ENGAGING STRATEGIC DESIGN TO UNDERGRADUATE DESIGN EDUCATION; A CASE STUDY IN SISHANE, ISTANBUL: SUSTAINABILITY OF NETWORKS FOR LOCAL DEVELOPMENTS

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This paper focuses on how "design" especially "strategic design" can generate awareness and extend students' way of thinking by delivering meaningful, permanent and innovative solutions in contrast to traditional design education. It supports that strategic design provides not only the solution but also the service-system, which enables to combine the capabilities and knowledge of the different groups like students, designers, local and global players, non-profit partners and NGOs to reach the a better solution for all stakeholders. The chosen case study is a project run by undergraduate design students during strategic design course held by Lect. Serkan Bayraktaroglu and Inst. Mine Ozkaynak in Kadir Has University, Istanbul. The project aims to introduce Turkish master craftspeople to contemporary designers and consumers in the Istanbul district called Sishane, which is specialized in light and electricity from the beginning of 20th century. Small scale manufacturing regions like Sishane within Istanbul are currently threatened by a rapid clearance due to the consumption oriented tourism development. These regions, with their rich and flexible manufacturing infrastructure, have the potential to realize unique design ideas and to respond to the local design needs. If this potential is valued and developed, these regions can go through an urban development process which evolves from their inner dynamics. The paper explains strategic design, its interdisciplinary nature and possibilities for design education via this case study and presents sample works of students who are from different design disciplines.

Introduction

Sustainability; as its nature requires, is always engaged with the systems approaching to analyze problems. This wide concession of need for a more holistic perspective makes it necessary to change the way we design things. Collaboration of different stakeholder groups is a necessary step for a solution, which does not contradict with the notion of sustainable development. On the other hand, we know that the solution is not a pure tangible product anymore. Rather, it includes services and interfaces that satisfy the needs of all stakeholders; as strategic design refers. In this paper we discussed our experience of adopting strategic design perspective to undergraduate design students at Kadir Has University Istanbul, Turkey. The paper starts with fundamental terms and concepts of sustainable design and strategic design. Second part of the paper argues necessity of the shift from product design to systems design and the third part briefly explains our experience of the "strategic design" lecture. Finally, it concludes with the outcomes of the lecture and discusses the impact of this approach on the perspective of the students.

Definitions of Sustainability

The term sustainability has an extending meaning. Today it is used in different areas having a common sense, according to World Business Council for Sustainable Development the proper definition for sustainability is: "**Sustainability** implies a system of production able to assure a greater equity, quality of life and environmental well-being today and for the future generations." (WBCSD, 1999).

As we specify sustainability like sustainable design, sustainable architecture or sustainable development the core of the meaning stays the same but the meaning in general acquire a different character:

Sustainable design stands for a holistic creative process, which "seeks to translate and embody global and regional socio-environmental concerns into products and services at a local level. This necessarily demands a system view of design …" (Gertsakis, Lewis , 2001).

Sustainable development, which is considered the path to sustainability, is the simultaneous pursuit of economic prosperity, environmental quality and social equity.

The meaning of "sustainability" or "sustainable development" has changed over the years. In the past, the definition of "sustainable" has seen as virtually interchangeable with "green", "ecological" or "environmentally friendly". Today, the term has assumed more socio-economic connotations. It encompasses not only environmental issues, but also questions of social equity and economic viability.

Economic development and sustainability

In the coming decades, companies will have to learn how to compete while decreasing the total production and consumption of physical goods, and advanced societies will have to learn how to compete while decreasing the total production and consumption of physical goods, and advanced societies will have to learn how to live while relying on only 10% of the environmental resources that are being used (per capita) today.

While primarily an environmental challenge, this is also a socio-cultural, economic and political challenge. Indeed, to be eco-efficient merely by optimizing the level of industrial production processes is, although a required change, insufficient to satisfy in a sustainable manner- the 'needs' and the 'wants' of 8 to 10 billion people in the years to come. Production and consumption systems should give more attention to values, elementary human needs, product and service functions and local conditions. Indeed, sustainability does not imply only an environmental status. Sustainability is now broadly recognized as a comprehensive concept that implies 'a desire for greater equity, quality of life and environmental well being today and for future generations' (United Nations, 2002). It is, ultimately, a scheme to improve our habitat.

In this scheme, companies will be seen increasingly to play a crucial role: they can become powerful engines of innovation able to provide solutions that enable people to live better while consuming less environmental resources. In other words, they can offer alternative solutions that are environmentally valuable as well as socially and economically attractive; solutions that will be successful if new and more sustainable combinations of products and services are recognized by users as offering a better approach to personal, social and environmental problems than the existing ones (Rocchi, 2005).

Sustainability in the business market

'Hard' environmental and socio-economic factors (for example, material consumption, pollution, population growth, diffusion of information and communication technologies (ICT), globalization and inequity) are changing the competitive landscape for corporations. Sustainability is becoming a new point of entry into the market for companies and brands that wish to be competitive in the coming years. Many signs of this are emerging, and many forces are already pushing corporations to behave in an ethical and responsible manner.

A few enterprises have already started to embrace sustainability as a framework for driving growth, increasing shareholder value, heightening stakeholder satisfaction and protecting and enhancing corporate brand reputation. Accordingly, they have started to look for new approaches to innovation that go beyond 'technology push' or 'market pull' to address both.

Considering sustainability as a creative process of change, 'sustainable enterprises' are increasingly shifting from the application of traditional eco-efficient practices, mainly focused on reducing the risks of operating in the market, to the exploration of new patterns of production and consumption that can open up new market opportunities. They are shifting from an approach based on 'linear thinking', focused on the generation of continuous incremental improvements on an environmental and socio-economic level, to an approach based on 'system thinking', aimed at the generation of radical new solutions.

In doing so, they are often breaking down traditional value chains- in which, usually, a single company provides stand-alone products- and beginning to operate in partnerships for the co-creation of sustainable product-services mixes that offer benefits and functionalities rather than hardware.

"A form of new capitalism is emerging where environmental and social performance is embedded in the competitive strategy of the firm. Unlike their predecessors, 'sustainable enterprises' use business as an instrument of social development and. environmental improvement- generating growth and profits in the process" (Hart, 2005).

In this perspective, sustainability has matured into a new idea of progress, one that integrates economic prosperity, social equity and environmental protection as both inter-dependent and mutually supportive elements of long-term development.

Eco-design and Sustainable Development

Traditional eco-design methods, which generate environmental incremental product's improvements by technical changes, are necessary but not sufficient instruments to stimulate the creation of sustainable solutions. Companies exploring the path to develop sustainability-based business propositions require different instruments. They require design methods able to go beyond "eco-efficient" results towards environmental, and social-economic "effective" results.

The matter is not just to improve what already exist in the company's product portfolio, but to re-think the business offer by considering:

- a deep understanding of people's values and needs in their local living conditions

- the possibility of creating the most appropriate market propositions together with partners having complementary capabilities and expertise.

The overall goal is to develop a flexible and practical methodological design approach to envisioning innovative product-service systems that are able to figure out economic value for business, as well as environmental and social benefits for society (Rocchi, 2005).
The nature and the process of an environmentally conscious design culture are therefore changing. From eco-design, as a product-oriented design process aimed to minimize the environmental impact of the product along its material life-cycle, to design-for-sustainability: a solution-oriented design process aimed stimulating technological change and social innovation in the current system of production and consumption, in order to decrease the use of environmental resources and enhance quality of life.

Sustainable innovation

The successful economic exploitation of new ideas regarding ways of production, marketing, distribution, and above all use able to create personal meaning, social value, and environmental quality (Rocchi, 2005).

Sustainable Innovation is a pattern of social learning and problem solving that is, itself, sustainable, independent of the sustainability of its outcomes. The sustainability of outcomes, however, is dependent upon the sustainability of innovation.

Sustainable innovation, then, is a necessary condition for sustainability in social patterns of behavior and outcomes, such as how societies and organizations function, the ways they organize, the energy and resources they use, the wastes they produce, and the products and services they make.

To be sustainable, learning and innovation processes in societies and organizations must:

1. enhance their ability to adapt and to conduct their affairs in sustainable ways.

2. be internally authentic, meaning that they must be consistent with the predisposition manner in which people in societies and organizations self-organize around problem detection and resolution when left to their own devices.

According to the criteria above, contemporary forms of innovation (not to mention Innovation Management) in most societies and organizations are not sustainable. This prevents people from learning effectively, from recognizing and solving their problems, and from operating in sustainable ways. It is arguably why societies, businesses, and industries around the world are so unsustainable, and why effecting change or reform within them is so difficult.

The contribution of design in the sustainable development

Design can play a key role in the creation of a sustainable future. Design can integrate ecological requirements in the business creation process and go far beyond it. Acting as a bridge between people, technology and business, design can facilitate the systematic integration of economical, social and environmental parameters in the framework of new and more sustainable patterns of production, marketing, distribution and use.

Design can become a powerful engine for suitable innovation. It can help business in generating solutions able to stimulate new social behaviors (e.g. accessibility versus ownership, sharing versus individual use, up-grad ability versus substitution) whilst still supporting economic societal needs. In this way, it complies with the change that in the complex world is required from design culture; from eco-design to sustainable design.

Sustainable design goes beyond the proposition of stand-alone products, towards the promotion of a richer combination of products and services of a different nature (e.g. digital services, infrastructural services etc.), which can stimulate different patterns of consumption (Philips Design, 2005).

The mediation of design in creating solutions

Design, as an intrinsic part of the business value creation process, has to face the complexity of today's markets directly. It has to question 'what' to shape, in terms of tangible and intangible aspects of a solution, and 'how' to do that, in terms of approaches, tools and kind of competencies involved.

Originally introduced to compensate for the absence of art in the forms of industrially produced products, design has long been "the mediator between the natural, artificial and commercial worlds, concerning itself with the interdependencies of people, habitats, technologies and commerce, while simultaneously exploring its own meaning, purpose and future."(Kyffin, 2003)

Nevertheless, in people's minds, this discipline has been often related to two simplified common assumptions: it is a technical and engineering process that focuses on a product's function; it is a styling exercise needed only to choose colors and materials that make a product more appealing to the eyes of customers. Time has changed, however. In the last decade, companies have realized that design can help them create competitive propositions, and people have come to appreciate that a well-designed solution can simplify their everyday activities.

It is particularly with regard to this last consideration that the design paradigm must today respond to an economic model that supports the provision of converged and connected solutions, combining products, services and content to suit individual and collective needs in their specific socio-cultural contexts. Here the challenge is to find the right balance between material and immaterial aspects, global standard technologies and local specific resources- mobilized inside and outside a company- in order to create the facilitator of a value creation process able to integrate the different competencies that cross a company's boundaries. Indeed, as stated more than once, competitive product-service systems can hardly be created by a single business department / unit or one company in isolation: they require knowledge sharing among different actors, as well as creativity and multidisciplinary skills from the beginning of the research. Within this framework, the design activity is no longer an isolated and independent process- steered by a visionary design director- for the generation of ideas, but rather a team effort nourished by researches, designers, engineers, marketers and strategists,

all of whom collaborate within the creative sessions. The stakeholders are not only all involved but they are all also essential contributors to the creation process of the new solution.

Shifting from product design thinking to system design thinking

Aiming to create sustainable product-service systems requires moving from 'product design thinking' to 'system design thinking', from downstream 'as usual' eco-design practices to up stream activities able to integrate and translate a variety of inputs and information into a competitive and sustainable value propositions. Viewed from this perspective, the design paradigm changes; design cannot any longer be considered an activity reducible, for instance, to a 'make-up' exercise related to the choice of materials and colors, or to the 'engineering' phase of a solution. Nor can it be considered an activity taking place in isolation from the business value creation process. Design becomes instead an integral part of the business innovation process, with a key role to play in envisioning effective answers for actual or future demands by using information about society, technology and specific customers' requirements and expectations. Designers also become facilitators in a concept creation process involving different stakeholders. Seen from this viewpoint, design activities are increasingly characterized by the use of (Johnson, 2003):

-a holistic approach that combines different expertise and know-how at a very early stage of the creative process

-a multidisciplinary team, including product and interaction designers, researchers, sociocultural trends analysts, technology experts, marketing and business strategists

-a frame work able to steer the creative process towards triple bottom line results through the use of design-related sustainability principles, criteria and tools

-an attitude to use and/ or re-use currently available products and infrastructures 'enhancing sustainable innovation by design'

Aware that the path towards a more sustainable society requires a 'de-materialization' of our production and consumption systems, new solutions can be researched within an emerging knowledge and service economy (Andersen, 2000). Indeed, in many cases, what customers really need today is not a physical 'product' but rather the 'result' that a tangible asset provides: an answer to a specific demand. In other words, what we are seeing is a growing realization that people do not value physical goods- or ownership of them- for their own sake. On the contrary, the goods seem merely a means to an end, to satisfying a customer's needs (Leadbeater, 2001).
From this perspective, corporations that were traditionally product-oriented have started to look for new offer-systems '…revolutionizing product design to reflect the new emphasis on services instead of thinking of products as fixed items with set features and a one-time sales value.' (Rifkin, 2000)

Strategic and interdisciplinary design

As mentioned above international competition has increased the demands on product design functions. Development teams are expected to create superior products faster and more comprehensive than ever. Educational programs must respond to this need by training design students who can develop initiative products as professionals. This article presents an approach to experiential education in motivating design students to work effectively with team members, to generate novel ideas, to improve their basic skills in marketing, analysis, process technology, manufacturing management, organizational behavior and design.

An Example: Kadir Has University and Undergraduate Design Programme– Strategic Design Lecture

In the second half of the 2011 academic year, we have offered a course on strategic design in the context of product design as system development. We were interested in combining the different educational and research perspectives as manufacturing, technology and quality

improvement, manufacturing strategy, computer-aided design, and design theory to meet an educational need.

Our challenges involved in this interdisciplinary course are to attract, excite, and motivate the students to pursue their careers in design; to educate design professionals that understand both the human and technical dimensions of product development; and to teach fundamental material from several relevant, but diverse disciplines.

Interdisciplinary design students benefit from exposure to explicit instruction on teamwork, group dynamics, and group problem solving. They also benefit from a diversity of backgrounds and early opportunities for structured sharing of areas of expertise by members of the group.

The central message of this course is that strategic design requires: considering the manufacturing issues early in the design process; collecting opinions and views from team members representing various disciplines; evaluating the competition through benchmarking; and continuous improvement through product and process changes.

Kadir Has University and Undergraduate Design Programme

Kadir Has University is private university founded, located very central in Istanbul the university was found in 1997 while the Faculty of Fine Arts started courses in 2004. Faculty offers three undergraduate design programs; Industrial Product Design, Interior Architecture and Environmental Design, and Graphic Design. Beside design programs, also Theatre program offers undergraduate lectures.

As instructors in Industrial Product Design Department and Environment and Interior Architecture and Environmental Design we have started a new elective course, called Strategic Design, during the spring semester of 2011. The goal was to attract students from three design courses of the faculty for an initial step.

The purpose of the lecture was to enhance the student's ability to draw up multilateral suggested solutions and to take a strategic perspective of a business context. Exploring design opportunities, working with problems and developing innovative design requires an interdisciplinary approach with and methodology that holds the capability to bring different competences together. The project has a workshop format with project relevant lectures through out the workshop. The workshop combines a theoretical perspective on fieldwork with on location exercises and student presentation.

Galata and "Made in Sishane"

Sishane is the name of a neighborhood close to Galata-Istanbul, where the Golden Horn meets the Bosporus. History of Galata reaches 14th century as a Genoese neighborhood. History of lighting business reaches 19th century where the region was the municipality of the Ottoman Empire. 1859 was the date when first street lights appeared here. Beside this political and geographical importance this very central heritage includes Galata tower which is a cultural and hub and attraction point for tourism in Istanbul. It is possible to divide the neighborhood virtually as eastern side includes much more artistic initiatives and western side is dominated with crafts workshops (Kaya 2011). Sishane today is a small but extremely dense district specialized in light and electricity In the region most master-craftspeople use simple machines for manufacturing. Different workshops divide the work in case of a huge order. This production network includes more than lighting manufacturers in this small area but also supportive activities such as logistics, insurance, raw material shops and restaurants.

The most vital feature of the zone is the vivid network between different stakeholders that creates an industrial cosmos. This vivid network keeps old craftsmen survive. Especially the empathic communication between craftsmen and designers are very important which is a dying ability for most of the modern industrialized world (Kaya 2011). This ability brings a rich and flexible production infrastructure, which have the potential to realize unique design ideas and to respond to the local design needs.

However, recent years the neighborhood has witnessed a rapid change on its profile. Many lighting manufacturer and craftsmen had to move out from the region, often far from center, industrial zones. Local government proposes this change as a transformation to an art and tourism heritage. Huge increase in the land prices and strict regulations of local government about effects of manufacturing such as noise are forcing small manufacturers to move out.

Another serious problem is clearance of the craftsmanship knowledge, hand skills, where newcomers are not interested in continuing the business. Ali Kirman, founder of the chambers of chandelier manufacturers, claims in an interview that; "Manufacturing chandelier is an artistic business, Armenians started it in 1930's, but their children were not interested in continuing the business. However, people immigrated from Anatolia appreciated the business and continued to practice. Even though, we have the same situation now: insouciance about the proficiency". (http://www.ajanstabloid.com/haber.aspx?pid=29)

Made in Şişhane is a nonprofit long-term project that aims to meet Turkish master craftspeople to contemporary designers and creating a better understanding of the networks. It was started by Asli Kiyak Ingin in 2006 during the 'Istanbul Design Week' which took place between 12-17 September 2006, at the old Galata Bridge- An exhibition and a series of panel discussions were done for the project. Since 2006, the project has attracted many national and international designers, artists, academicians and media.

Idea of choosing Sishane as a case for strategic design lecture was a bit dubious since students were accustomed studio based learning much more than problem based learning. On the other hand sustainability and system design issues were also relatively new to them even though some of them took the sustainability lecture before. Our background knowledge about the Made in Sishane project, previous projects and personal connections with the masters and shops from the region were main reason for choosing Sishane a case study.

During the first part of the lecture theoretical background of strategy, business strategy, innovation, systems and sustainability, design and social change issues were discussed. System maps, storyboards and SWOT analysis were explained. Discussions were shaped around the successful and failed strategic design projects from all over the world.

Second part of the lecture was started with the explanation of the problem and analysis. History and importance of the region, legal situation and ongoing social change on the surface explained. Critical knowledge was the importance of the relationship between designers and masters in the region which none of them aware of that before. After problem explanation they were asked to analyze the situation to create a concept project that brings a positive impulse to the actual situation as beneficial to craftsmen-designer relationship. Four project groups with four members were formed that each group had at least two students from different department.

For the project, students were supported with a guideline and the map of the region to make field research easier for them since they were not familiar to. Steps of the analyzing phase include observing human behaviors, defining stakeholders, mapping locations, interviews etc. During the second part, students had chance to meet Asli Ingin Kiyak and took a brief about ongoing projects of Made in Sishane, visit several craft workshops, meet with people from GalataPerform which is a association and stage for contemporary performance artists and located in Galata.

Third phase was the concept development. Students were asked to design a concept to bring a positive impact to the problem with all the stakeholders and to use tools such as system maps and SWOT analysis for building this concept.

Outcomes of the lecture

Four teams presented their works in a meeting to the audience that includes students, academicians from different universities and people from made in Sishane project. Three of the four project team focused on the visibility of the region as a possible way to take attention from different stakeholders. Events, such as workshops, exhibitions, design competitions were tools to reinforce the network of manufacturers and designers, and increase the opportunities for

creating more value for the region. Only one of the project was a product-service system which aims to increase the density of the network with new stakeholders.

Galata Lantern - House lightings for streets

Project was done by Emirhan Dereli, Orhun Çağrı Tekeli and Arda Dalay. The idea was meeting craft masters and product designers in a project to produce house lightings for one street of Galata. The project uses touristic potential of the region to take attention on the products. Goal was increasing visibility of workshops. The chosen street provides information about the crafts master and designer with special signs and info boards. A website and mobile phone application also proposed to take more attention.
 This special street is the display of those lightings which people would be able to visit shops and buy them in a size they want. Designing products-services to take attention of people walking there or curiosity of people visiting close neighborhoods to visit this special street was the main challenge of the project for success. However, the team was not really successful to bring solutions for that.

On the other hand, this idea was well appreciated by GalataPerform, the performance platform located in the neighborhood, since it fits very well to their next Galata Visibility Days theme: theatre on streets. Designing a street with indoor lights and object was an interesting idea with a combination of performance show that the theme of craftsmanship culture of the heritage.

Figure 1: Galata Lantern - House lightings for streets (Image from the presentation of project team: Galata Lantern)

Light the Galata Night : Design Competition for feeding the network

Organizing a lighting design contest with a theme every year was the idea of the team which members were from both design departments. Cansu Akbaylar, Mert Güler and Ece Sultan Altun came with the concept of an international design contest and an exhibition which will be held in a square in the neighborhood. Obligatory rules of the competition include working only with the craftsmen living in the region and producing a prototype of the product to apply the contest. The jury will choose the best products during the first day of the event where the

exhibition is located. This concept was criticized as a very robust idea as a system besides the possible sponsors to run the project.

The magic of light : Confused minds

Mustafa Yalman, Buğra Kaçmaz and Ayşegül Ak have built the team most confused. The team; mixed of industrial product designers and interior architects, had serious problems on focusing on an idea and progress on it. Even though, they were very good at research and analysis phase, bringing new concepts was their escape route when it comes to design details of an idea and make it work. Their final concept was organizing an event which includes workshops that lets visitors witness the collaborative work of designers and masters to finish a product. That is a promising idea which values the process of manufacturing and brings more attention to the collaboration however, it was lack of details.

Prototube : Bridging networks

The only product-service system proposal was presented by the team of Açelya Altıntaş, Veysel Sever and Aydın Yenigün. They have created a do it yourself model which customer buys an origami paper that guides him/her thorough a path in Sishane to build the product. Customer visits workshops as it is defined on the guide and let the crafts master produce the necessary part. Customer reaches the product by the end of the route, which is called "tube" by the project, with a lot of experience about the region, workshops and more. Interesting part of the project is the possibility of customer's input in the product during the work of crafts master. By the end customer would reach something probably similar to the picture presented in the origami paper but completely unique because of his/her input in the process. Beside the guidance function, origami paper itself is a designed object which could be kept as a souvenir.

Figure 2: Prototube : Bridging networks (Image from the presentation of project team: Prototube)

Conclusion

It was difficult to explain system design and the importance of strategy. Designing service systems was always a neglected part of the product or interior design projects. Sustainability was also not that well understood beside the environmental effects. Design for social change is completely a new idea.

Questionnaires and interviews also supports that their perspective about service design is changed. Also as a more measurable improvement, tools such as system maps, SWOT analysis or storyboards were an asset on their project based studio lectures.

The lecture was not that successful to attract students from other disciplines except interior architecture and product designers. This should be improved for next semester. Different perspectives are obviously important to change the concepts. Usage of space and product together with service to shape an experiénce will open up new horizons.

A noteworthy thing among the teams -beside Orkun and Acelya's- was, they gave certain importance to the space and used the advantages of the land and buildings. This was very foreign for industrial product design students.

Meetings with Aslı Kıyak; as a product designer trying to make a social impact with her "Made in Sishane" project is, that people from GalataPerform - a performance platform located in the Sishane neighborhood - and especially crafts masters were essential to change their mind during the project. Those meetings gave the possibility of linking new concepts to existing and successful ones, which made them more applicable. Besides, they caught new ideas such as how to combine performance and design together to create an experience.

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