

CULTURAL INFLUENCE IN AESTHETIC DESIGN: A CASE STUDY BASED ON INTERMEDIATE PUBLIC TRANSPORT VEHICLE

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The visual appearance of a product is a critical factor for its success which is often influenced by the socio-cultural aspect of the context where it is widely used. The product can vary from small artifacts to an automobile, yet the context in which it is used would define aesthetics governing it. The paper discusses about the research conducted at Kanpur city to understand how socio-cultural factors (culture, values, tradition, customs, rituals etc.) are being reflected in a society and how to translate those factors efficiently on a product. Major part of the research focuses upon the design process, carried out for redesigning new interiors of a Para transit Vehicle (auto rickshaws), seeking inspiration from the cultural values, beliefs, rituals and behaviors practiced in the society. The paper concludes by discussing upon the development process of physical scale model of the proposed new interiors, to showcase how cultural factors could influence on design aesthetics of products like auto rickshaws.

Keywords: Cultural Influence in design aesthetics, cultural factors, cultural aesthetics, design of IPT.

1. INTRODUCTION

Culture represents a set of dynamic, dialectic and coherent body of beliefs and practices that is congruent with a particular historical period [1]. Culture initiates diversity and it is revealed in the design of artifacts produced and consumed in a society [2]. It is argued that cultural values are often reflected in the form and function of the artifacts developed in a society [3]. Cultural values can be incorporated in the products by providing certain features or design elements representing the values of their society. Moreover, it can also provide designers with varied new ideas that could be incorporated in new product development [4]. The challenge of achieving the integration of cultural factor in design is through incorporation of aesthetic values of users [5].

There are very few design — researches carried out in assisting the designers about integrating cultural factors in the design process [6]. It is believed that incorporating the cultural factors in the new product development is an important focus area for the design researchers [7].

Intermediate Public Transport (IPT) is a key area in which new and innovative design solutions are sought for as there is a significant gap between the required vehicle profile and the existing vehicles facing improper road condition, low- profit margin and overall incompatible design to match the user requirements [8]. In this research, a case study is attempted on the design of new interiors for IPT considering cultural parameters in the design process.

This paper focuses on how cultural values influence the aesthetic features of a product as well as how to incorporate those in the early conceptual stages of design process that might provide an insight to designers about the prevailing connection between design and culture and also its major influence on new product development.

In this study we have attempted to improve the aesthetics followed in the interiors of the Para transit vehicle (Auto rickshaw) using the design methodology seeking inspirations from the culture prevailing in the context (Kanpur) and also by providing a sample physical model developed to demonstrate the effectiveness of the design solutions.

2. THE KANPUR CITY

Kanpur is situated on the banks of sacred river Ganga, in the Uttar Pradesh state (northern India) with approximately 1300 square Kilometers of area and a population of over 4.9 million as per 2001 census report. It stands as one of the North India's major industrial centers with its own historical, cultural and commercial importance. The city's name is believed to have been derived from Kanhiyapur, the town of Kanhiya (Lord Krishna). Although, there is not enough reference regarding Kanpur city, the history of its suburbs Jajmau and Bithoor can be tracked to legendary times. In the economic frontier, Kanpur is well-known for leather and textile goods. After, the decisive battle of 1857, the industrial belt around the city was developed initially to supply leather products like Harness and Saddlers to Indian Army. Gradually, textile and other associated meals had grown in the region. Formerly known as Manchester of the country, it is now also called the commercial capital of the state. Kanpur's rich cultural and heritage values are the significant factors for selecting it as a field of study.

3. INTERMEDIATE PUBLIC TRANSPORT (IPT) MODE OR PARA TRANSIT VEHICLE

The medium of public transportation in a typical urban environment in India and in many other south east Asian countries includes a fascinating mixture of buses, powered three wheelers (auto-rickshaws and tempos), cycle rickshaws, light rail transit (LRT) and manual/animal power driven carts. In sharp contrast to the giant metros having extensive public bus services, most of the transport systems in small cities are run by private operators. Among the private players, according to an urban transportation report, the vehicles like auto-rickshaws, tempos, small cars, cycle rickshaws etc. also referred as Intermediate Public Transports (IPT) or Para Transit vehicles are found to be extremely successful to cater the travel demand of vehicles for medium and small size cities of these countries [9]. For example, despite high growth rates in motorized two wheelers and cars, more than sixty percent of the Indian urban population is dependent on IPTs for commuting inside the city.

Again among the IPTs, the auto-rickshaws and tempos are the most widely used medium of transportation in the small cities. In general, these vehicles have a load factor of 0.6 to 0.8 in Indian cities in comparison to a load-factor of 0.3 to 0.4 for the big buses [10]. Low travelling cost, ease of availability, flexible travel routes, higher demand responsiveness are some of the major reasons behind the success of these IPTs. In the northern part of India, people use three types of IPT modes which include Vikram, JSA and Ace. For traveling within the city, the dominant players are Vikram and JSA. Ace is popular among the masses traveling from city to nearby villages.

The intermediate public transport plays a vital role in the developing countries to meet the demands of the growing population especially in the urban sectors. These vehicles have a unique design which is more influenced by the cultural aspect of the place where they are used in. The aesthetics of these vehicles completely differ from the other vehicles used for transportation in the semi urban sectors.

4. IDENTIFYING THE CULTURAL FACTORS OF USER AND SOCIETY

The socio cultural factors become important tool to designers when they develop products for particular user group [11]. Designers must consider the socio cultural factors during their practice in order to

develop products that can fit into the cultural framework of specified user group. Socio cultural factors are hard to describe but they are deeply ingrained in a society and also changes constantly [2]. This research assumes that socio cultural factors are prominently visible during festivals, social gatherings, marriage celebrations, rituals etc practiced in a society. It is argued that a researcher should adopt a process that enables him to understand how different layers of culture like values, beliefs and rituals are interconnected in designing products [12]. The design research adopted a qualitative method for capturing the information related to subjects’ cultural and aesthetic values towards the product (three-wheeled auto rickshaws). A user survey was conducted to understand the users’ (drivers and passengers) cultural values, beliefs and behaviors towards the product which would contribute in the design process of new product development (in this case, new interiors for three wheeled rickshaws). Personal interviews based on questionnaires were used as tools to obtain the inputs from users.

The survey attempted to find out the behavioral problems faced by users (passengers and drivers) of auto rickshaws and also the users’ cultural and aesthetic values reflected as design elements used on those vehicles. The survey started from 20th February 2009 which targeted fifty drivers and fifty passengers at seven different places of Kanpur city. By the time survey was closed (9th March 2009), seventy valid responses (forty passengers and thirty drivers) have been received. The findings related to problems faced by users of the vehicle were already presented in our earlier paper and hence would not be elaborated in this paper [8].

Culture refers to patterns of human activity, which are differentiated based on the religion where he or she belongs to. Our research is restricted to the socio-cultural factors like festivals, values, beliefs, celebrations etc. Initially, we have identified the three major layers where, the socio cultural factors are distributed in a social system as shown in Figure 1. The factor, SCI involves large amount of study for years and hence it was given less importance for our research. The factor, SCK defines cultural values of Kanpur and CAU defines the cultural and aesthetic values of users (drivers) of Para-transit vehicles in the Kanpur city.

The factor, SCK was identified through the festivals, social gatherings, rituals etc. performed in the context of Kanpur. The study also investigated the socio-cultural factors prevailing in the Kanpur context through various literatures, rituals, and celebrations. A huge collection of texts and visuals were obtained in order to understand its’ culture. Like other states in India, Kanpur is also well known for its cultural values, traditions, beliefs, festivals and celebrations. Holi festival is the most awaited festival celebrated all over India, but Kanpur has its own way of celebrating by mixing people of various cultures and traditions. Holi is the most colorful festival of India celebrated to mark the beginning of spring season. Holi festival in Kanpur is celebrated for seven days. This tradition started during the British rule, when several freedom fighters were arrested for celebrating Holi. In revenge to this action, freedom fighters celebrated Holi for seven days and organized a grand fair called Ganga Mela. It is a procession in which, chariot of Lord Shiva, buffaloes, tractors, trolleys carrying big containers of colors followed by thousands of people marching towards river Ganga passing through various localities of the city, dancing and playing with colors on the drum beat. These patterns of human activity and way of life symbolically represent the culture of their society.

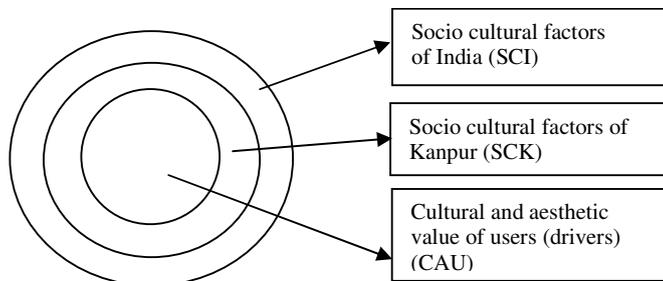


Figure 1. Distribution of Socio — Cultural factors in a system.

Cultural factors are also reflected in their costumes, decorative products used on those special occasions. The chariot vehicle used during wedding ceremonies showcases the cultural beauty of Kanpur. It has design features representing the traditional and cultural values of the society. The complete vehicle is designed using chrome plated materials with beautiful patterns and motifs expressing the relation between design and culture.

These patterns of human activity provided the scope for conducting a design research on designing new products having rich cultural values that would in turn increase the level of product acceptance among the users. This acceptance will create emotional feelings like beauty, pleasure, satisfaction, joy, love etc. among the users. These findings would also help the designers for conceptualizing new ideas seeking inspiration from the cultural values thereby affording the users with most pleasurable products.

From the factor SCK, we have obtained keywords which are to be used in the design process of new interiors of para transit vehicle. Keywords are adjectives that relates to a scenario or a particular pattern of human activity. During the Holi festivals people apply colors on each other to express their symbol of happiness and joy. From this we have derived various keywords like Colorful (K1), Happiness (K2), Music (K8), Dance (K9), etc. In this case, K1, K2, K8, K9 to an extent relates to the festival Holi. Keywords can also represent objects that are used during social gatherings, festivals and rituals. For example, Diya (K5), a lamp made of clay is used for Festivals like Diwali.

The factor, CAU is divided into sub factors like user values, assumptions, beliefs, lifestyle, festivals celebrated, idols worshipped and finally the emotional attachment towards the vehicle. The drivers (users) decorated their interiors with sculptures of idols along with visuals, posters of popular cine artists and some even built a small shrine in order to express their emotional attachment towards the

Table 1. List of keywords derived from socio – cultural factor of Kanpur.

Festival Holi		Festival Diwali		Festival Ganga Mela		Social gathering	
Colorful	(K1)	Light	(K1)	Holiness	(K1)	Decorations	(K1)
Joy	(K2)	Music	(K2)	Holy bath	(K2)	Light	(K2)
Happiness	(K3)	Dance	(K3)	Values	(K3)	Music	(K3)
Delightful	(K4)	Crackers	(K4)	Belief	(K4)	Dance	(K4)
Love	(K5)	Diya	(K5)	Rituals	(K5)	Rituals	(K5)
Kindness	(K6)	Paper Lantens	(K6)	Idols	(K6)	Truth	(K6)
Excitement	(K7)	Worship	(K7)	Decorations	(K7)	Flower	(K7)
Music	(K8)	Idols	(K8)			Diya	(K8)
Dance	(K9)	Candles	(K9)			Ornaments	(K9)
Holy	(K10)	Sweets	(K10)			Gold	(K10)
Interesting	(K11)	Holiness	(K11)			Hennae	(K11)
Sharing	(K12)	Decorative	(K12)			Chariot	(K12)
Friendliness	(K 13)					Trumpet	(K13)
Sweets	(K14)					Cloth	(K14)
Bonfire	(K15)					Jewelry	(K15)
Unity	(K16)					Sindoor	(K16)

Table 2. List of keywords derived from socio — cultural factor of Drivers.

Users (Drivers)			
Poor	(K1)	Indian	(K9)
Lower class	(K2)	Local songs	(K11)
Spiritual	(K4)	Dance	(K12)
United	(K5)	Playful	(K13)
Interesting	(K6)	Worship	(K14)
Decorate	(K7)	Pray	(K15)
Popular	(K8)	Panmasala	(K16)

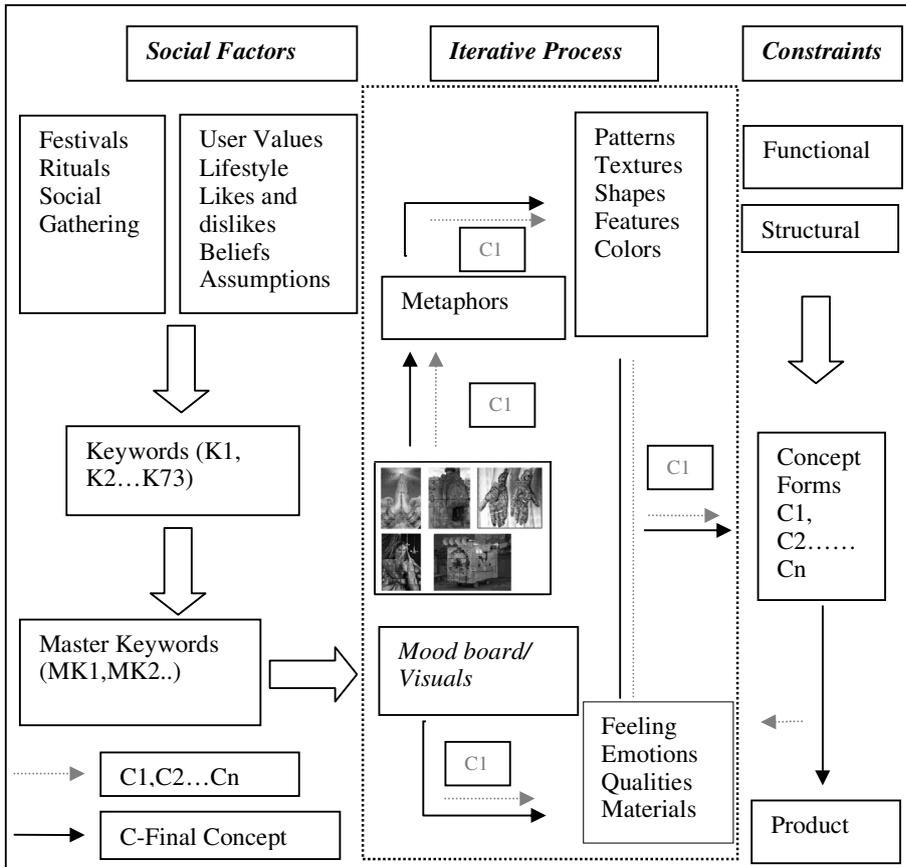


Figure 2. Design Model.

product. The use of traditional aesthetic elements like motifs, colors, shapes and forms in the existing interiors highlighted his cultural values. These characteristics of users led to derive certain keywords like popular (K13), spiritual (K4) etc.

The researchers have derived 73 keywords from the socio-cultural factors of Kanpur (SCK) and users (CAU). The keyword which repeats more than one time is identified and accumulated separately. For example, keywords like united, worship, idol, spiritual, holiness, light, music, decorative etc have multiple occurrences. The keywords like worship, spiritual, holiness, idols represent similar meaning and hence they are combined together to form a master keyword divine (MK1). The similar process is repeated to form the other master keyword Popular (MK2). These two keywords are used for designing a new interior of par transit vehicle, which represents the cultural values of Kanpur society.

5. DESIGN METHODOLOGY

The design research adopted the methodology of creating product forms using verbal descriptions [13]. This method consists of three phases, first phase describing the design keywords, second phase for collecting relevant visual images supporting the design keywords and third phase in generating product forms based on those images.

The study identified the two major key words from Socio cultural factors (divine and popular), which was reflected in decorative design elements used in the existing interior design of these vehicles. The visual data depicting the keywords were collected from various sources which include visuals depicting



Figure 3. Mood board used for developing concepts for new interiors of IPT.

cultural values, visuals showcasing festivals and celebrations occurring in the context, visuals from the literatures etc. The collected visuals shown in Figure 3 are used as mood board for conceptualizing various design ideas for the interiors.

6. CULTURE INTEGRATING WITH DESIGN

The mood board consists of visuals of famous cine artists, rituals performed in the society, marriage occasions, and aesthetic elements used for decorations during festivals, and celebrations. Ironically, the social cultural factors of a society are more pronounced during the occurrence of festivals and celebrations in it. These visuals provide the designer with new set of ideas to develop shapes and forms for the interiors. One of the most prominent qualities of Indian culture is to welcome the people by forming a hand gesture as illustrated in Figure 4. This metaphor was used for developing forms of the new dashboard (a part of interior where controls switches and instrument panels are mounted). Generally, the users make use of the space available on the dash board for placing the sculpture of his idols. This behavior of users highlighted the scope for designing a dashboard that can have an in built shrine which could help them to store the sculpture of their respective idols as shown in Figure 5. It has been argued that the shapes and forms that relates the users culture leads to emotional reponses from user creating a feeling of attractive, joy and happiness [2]. The hand gesture posture made by subjects for greeting others were used as metaphor for generating idea sketches as shown in Figure 5. At this posture the hands join together forming a shape similar to a dome of inverted parabola. This feature was transformed into a product form were in dome shaped shrine was developed vertically along the central axis of the dashboard.

In India, during marriage ceremonies, it is quite evident that individuals decorate themselves with various design ornaments to highlight their joy, fun and happy state of mind. One of the most popularly used decorative elements is mehendi art used on the hands of women. The hennae mehindi art is most commonly associated with decorations of Indian brides' hands during weddings. The application of heenae motifs or patterns for centuries has been linked with joyous of celebrations, leisure and togetherness. This metaphor is replicated on the surface of new interiors in order to invoke a feeling

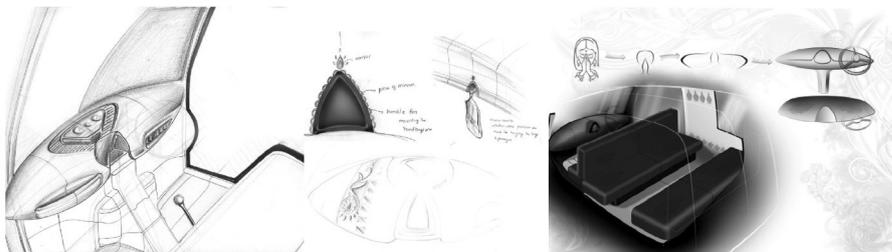


Figure 4. Final concept sketch of the proposed new interiors of IPT.



Figure 5. Scaled model of proposed new interior of IPT.

of pleasurable product to the user. The hennae motifs are embossed on the surface of dashboard and also in the passengers' cabin affording users a sensually pleasing experience. The use of traditional motifs triggers positive emotional reactions to product and enhances the interest among users. It can also evoke cultural associations in users [5].

In the passenger cabin of the vehicle, a small dome shaped design features are provided on to the side walls, with a hook inside it, used for hanging the bags of passengers during their journey. In order to enhance the beauty of dome shaped section, few pieces of mirror of radii less than 2 cm were pasted along its boundaries. The idea was originated from the distinctive style of traditional costumes wear by the people, especially during special occasions like festivals, rituals etc. In Kanpur, during social gatherings and celebrations, mostly females wore sari to enhance the cultural values of their society. The most popular sarees available in Kanpur city consist of traditional motifs with beautiful arrangement of small piece of glass to enhance its cultural identity of their society. The basic design is derived from a famous 3D design originally developed in Agra and is known as Zardosi. It is evident from the study, that during group gatherings and special occasions certain human characteristics were exhibited in the society like decorations, lights, joy, dances etc. These characteristics can provide a genuine source of information to the designers regarding the cultural factors prevailing in a society.

7. SCALED MODEL DEVELOPMENT

This section of design research discusses upon the process of building a scaled mock up model of the proposed interior design of auto rickshaws. The model was built using the material Industrial clay, available in the market. Industrial clay or styling clay is a malleable material that can be easily molded into any shapes thereby enabling the designers for visualizing their design ideas more efficiently in less time. Styling clays are available in varieties depending on the requirements of the designers. Each type has its unique properties which are used based on specific requirements.

The model making process started with a measurement study, in which all the required dimensions of the vehicle were obtained through manual measurements using measurement scales. The study lasted for three hours at an auto rickshaw service centre at Kanpur. All significant dimensions like leg space area, seat height, roof height were included in the study. Due to the availability of the resources, we decided to develop a half scale model of the vehicle to showcase the design features of the new interiors. The measured values were scaled down to a specific ratio (1:2) and used as reference dimensions for building the model. Next, a computer aided model of the proposed new interior design was also developed for virtual visualization.

The model making process started with building an armature or structure (base frame) for supporting the surface that is to be coated with clay. An armature will usually be assembled to support, stabilize, move and more or less roughly shape the major components of the clay model. The armature can be made using wood, foam or metal to achieve the preliminary shape that will act as a base for the clay application. The objectives of armature are to reduce the amount of clay required, speed the process of clay build up and reduce the overall weight of the finished project [14]. For our design research we have used medium density fibers (MDF) for building the armature. The inner members of the armature were supported using circular steel rods as shown in Figure 5, providing stability to the Clay model. Few intricate forms like dashboard and its supporting member was built using polyurethane foam which requires less development time compared to other materials. The window and door frames were made separately and later on attached to the structure. Lastly, the structure was coated with the

industrial clay obtained specifically for the research work. The clay was warmed up to approximately 57°C using heating oven and then applied on to structure. The tools like rake, chisels and wires were used to accomplish the desired design features on the surfaces. The features like shrines, henna design motif, mirror decorations were created on to the surface (Figure 5). The whole model making process was accomplished in duration of five weeks.

8. CONCLUSIONS

The research work has demonstrated how cultural values are reflected in a society and how it influences the design aesthetics of the products consumed in the society relative to Kanpur cultural perspective. The present study has also demonstrated the importance of designing products representing the socio cultural factor of the society it belongs to. The objective of the study is to provide designers a clue for identifying the cultural factors of a society through festivals, rituals and social gatherings and creatively using those factors on product to enhance its cultural value. The aim is to create a new approach to address the product design in terms of socio cultural factors. It is been clear through this study that the cultural values existing in Kanpur city will definitely influence the future products that are yet to be developed. For future studies, we wish to implement the concept level design idea into the real product and measure the responses from the users and analyze the effectiveness of our design solutions.

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