



FLUX: Design Education in a Changing World

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Design opportunity mapping for the small scale sector

- bringing real life scenario into classroom education

Abstract

Although the semi organized sector consisting of a large number of small scale industries and craft clusters in India together comprise a huge section in terms of both human resource and economy, it has been largely neglected. They face typical issues and problems not traditionally dealt with by industrial designers. What role can designers play in such set-ups? How can design intervention strategies and innovation models help them? How is it possible to bring this learning and experience into design education in the classrooms? These are some of the issues dealt with in this paper

Real life projects were taken up as classroom projects for industrial design students with small scale industries and craft clusters in the sectors of toy, ceramic and glass. Design methodology with a strong emphasis on systems approach and creative practices was used. Systems thinking helped in understanding the complex relationships between the various social-cultural-economic parameters within each of the sectors. Contextual inquiry led to scenario mapping and helped in coming up with strategies for each of the sectors. These strategies were taken forward to be realized in the form of tangible designs.

The class room case studies show how bringing real life experiences into classroom education helped the design students to understand the ground reality and face the multiple challenges of working in this sector. The industries and craft clusters got an exposure to design practices as well as some concrete results in terms of tangible designs. Design could be a powerful tool for change not only for the well established industries with huge turnovers but also for enterprises within the small semi organised sector.

These case studies helped in developing design methods to integrate systems approaches and creative practises effectively in order to come up with design strategies and products. The methods establish the important role of design in coming up with design briefs within 'problem/opportunity' spaces. It also helped in evolving teaching-guiding practices for bringing real life scenarios into classroom education

Key Words: *design education, innovation strategy, opportunity mapping*

Introduction

The scenario for design in countries like India is extremely complex. There is a lot of diversity between the craft sector, the unorganized, semi-organised and the organized industrial sector. Typically the industrial design education has only considered the industrial scenario and the entire design education process is directed towards catering to this segment. What are the challenges in the other sectors? In the small scale sectors the presence of multiple stakeholders makes it difficult at the same time challenging. Designers need to be comfortable with the idea of designing for opportunity spaces rather than from design briefs. Envisaging design directions in a holistic manner considering inter-relationships between various components of the system and with multiple benefit patterns is something which could bring design benefits to this huge under estimated sector. Working with communities for opportunity mapping is an experience which design students would also greatly benefit from.

Taking up socially relevant real life projects as classroom projects has been a part of education at the National Institute of Design, India for many years. Courses like craft documentation and design projects offered to industrial design students have often incorporated this aspect.

Research methods and tools

The research method should be appropriate to help understand the implicit process and the specific context of the study. Hence it was decided to use qualitative method by which to understand the subjective nature of the process followed by designers. The case study approach was identified as the main research tool. It was found to be appropriate since it helps to understand the process in relation to the context. The understanding from this research could be applied to similar scenarios.

Participatory observation of the process followed by the students was carried out in a controlled situation in the classroom. The parameters were observed and recorded. An objective approach was sought with the process of triangulation in which group feedback from students and the co-guide was also taken into consideration while assessing the innovative aspect of the result. Use of focused group discussions was also done partially to enable a better feedback mechanism for obtaining problems and suggestions. The education method followed was also recorded. Data analysis was done by combining qualitative responses of the participants with the documented evidences in terms of charts, diagrams etc.

Case studies

Twelve senior industrial design students were observed and the design process they followed while doing their design project work was studied for a period of 9 weeks in two phases. Data was collected over the period of time. A literature survey of concepts concerning design methods, creative process, systems approach, holistic thinking and visual modeling was done which helped in the preparation of the research framework. . The students were briefed about holistic approaches to design and visual modeling of information through lecture cum demonstrations. This was followed by a field study, information collection and recording in each of the sectors. The information was then put together in the form of visual models, This helped in both understanding as well as communicating to others in order to get feedback.

Case study 1: Design intervention strategies for Mumbai Toy sector

The project “Design Intervention for the Capability Development of the Mumbai Toy Industry” was envisaged by Government of India in association with UNIDO in order to provide the much needed design inputs & design capability for the toy industry sector in India. National Institute of Design (NID) with proven expertise in the area of toy design was approached to come up with design intervention strategies for the toy sector in Mumbai. Senior post graduate students from both toy and product design disciplines have worked on this project under the guidance of faculty.

The students were briefed about holistic approaches to design and visual modeling of information through lecture cum demonstrations. This was followed by a field study, information collection and recording in each of the sectors. The information was then put together in the form of visual models. Examples of system study models are illustrated below:

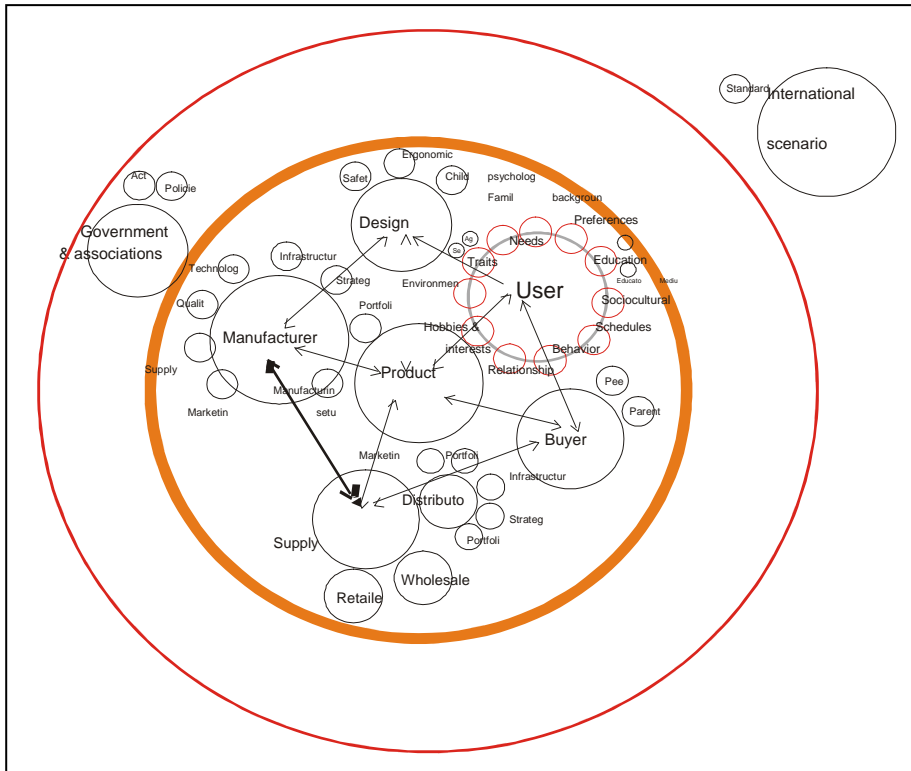


Figure 1: System study model for the toy industry- 1. Inter-relationship chart of various factors pertaining to the Indian toy industry

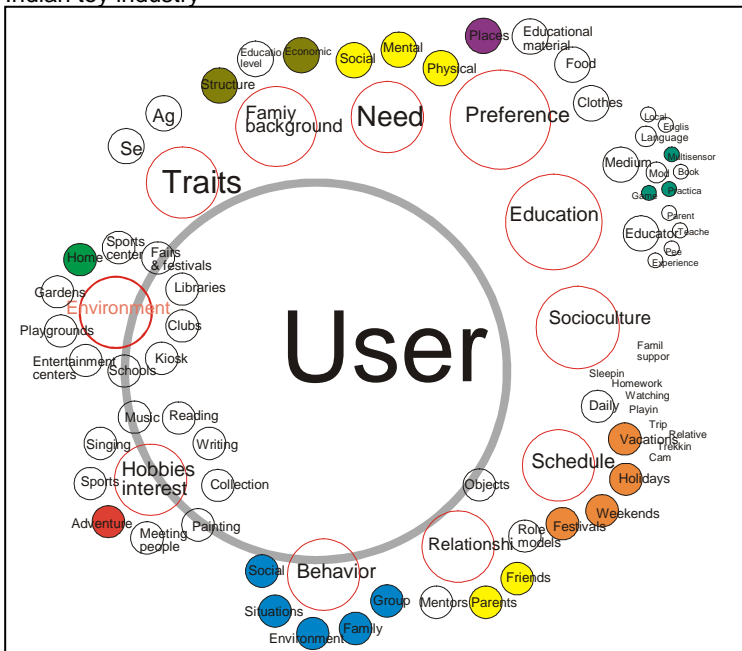


Figure 2: System study model for the toy industry- A visual representation of the various factors related to the user.

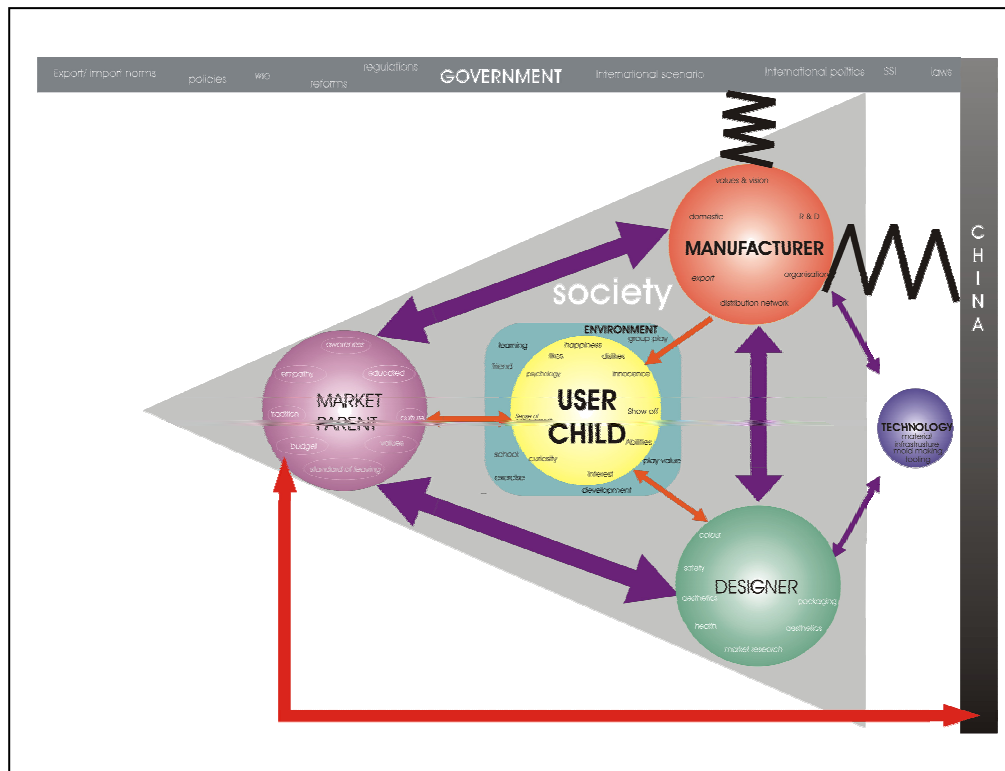


Figure 3: System study model for the toy industry- A visual representation of the various factors related to the market scenario

A detailed scenario study was carried out for each of the selected industry in the sector and interactive system study models and design intervention strategy plans were made for each industry. The entire approach taken was to look for long terms and short term opportunities for toy industries keeping in consideration the limitations of this sector. The system study model helped in understanding the relation between various factors pertaining to the industry, the system-contextual boundary and the cause-effect relationships within the system. This helped in synthesizing the information and deriving a 'meaning' from all the data. It also helped in communicating their thought process to the faculty, students and industry stakeholders for their inputs and feedback. Opportunity mapping was carried out keeping the system study models as a reference. Some of the opportunity areas included:

- Developing a range of plush toys to be combined with natural material like bamboo. This would help to give a regional identity and help face the Chinese competition.
- Possibility of incorporating educational games into the structures of globe to make learning fun for children and promote interaction of children with parents in a constructive manner while playing the games
- Designing a range of toys based on principles of optical illusion in order to encourage children to develop curiosity about scientific principles

The output of the entire project was both in terms of the concrete results in terms of design strategy plans, new/improved designs and guidance for realization as well as capacity building in terms of understanding design process, idea generation methods, design development methods in terms of model making and computer modeling etc. The opportunity mapping could be of help to the industries to build their own design plans and incorporate design as part of their overall development goals.

Case study 2: Design intervention strategies for Ferozabad glass sector

Ferozabad at present is known world wide due to its glass industry . Since 1989 it started production of artistic glassware in different colors and shades used in chandeliers and other items.About 480 glass industries making different types of glass product are registered in Ferozabad. 50 % productions of these units are exported to different countries. Ferozabad glass industry consists of a cluster of small scale semi-organised industries using blowing, press moulding techniques etc. All the stakeholders were identified and information obtained from all these different sources. Then, in order to place the different styles of lateral and vertical thinking together and to structure information creatively instead of using conventional classification techniques, some methods were tried out.

Mind mapping process involves associative thinking based on the individual subjective mental model of the collected information. This approach was used for the semi-organised glassware industry sector. This sector did not have a fixed product range but a wide variety of products. So instead of considering the opportunity space in relation to existing product range, all the information which was collected through interviews and observation from the field was put forth on the chart. The information was not placed in a structured way, but was written down in the order of subjective priority given by the design student and using associative thinking. Later on the links/directions were identified with the help of chart.

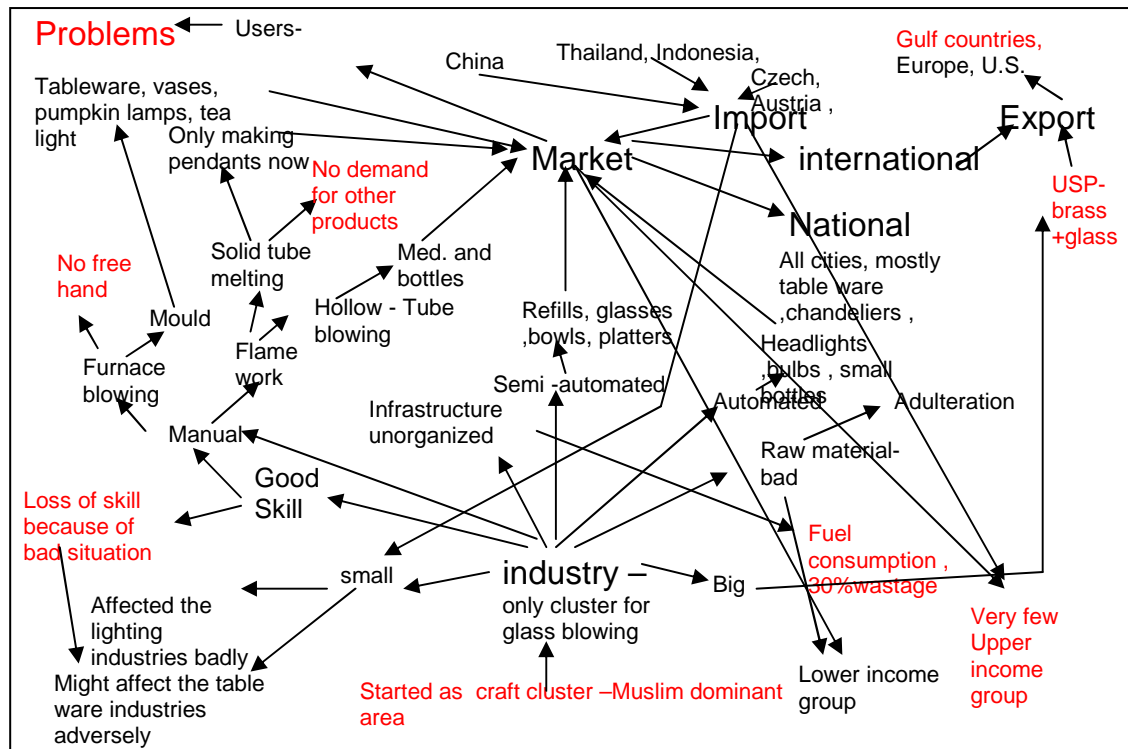


Figure 4: Mind mapping model for Ferozabad glass sector

The mind map was used as a reference and was looked at from multiple perspectives of sociologist/ environmentalist/ designer etc. The objective was to look at the context from different perspectives and prioritise the information and come up with design directions accordingly. The use of different perspectives helped in divergent thinking and enabled the generation of ideas for different opportunities within each sector. All the opportunity areas were identified and put forth as design directions. Each one had the potential to be converted into a design brief.

Some of the interesting opportunity areas included:

- Free hand blowing skills of the craftsmen could be used to come up with unique range of products.
- The cluster has high gas consumption and high wastage. An alternative range of products could be introduced using the cold process of sticking and cutting.
- The possibility of a range of products catering to Indian Muslim households which would also cater to the export gulf markets.
- The possibility of catering to architectural interiors in corporate offices
- The proximity of Moradabad brass industry to the Ferozabad glass industry could be used to come up with a range of products using a combination of these two materials.

Case study 3: Design intervention strategies for Panchmura craft cluster

Introduction

Cottage and small Scale Industries, West Bengal approached NID for Design intervention in the terracotta cluster located in Panchmura village in the district of Bankura. The workshop was to enable the artisans from this cluster to value add to the existing range of products and also look at other opportunities of product development to explore the possibilities in the urban and international market. The workshop also explored new set of techniques and processes apart from the existing ones to add more variant in terms of product range and surface finishes. Panchmura terracotta cluster consists of

artisans traditionally make only pots and the horse figurine which is mainly used for rituals. A lot of people from younger generation were leaving the craft because of lack of income from the craft and turning to alternate professions. The approaches of working in the craft sector are varied. After a discussion on various approaches including revival of traditional craft, modernizing the craft etc., it was decided to focus on the most crucial aspect for the craft community which is that of income generation. This visual metaphor method was used to synthesise the information obtained from studying the craft community sector. Here, the visual metaphor of a potter's wheel was created in order to derive meaning from the information based on the inferences made by the subject. It was envisaged that income generation for the craftsmen should be the main priority in terms of design direction. The pot at the center of the wheel represented income generation by the craftsmen and the various spokes of the wheel represented important factors which would contribute to it. This metaphor not only helped in synthesising the information but also in communicating the idea to others.



Figure 5: Potter's wheel is used as a Visual metaphor to represent the factors affecting the craft cluster.

ome of the interesting opportunity areas derived on the basis of the visual metaphor and multiple perspective outlook included:

- Women do not use the potter's wheel for throwing but participate in coiling and pinching work . Hence the design direction was to design products using coiling and pinching techniques to help women work and generate income.
- To develop fast moving items like table top accessories, garden accessories and gift articles which could be sold in emporiums as well as local markets.
- To develop modular products to make it easy to transport to city markets

Implications of taking real life projects in classroom education

Taking real life projects dealing with small scale industry sector and craft communities as classroom projects opens up a lot of possibilities. Apart from tangible benefits in terms of design of new products there are also a lot of intangible benefits. Design awareness is created and this sector which may not be able to approach professional designers gains from the project. For the students it brings a very enriching experience and an alternative to working with industry sector. If design is a process of envisaging then such projects are excellent because they change the perspective of looking at design as design of a product to design of a vision.

Conclusion

Coming up with design intervention strategies and design opportunities requires both lateral and vertical thinking The design case studies helped in coming up with design methods which help in integrating the analytical and creative processes in the initial stages of design. The paper demonstrates how the students were able to come up with a variety of design opportunities for each of the sectors. Each of the design opportunities had the potential of being developed into a design brief. The use of these design methods in classroom education is a two way process; the students benefit from getting the experience of working at a system level and the unorganized sector benefits from getting awareness about design and some tangible outcomes. Design education in countries having diverse sectors need to incorporate elements catering to this diversity into their teaching-learning system.

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CURRICULUM VITAE

Ms. Gayatri Menon is a Designer-educator at the National Institute of Design, N.I.D., India. At present she is coordinating the postgraduate program in Toy design and development. She has done her graduation in production engineering and post graduation in Industrial Design from N.I.D. and is currently doing her doctoral studies from IIT, Bombay in the area of 'Creativity and Systems approaches in Design'.

Gayatri Menon has been teaching Toy design and other Industrial design students. The courses include toy design, game design, systems design, nature and form, design for special needs, design for craft development and design methodology. She has also been involved in the development of course structure for the newly initiated Post graduate Toy design program.

Gayatri has worked on the UNIDO sponsored programs for Design intervention for the capability development of the Indian toy industry, for Asian Paints to design 'Kid's room' for children and on various craft related projects. She has also been conducting workshops on therapeutic toys, educational toys and make it yourself toys in various parts of India and abroad.

Her papers have been selected for presentation at the ICCP World Play Conference at Erfurt, Germany, 2001, International Toy Research Association, ITRA conference held in London, UK, 2002, ICSID education conference held in Hannover, Germany, 2003 and in the international conference on 'Design education: Tradition and Modernity' held in Ahmedabad, India in 2005.

Gayatri has participated as a tutor in the UNESCO supported international creativity workshops on toys for special needs held in Italy, Germany and UK, and as a guide in toy making workshops in Japan and collaborative Toy design projects in S.Africa.

