. Energie per il cambiamento")

A framework project for sustainable regional development based on food de-mediation and multifunctionality as Design strategies.*

Abstract

This paper will show a strategic design project, promoted by the Politecnico di Milano-INDACO dept, University of Gastronomic Sciences and Slow Food Italy, which arose from the observation that in the Milanese urban area the demand for high quality, fresh food hugely exceeds the actual, available production, despite the presence of a large, potential "urban larder" known as Agricultural Park South Milan.

The aim of the project is to design a system of services and infrastructures to develop a more efficient and effective Milanese agri-food chain, in order to shape a scenario of sustainable and innovative metro-agriculture. The Strategic Design contribution is twofold: on one hand it focuses on multifunctionality and collaboration among producers to achieve economies of scope; on the other hand, it fosters the relationship between the city and the productive countryside through de-mediation of the agri-food chain.

This ongoing project started by observing the most promising cases of social innovation in the territory and is now working to strengthen them and diffuse such models through a Service Design intervention and the implementation of a pilot case. Within this approach, this paper will point out design tools and strategies to address such complex territorial issues.

Keywords

Service Design, Strategic Design, Periurban Agriculture, Framework project, Local projects

1. The Milanese context and the Agricultural Park South Milan.

The periurban area: risks and opportunities. In recent decades, urban growth has detached places where people live from both urban services and rural ones. This has turned periurban areas into controversial places, suffering from lack of identity and loss of social cohesion (Magnaghi, 2000; Augé, 1992).

According to Fleury (Fleury, 2005), in industrialised countries periurban agriculture could cover new roles such as restoring confidence in food quality and safety, creating more harmonious cities, renewing citizens' awareness of agriculture and managing the cities' green belts. Local food production also increases regional food sovereignty (Latouche, 2008) with positive consequences on local economies and regenerates the social role of the farmers (Petrini, 2005).

The main problem in defining new identities for periurban areas is the apparent lack of profitable and practicable alternatives to production sites, housing or offices. However, looking more deeply into the current reality (EMUDE, 2006, CCSL, 2007, Food Networks, 2009), it is possible to recognise the existence of many small local initiatives (i.e. community supported agriculture, proximity tourism, school farming, etc.) that could be fostered and linked together in order to create a resilient local network, based on territorial resources and opportunities.

Milanese agriculture and local resources. The Agricultural Park South Milan is the biggest agricultural park in Europe. Almost ignored by the city dwellers, it's an area of 47,000 ha, characterized by intensive, industrial farming, while a very small percentage (3-4 %) is dedicated to diversified agriculture and eco-compatibility systems. We can observe that most local farming is not dedicated to the city and the citizen, especially if we consider that people from Milan looking for good quality fruit and vegetables find them far away from the city, very often relying on door to door services from other regions[3].

Besides its merely productive resources, the Milanese territory has an important historical heritage (abbeys, farm buildings), rural villages, water resources (resurgences of underground streams, the canal system, etc.) and a rich cultural mix (people local to the area, immigrants, and city dwellers). All these could be turned into strong assets to trigger new relations and increase the attractiveness for the city.

Expo 2015, a counter-proposal. "Feeding the planet, energy for life" is the motto for Expo 2015, highlighting the importance of land use and food provision in the near future. But how can we become a reference for food provision while our city is a negative example? "The Feeding Milano, energy for change" project started with these considerations and aims to create a real and "tangible" territorial monument for these issues.

2. Feeding Milan. The project.
2.1 Research question and hypothesis

The context has been described as a rururban region (Donadieu, 2005) challenged by building speculation, where the boundaries between city and countryside are blurring due to urban sprawling and agriculture is suffering because no longer profitable. Thus the land owners are just waiting for a good offer from building speculators. In this perspective it is necessary to steer local agriculture towards sustainability and innovation principles that address both farmers and city dwellers/consumers, who can also be seen as co-producers (Petrini, 2005). This can be done by thinking and fostering a radical and systematic change in the way we look at the relation between rururban agriculture and the city.

How is it possible to revitalize the Milanese agricultural region? The idea is to boost agriculture as a presidium of land's territorial quality by revitalizing local networks and encouraging the sharing of principles, exchange practices and resource optimization as strategies to create a model for a new territorial system.

2.2 Objective

The aim of the project is to design a system of services and infrastructure to redefine the local territorial features, both of the city and the Park, on the basis of an efficient and effective agri-food chain, in order to shape a scenario of sustainable and innovative metro-agriculture. Our vision is a rural-urban area where agriculture flourishes feeding the city and, at the same time, offers city dwellers a number of opportunities for a multiplicity of farming and nature related activities.

The project scenario is built on two main pillar-issues: multifunctionality of the farms and de-mediation of the food chain. The concept of multifunctionality in agriculture offers farms the opportunity to diversify their sources of income by supplying other, non-commodity outputs alongside their primary function of producing food and fibre, thus contributing to the socio-economic viability of many rural areas (OECD, 2001). These additional functions can be seen as services linked to the environment, territory and people. This idea is proposed as a promising strategy for European agriculture (EU, 2000) especially in the periurban areas, where these services could be addressed to the city, shortening the food-chain and creating direct connection between city dwellers and farmers (Meroni, 2006).

Thus the project will, on one hand foster the development of a local agricultural system with various functions, by offering an integrated network of services to both farmers and citizens and, on the other hand, support direct connections between the city and the productive countryside by creating quality relationships in new food networks. Hence Feeding Milan will provide the city with new infrastructure and services in order to create exchange relationships within Agricultural Park South Milan and city resources, defining an excellent agri-food metropolitan model, an urban landmark to celebrate and represent the city in the Expo 2015 perspective.

In detail, the specific goals of the project are the following:

− To promote a shift from industrial agriculture to organic multifunctional farming thanks to the support of existing best practices and the development of new, specifically conceived, projects;

− To conceive and develop a new set of services to improve the quality of life in the country side, and to facilitate the links among farms and the city,

− To activate unexploited resources that the territory may offer (infrastructure, initiatives and people);

− To promote a new culture of food and agriculture and to raise awareness among citizens of the importance of Agricultural Park South for the quality of life in Milan.

2.3 An "on-field" regional project

Feeding Milan involves partners with a highly informed background on food networks and sustainability, cultural and technical knowledge in agriculture, a deep rooted network on the field and strong communication skills. The promoters of the process are:

− Slow Food Italia, an international association founded in 1989. This is a cultural movement that proposes a philosophy of pleasure and educational programs in taste discernment, eno-gastronomic heritage protection and consumer training[4].

− Politecnico di Milano, INDACO department, is the Design school of the Politecnico di Milano. In particular, the DIS-Design and Innovation for Sustainability research unit works in the field of strategies for sustainable innovation in product-service systems.

− University of Gastronomic Sciences, an international research and educational centre for a new agricultural paradigm, for biodiversity and for a holistic relationship between agronomy and gastronomy.

2.4 The process

The activities foreseen for the project were described through an agricultural metaphor, borrowing terms from the cultivation process.

1. Planning the crops. (Scenario Building) This is the building phase for a scenario of de-mediated services and a short agri-food chain in Agricultural Park South Milan and its metropolitan area. On the basis of project hypotheses, this phase aims to define shared values and achieved knowledge in this sector, and the guidelines and strategic vision or scenario that frame the overall project. Scenario building is necessary to start the whole project and to drive the next phase. Indeed the scenario will be useful in envisioning the desirable context conditions and, moving from this, in defining the actions to be taken to achieve it.

2. Tasting the soil (Regional Analysis). This phase aims to discover, understand and map the features of the metropolitan area (Agricultural Park South + Milan), in order to identify strengths and weakness, best practices and underexploited opportunities , proactive individuals and consumers, and thus, ultimately, design opportunities.

3. Cutting the furrow. (Service Design) This means boosting existing best practices by designing specific services

to give substance to the scenario in which to integrate them. The aim of this phase is to give substance to the scenario by designing contextualised services that help to consolidate the links between city and countryside. It feeds from previous phases and aims to generate solutions for networking existing resources and activating new ones coherently with the scenario.

4. Seeding. (Piloting) Starting up pilot projects and modelling the designed solutions. The aim of this phase is to trigger the system change by boosting existing best practices and experimenting new ones. This activity will start at the beginning of the project, addressing those cases which already exist in the context of creative and virtuous entrepreneurship (Landry, 2000): the so-called best practice pioneers. Further cases will be added as the project develops.

5. Manuring. (Communication and participation). This is the phase that deals with project communication, participation and dissemination. The aim is to create a permanent confrontation with project stakeholders at different layers, according to co-design principles. Communication aims at activating a high-profile cultural debate, addressing both society at large and academic circles.
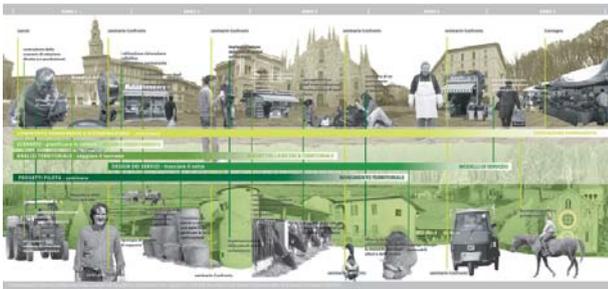

Fig. 1: Project development timeline

The project process is not linear, indeed the activities are held in parallel, with continual movement from one level to another. Currently the partners have started to develop the first pilot project, the Mercato della Terra (farmers' market), and are planning the other two envisaged for the first year. At the same time the first steps to achieve a sustainable scenario of regional development, based on field research on specific cases analysis, has been started with internal workshops and design activities involving master degree students.

Given the recurrent, non linear process, a transversal description is provided here in order to outline the structure of this project in accordance with the SEE case study format, elaborated within the context of the European project PERL (to be published by Jegou, Manzini and Rizzo).

2.5 Framework scenario and structure

Feeding Milan is a framework research program which addresses Milanese regional food development. It is made of several, so called, local projects.

As previously said, the general framework takes shape in a scenario that deals with two leading and fundamental issues: multifunctionality and de-mediation. Within this scenario, the framework strategy aims to:

− Transform the countryside nearest to the city from a

disadvantage into an advantage, promoting the values of "zero mile food" and new activities for proximity leisure and local tourism.

− Support existing best practices and help their activities to become more visible, in order to extend them to other farms and city dwellers.

− Build new food networks based on the two main concepts of de-mediation (in order to shorten up the agri-food chain) and multi-functionality (in order to promote economies of scope among the farmers).

Its structure is shown in the picture below: it consists of actions that cross over the five phases described above, and a number of local projects. These are pilot projects which give consistence to the scenario and trigger the real change in the region. In line with the general framework, three local projects have been activated so far. However, in the next few years other local projects will start, both to reinforce those already running and to trigger new services for city dwellers and farmers.

Action 1: Scenario building. The scenario building aims to develop, depict/visualise, and share a vision of a metropolitan agri-food model of excellence: a rural-urban area where agriculture flourishes to feed the city and, at the same time, offer the city dwellers opportunities for a multiplicity of farming and nature related activities. In order to fulfil such a vision, designers have to carry out several activities like:
− Envisioning: make the vision visible and tangible in order to share it within the design team and the broader community
− Creating ideas of new services to give substance to the framework scenario
− Sharing and generating consensus on the scenario development
− Contributing to the territorial analysis, as a way to find out existing best practices and design opportunities for scenario development.
− Collecting and presenting case studies of best practices, in order to create a common background of knowledge, that can inspire the design team in scenario building.

Action 2: Digital platform development. The digital platform aims to support collaboration among all the

communities working on the project at different stages. It also supports the 3 local projects.

The platform consists of four layers:

− Social network base: the basis of this platform. It is a database of users who form connections with others using social media in order to collaborate and achieve common goals.

− Enabling solutions: Borrowing from Manzini's original definition (2005), these are sets of technologies that help users to communicate and collaborate more effectively to achieve their goals.

− Collaborative services (Jegou and Manzini, 2009): services that require user collaboration. These can benefit greatly from the shared social network base by utilizing the existing social network formed by other services

− Events: an event is the result of collaborative services in both digital and physical space. Events are important because they catalyze the formation of a social network between users who would otherwise remain disconnected or connected latently[5].

Action 3: Communication. This action aims to create an ongoing dialogue between designers, local communities and project stakeholders. In particular, this action will result from:

− The organisation of seminars and co-design workshops to help the ongoing dialogue between designers and co-producers (farmers and consumers)

− The activation of permanent consumer education practices to help them become co-producers

− The organisation of academic conferences to involve the scientific community in the project.

Action 4: Systemising. This is the practical application of the framework, which consists in:

− Building the digital platform to start creating links between the local projects, and to give substance to the framework

− Showing who the farmers are and what they do (eg: selecting farmers for farmers' markets according to quality criteria and the degree of co-ordination with which they present themselves at the market)

− Creating synergies between actors in order to help them in achieving economies of scope (Meroni, Simeone and Trapani, 2009)

Local project 1 - Mercato della Terra di Milano (Slow Food Milan Farmers' market)

This is the farmers' market for producers from Agricultural Park South Milan and other guests from the Lombardy region. It is promoted by Slow Food Italy and the Province of Milan and authorised by Milan city council.

Context: Located in Milan, in the former local vegetable market of the city, the Farmers' market could be a good system for de-mediated selling and directly linking the producer to the co-producer. As it is now, it forms part of a network of markets promoted by Slow Food and functioning in various cities in Italy.

Main problem: City dwellers in Milan cannot find good local produce in the mainstream distribution system. Such a system keeps the chain between the farmer and the consumer very long, with high cost increases and small revenues for the farmer.

Vision: Farmers need a chance to meet up with other farmers and consumers and exchange their produce in a public place. This is a place where people can enjoy buying local produce, talking to the producers and learning about good food.

Goals: to support existing best practices by helping farmers to sell their produce and organise the market.

Strategy: Combining people's increasing interest in local food and the will of farmers to move towards organic production and de-mediation: this means offering high quality food from local small farms only, according to the consumer trend. Other drivers that can shape the strategy for this local project are:

− The crisis in the agro-industry can push farmers to switch to a more sustainable way of production (organic crops, de-mediated selling systems…).

− The role of a well known association like Slow Food, as a sort of guarantee of good quality produce

− The use of available digital technologies can facilitate meeting between farmers and consumers.

In accordance with the general framework strategy, this project supports existing best practices by building a network of producers and consumers to help de-mediation; it aims to become self organising, so as to provide producers with proper infrastructure and tools; it offers educational and teaching activities to awaken the city to sustainable consumption.

Activities: in order to implement the local project, the following activities must be carried out:

− Selecting and recruiting farmers, according to quality parameters

− Getting permission from local authorities

− Organising the logistics and turnover among the farmers

− Communicating the event to the city

− Providing a tool(kit) to help farmers to organise the market

Results: A monthly market every 3rd Saturday, with seasonal produce from Agricultural Park South Milan and Lombardy, Slow Food Presidia and Slow Food Taste Laboratories ("Laboratori del Gusto")

Local project 2 – La panificazione territoriale (Regional bread-making)[6]

This project is about Milan's bread chain from the crop to the shop. Milan is suffering from a lack of good quality bread. Over recent years prices have risen very high, so many people buy industrial bread from the supermarkets.

The aim of this project is to re-build the bread chain from the quality of the crops, through the processes of transformation, to the final consumer, who will be able to buy good, clean and fair bread at the right price in the shops.

Local project 3 - Ortaggi per la città (Veggies for the city)

This project is about local vegetable production and distribution. In Milan there is no chance for city dwellers to buy local fresh vegetables though the mainstream distribution.

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Despite this, some farms have made shy attempts to encourage shopping on the farm.

The aim of this project is to bring fresh veggies to the urban population, boosting de-mediated ways of selling, both in the city and on the farms.

3. The Design approach.

According to the new role of peri-urban agriculture described at the beginning of this paper, the kind of urban-rural partnership is a key issue for sustainable territorial development. In order to define the nature and structure of this partnership, a multidisciplinary approach is needed, crossbreeding contributions from the disciplines of finance and economics, urban planning, geography, sociology, agronomy and landscape architecture (Landry, 2000; Viljoen, 2005). Service Design contributes to this approach by observing local social innovations, meaning local virtuous and promising activities in different areas of daily life, and interpreting them as forms of interaction and exchange of benefits that call for proper (or better) infrastructure and support. Virtuous and promising activities are able, in everyday life, to bring individual interests into line with social and environmental ones (Manzini and Meroni, 2007). With such a premise, Service Design can play a significant role in:

- observing the region and selecting the most promising social innovation cases according to the scenario values

- experimenting new service models and boosting them by building a scenario for a network of collaborative services and connected resources

- implementing pilot cases to re-orient the system towards sustainability. (Simeone, 2010)

According to this methodology, "Feeding Milan" is the result of several research and teaching experiences lead in recent years by DIS (Design and Innovation for Sustainability) Research Unit of Politecnico di Milano, INDACO dept. Two representative cases are briefly described below:

Services for the urban countryside (2006-2008).

This is a fundamental research project funded by the Italian University and Research Ministry. Its aim was to lay a theoretical and instrumental foundation for a new way of designing urban settlements, through the proposition and visualisation of a scenario of sustainable development for the great periurban area of the Agricultural Park South. As previously said, this area is currently in decline as small farmers abandon the fields, and the soil is overexploited by agro-industrial production. It is also subject to aggressive building programmes and, as their contracts expire, leaseholders fail to invest in new infrastructures and services. Furthermore small producers are not stimulated to invest money in the agricultural business, which is no longer profitable in a mass distribution scenario. Despite this situation, the solidarity economics network (a mix of Creative Communities and Creative Entrepreneurship – Manzini, 2007) has emerged, and seems to be opening the way to sustainable development.

Results: The project has taken this virtuous situation as a starting point from which to develop a coherent system of interconnected territorial service and actor networks, mutually reinforcing and producing business and society. This system consists of eight service models that take their inspiration from the observed reality. Per se, these services are not yet networked or multifunctional, but they are the basis of the entire system. Such a system, which is a form of advanced Community Supported Agriculture where services are integrated and complete each other, is not homogeneous in its components and regional distribution: because of its nature, it figures as a series of diffused key-nodes that work like territorial ganglions of the network (Meroni, Simeone and Trapani, 2009).

Food Networks (2008). Food Networks was one of six workshops promoted by the "Designing Connected Places" summer school, within the ambits of Turin Design Capital 2008.

Given the unsustainability of the current model of food production and distribution, the demand for innovation started by asking what kind of solutions could be conceived to overcome this situation and proposing innovative systems to deal with local production and consumption.

The objective, thus, was to produce new product-service-system ideas and platforms of services able to support more sustainable production and intermediation models at the local scale. These must be advantageous to both producer and consumer by generating value, connecting people and places.

The main theoretical hypothesis behind the project is that, in a situation of growing globalisation of supply, demand and distribution, it is necessary to start networking (between producers, between consumers and between the two) at the local scale, to create the effective possibility for small local initiatives to flourish and sustain themselves. The one week workshop followed a long meta-design phase where designers built the theoretical framework and some case studies were analysed. The one-week workshop was led by Martì Guixè.

Results: The project that came out of the workshop was named "Locale of the Locale".

It answers the question of rethinking local produce chains in order to encourage the consumption of local fresh fruit and vegetables, and create connections between consumers and producers.

This is the idea of a platform that combines a direct market for fresh fruit and vegetables with traditional processing methods, also making available to the client convenient food, such as ready to eat salads, juices, jams, sauces, pickles… Thanks to the organization of the place, consumers experience all the steps of the food management and transformation (from delivery to preparation) and can purchase the food at every stage. The project was developed as a format to be replicated and contextualized in different places assuming different shapes and characteristics according to the specific context. In its development, designers played (and will play) a major role in order to trigger, promote and facilitate a larger co-design process.

4. Design competences.

The experience matured carrying out regional projects allows researchers to see an evolution in them: so far Design has been asked to analyse and boost what Meroni (2007) calls Creative Communities (local social innovations, virtuous and promising activities in different areas of doing) in terms of localised, projects specific to the individual situation. Now, this role is shifting towards a more systemic approach, where Design shapes a framework project, which includes, drives and connects different local projects. Such an approach means that the framework project has to coordinate and systemise all the local projects, so that they can be traced back to it. In particular, this calls into play a series of Design competences:

− Systemising: to improve the overall system effectiveness. This consists in connecting the actors and the resources so that they generate synergies and, through this collaboration, they share risks and experience .

− Envisioning: to facilitate the social conversation on what to do and how. In other words, to create consensus and to make the possible solutions visible.

− Scenario building: to (collaboratively) create a shared vision of a desirable future and the strategy to implement it. (Fanfani, 2007)

− Communicating: to make the project and its results visible and understandable.

− Enabling platform (Manzini, 2005) building (both physical and digital): to create a set of services in order to share information and to support the involved partners in the co-creation and management of the project.

5. A network of regional projects.

Besides the research here cited, experimental projects have been observed in various parts of the world. These advanced projects exemplify how to use the Service Design approach to integrate the expertise of the various disciplines working on territorial development and., also offer a methodological comparison of Design practice. The most representative cases are:

− Dott2007 (Design of the time 2007) is a national initiative of the Design Council aiming to explore what life in a sustainable region (i.e. North East England) could be like and what role the Service Design discipline can play in achieving it.

− VEIL (Victorian Eco Innovation Lab) is devoted to research, innovation, creation and testing of fruitful long-term (typically 25 year) scenarios for sustainable solutions: concepts for sustainable products, services, built-up environments and lifestyles in the Victorian region of Australia.

As a result of several research projects developed in the last few years, Feeding Milan has become the root for a series of other regional projects all over the world: the periurban agricultural area of Chong Ming Island (Shanghai, China), Catskill area (New York City, USA) and Zona Sul region (Porto Alegre, Brazil). These projects share a common methodological approach (cfr. A. Meroni, ongoing publication[7]) and give content to an international Design network (DESIS – Design for Social Innovation and Sustainability),which also works on a regional scale.

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Notation

 * E.g. Food box services like Bioexpress (http://www.bioexpress.it/) from Trentino Alto Adige and Cornale from Piemonte (http://www.cornale.it).

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3 E.g. Food box services like Bioexpress (http://www.bioexpress.it/) from Trentino Alto Adige and Cornale from Piemonte (http://www.cornale.it).

4 Cfr. Petrini, C. (2005). Buono, pulito e giusto. Turin: Einaudi

5 The digital platform structure has been developed by Joon Sang Baek for Feeding Milan project, 2010.

6 In line with the general advancement of the programme, the other two local projects are only mentioned here because, at the current time, they have not yet been developed. Both titles are temporary.

7 in this conference proceedings