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GLOBALIZATION AND CROSS CULTURAL PRODUCT DESIGN

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1. Introduction

1.1 The Need for Cross-Cultural Product Design

Ethnic-cultural variation is, among other things, reflected in the different products people use, in the products with similar functionality that people use, and in the different ways people use these products. The amount to which cultural diversity is reflected in differences between products and product forms, depends of course on the kind of products we have in mind. Television sets and ballpoints are typical examples of products where differences, due to cultural diversity, are almost absent. The reason is obvious: the very nature of the production process of mass-produced industrial products does not allow for much variation between batches, and consumers throughout the world apparently use these products roughly in the same way. It seems that as far as the vast majority of mass-produced industrial products are concerned, the overall uniformity in product design does not seem to be a source of serious problems. In some cases, however, ethnic-cultural variation is seriously conflicting with the uniformity principle of mass-production.

There is an emerging interest in the impact of cultural dimensions on the experience and interaction between people and products. Globalisation has led to a situation in which product design teams from one culture or context often have to develop a product which will be used in a (totally) other cultural environment. Globalisation also confronts companies to decide between 'global' or 'local' featured design of products. As a result it has become essential for the industrial design education and profession to take the context and culture of the end-users more serious and to look for consequences regarding industrial design.

While research on cultural aspects traditionally has been the area of anthropology and sociology, the focus on the interaction with the material world has woken up the interest of the design disciplines to take part in these studies.

As a result cross-cultural product design has increased in value and interest within the research and education programmes of the faculty of Industrial Design Engineering at Delft University. However, as a specific area within cultural studies the interaction between people and products as a cultural phenomenon has been hardly described yet. Models of cultural dimensions such as Hofstede's [Hofstede 1991] and Hall's [Hall 1977] have been extensively applied in research in the field of cross-cultural teamwork and communications and even interface design. Existing cultural models, however, do not provide extensive information about how it can be applied in a meaningful way to product design [Khaslavsky 1998]. For that reason, a series of demonstration projects have been initiated to explore cross-cultural design in practice and education. These demonstration projects will be described shortly in paragraph 2.

1.2 Aspects of Cultural Diversity and Design

The influence of culture on product design comes to the fore in many aspects, which we categorise in two main groups: practical and theoretical aspects. We have made a first attempt to map the different areas of interest connected to cultural diversity and product design, as is presented in figure 1. Tentatively we distinguish seven areas regarding cultural diversity and product design. The aspects *design process* (methodology, procedures), *design education* (transfer of design knowledge among other cultures), *strategic* (business strategy and marketing products in other cultures) and *designers* (cultural influence on the designer himself) form together the practical group. The aspects *aesthetics* (preference for design in different cultures), *semantics* (interpretation of design and function) and *human-product interaction* (the actual use of products in different cultures) form together the theoretical group.
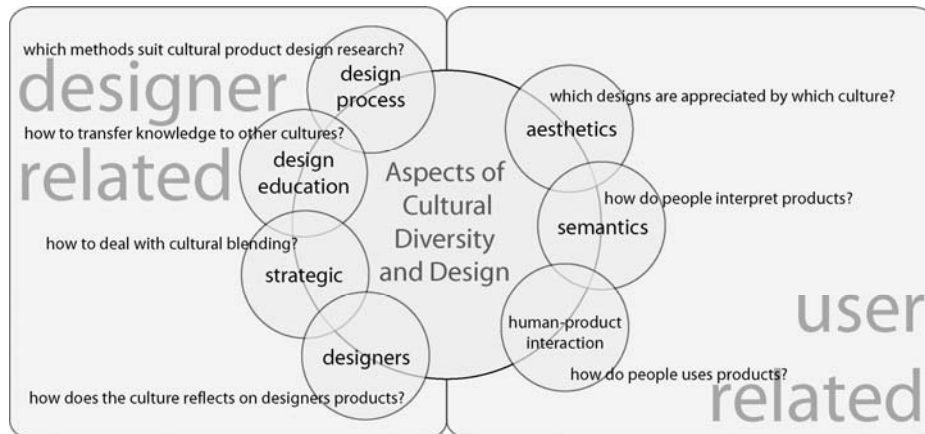

Figure 1. Mapping of areas on cultural diversity and design

In every area several studies can be found, most of them related to the design process, strategy, aesthetics, semantics and human-product behaviour. It is striking that nowadays companies realize the importance of flexible and adaptive design according to local markets. A company's failure to acknowledged cultural diversity often limits its product's marketability [Rutter et al. 2000]. Therefore, a number of global companies already started to develop methods and projects to study cross-cultural aspects. Intel developed their own 'Culture Capsule', a physical cultural environment which can simulate every cultural interior and atmosphere you like. Microsoft, Hewlett Packard and Philips are conducting cross-cultural studies to understand not only matters regarding culture and human interaction design but also how to gain profit from emerging markets. Other studies show that it is more effective to adapt the execution of advertising on packaging to local preferences than to come up with a global solution [Berg-Weitzel et al. 2001].

2. Case Studies

2.1 Cross-Cultural Design projects at DUT

In order to get a better understanding of cross-cultural product design in practice, several research and in-company demonstration projects have been carried out by our school jointly with industry and students. Each project explored in a different manner the aspects of cross-cultural design in a specific cultural context. Some examples are:

Rice cooker: A medium sized domestic appliances company set out a graduation assignment because they encountered culturally different markets. The challenge was to develop a Western style rice cooker, which had to suit to the Asian market. The idea behind the design was that Asian people prefer European style appliances; for them it is a sign for high quality.

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MP3-Player: In collaboration with a big European electronics manufacturer the interaction between young people in Indian urban areas themselves and products have been observed and recorded. The Asian market (i.e. India and China) is expected to grow fast and might ask for cultural appropriate products. The interaction patterns have led to a new, relative less expensive, MP-3 device which can be shared by groups of Indian youth.

Public furnishing 1: A multinational in waste handling systems, which sells well in northern Europe, has sales issues in the southern part of Europe. During a graduation project, cross-cultural research was conducted examining the (local) competitors, furniture design and human-production interaction on the southern European public furniture market. The project resulted in interesting leads to redefine the design and sales strategy.

Public furnishing 2: In collaboration with a small public furniture producer in the Czech Republic, the potential was explored to incorporate local cultural heritage within the identity of export products. The outcome of the experiment has been a proposal of Czech cultural identity inherited modern public furniture for the city centre of Rotterdam in the Netherlands.

E-Commerce web-sites: The object under investigation was the homepage of an existing small company, offering a software products. Two culture specific versions of the homepage were created, one adapted to German target group, the other to Spanish audience and were tested within both societies.

Three additional cases are described in more detail in the next paragraphs.

2.2 A Study into Differences between the South-Korean and Dutch Kitchen

2.2.1 Introduction

A notable case in respect to cultural diversity in product design is the home kitchen. No one will deny that one of the fields of human activity, where ethnic-cultural variation is predominant; is in the preparation of food. During this study [Leur 2005], the Dutch and Korean cultures are reviewed on the field of kitchen appliances. Trying to capture most of the elements of the kitchen environment regarding product design, four aspects of research are chosen: functionality, appearance, adaptability and cultural environment.

2.2.2 Method

In this study a *focus group method was chosen* in combination with *cultural probes* [Gaver et al. 1999], including the following research activities. In order to prepare discussion material participants were asked to make photographs of their kitchens. Some weeks before the meeting the participants were asked to keep record of kitchen activities by way of a logbook. Finally, a plenary session was held with the following activities (1) individual grouping of their photographs according to a number of criteria, (2) a group discussion on the resulting collages, (3) the design of the dream kitchen (on the basis of collaging with pictures/images), and (4) a group discussion on the designs of the dream kitchen. Three focus groups were studied: (1) a group of four Korean people born in South Korea and living in the Netherlands; (2) a group of six Dutch people born and living in the Netherlands; and (3) a group of six Korean people born and living in Korea.

2.2.3 Results and discussion

The Dutch Korean Focus Group shows some clear differences with the Dutch Focus Group. In addition, they have some similar opinions as the Korean Focus Group. The Dutch Koreans are more 'Korean' in their opinion than the Korean Focus Group. They are more active in decorating their kitchen to create a Korean look. One of the reasons of this difference is the minority position of the Koreans in the Netherlands. This effect is seen very often, people who migrate to other cultures stick more to cultural values in contrast to the people living in their native country [Kroes et al. 1991]. The Korean Focus Group is more similar to the Dutch Focus Group with respect to a simple and orderly kitchen interior. Striking is the emphasis of Dutch South-Koreans and South-Koreans on positive emotions (i.e. relaxing and nature) as is expressed in creating their dream kitchen. We can explain this emphasis by the fact that South-Koreans see food as a medicine, to keep the body healthy. In contrast

the Dutch emphasize functional appliances and storage space. The emphasis of the Dutch on functionality is explained by their tradition and cultural philosophy.

Designers who want to design for other cultures should be aware of the fact that these variations could result in completely different product styles. Understanding the needs, tasks and environments of the people for whom products are designed is the key for cross-cultural product design. The outcomes of the cultural probes and focus-group discussions can support this process.

Figure 2. South-Korean and Dutch way to store ingredients

2.3 The material culture of Turkish migrants and their descendants, with a focus on their domestic interior and furnishing

2.3.1 Introduction

The Netherlands is a multicultural society with about 1.5 millions non-western migrants on a total population of 16 millions people. The differences in way of living are partly reflected in their material world. Depending on their background people choose for a different environment with different preferences for material things or products. This project [Biemond 2005] is part of the research theme 'cultural differences in product use' and aims at describing the home of Turkish migrants and their descendants in the Netherlands, their way of living, focusing on the interior and furnishing of their homes, and the way they acquire new products in the home. The study is a means of bringing designers in the Netherlands in contact with the domestic culture of Turkish migrants. In this way, designers will realize that regarding the design of everyday things and interiors the target group is multicultural. A confrontation of the various cultures will enrich design by adaptation of their designs to differences in these cultures, or by integrating elements of these cultures. Over the last 10 years several studies have been performed into the domestic needs and wishes of this target group [VROMRAAD 2002]. The primary focus was on the living conditions such as the size of the home, the number of rooms and especially the location of the quarter. Hardly any research has been done into the material aspects of the home [Caglar 1998].

In order to study the domestic culture of Turkish people in the Netherlands a number of elements has been defined: the meaning of the home, the living behaviour, the furnishing of the home, the needs and wishes regarding furnishing, and the process of selling new products like furniture. Other aspects, which were taken into account:

- The similarities and differences between their home in the Netherlands and if present their second home in Turkey;
- The differences between first and second generation of Turkish migrants. And how does material culture change between first and later generations?

2.3.2 Method

Data are being collected through in-depth interviews with eight migrants. They were interviewed at home. Together with the interviews data were collected from literature sources.

2.3.3 Results

The general impression is that migrants have a uniform furnishing taste. The style of cupboards, couches, chairs, tables and even interior decoration shows much similarity between the participants in this study. It is important that the furniture together with the other home decoration elements are tuned to each other. This furnishing significantly deviates from the native Dutch population in that it often carries back to the traditional culture in Turkey. On product a level these differences can be observed as well.

The interior has to be very clean and is therefore an important consideration in purchasing furniture. The right material has to be used, i.e. easy to clean. For that reason leather is quite popular in furniture as is the case with washable cushion covers. Furniture such as tables and cupboards needs to have a luxurious classical look, with an eye for details, but without being fragile. In fashion are cupboards, which cover a big part of the wall – with room for all electronic equipment (i.e. a big TV set). They serve as show-case with glass windows and shelves. Another popular piece of furniture is the sideboard, always with a mirror along the whole backside. Popular colours and materials are oak or beech with or without colour accents, but nowadays MDF is most seen with a beige shiny finish. This surface should not attract dust.

Figure 3. Examples of Turkish interiors in the Netherlands

Turkish migrants set value on the affordability of the furniture. Turkish furniture shops in the Netherlands have played oneself into that trend by offering cheap furniture, which properly fit to the migrants' general taste. However, most participants in this study complain about poor quality.

2.4 Design of cross-cultural web-sites

2.4.1 Introduction

At the moment a new manual on "Design for Sustainability" is under development for the United Nations. The target group of this online manual will be design professional, professors and students worldwide. This has been the starting point for a study focused on the impact of cultural background on user preferences and user experience of international oriented knowledge transfer web-sites [Wit 2004].

2.4.2 Method

Available evidence about user preferences for localized or globalized web sites is limited at present. This study intended to fill this gap by presenting empirical evidence, which aims to enable interface designers to make cultural appropriate web designs. To achieve this, a multi-method approach was

used. First a literature review was conducted in which the focus was on cross-cultural characteristics of web site design and user experience. Then, the cultural characteristics of 40 existing web sites in four regions (from different cultural settings East-Africa, former East-Europe, Latin America and India) were investigated in the evaluation study with the support of a specifically for the study developed evaluation tool (see figure 4).

Based on the results of the evaluating part, the theory and the literature, four test web sites were developed for the testing phase. According to the summarized conclusions of the first study, there were several factors of interest to test. The accent of the test web sites laid on the appearance, the structure and the navigation, the content will be the same in all web sites.

One test web site was culturally neutral or universal and this site was based on the similarities observed in the evaluation study.

Theoretical Factor	Source	Detailed research question	Scaling
A5 Three different figures following the nature of their design: abstract figures, symbolic figures and realistic figures. Applying to Hall's context square; from high context communication to low context communication.	[Syarief, 2003] *An initial Cross-cultural survey of user perception on Web Icon Design for Travel Websites*	Are the figures used on the web site, abstract (cartoon and sketch type), symbolic or realistic figures?	A. Abstract figures (high context) e.g. B. Symbolic figures e.g. C. Realistic figures (low context) e.g. Save some figures

Figure 4. One 'row' of the evaluation tool

The empirical evidence thus gathered made it possible to develop guidelines for designers about culturally specific interfaces or web sites and to make a basic choice between a localization or globalization approach.
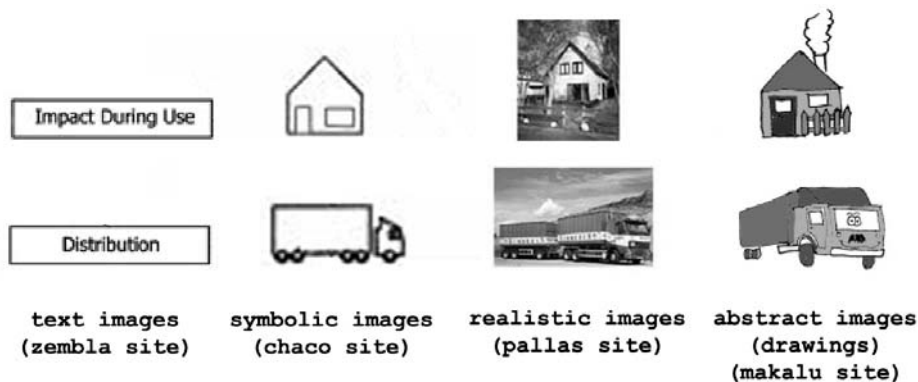

Figure 5. Illustrations for the four test-websites

2.4.3 Discussion

As expected in literature, there were noticeable differences in web sites made in and for different cultures. Findings demonstrate the existence of cultural differences in terms of preferences and satisfaction of interfaces and web sites. Some of these links were earlier described in literature, others were quite new and unexpected. During the evaluation phase of the project differences in three

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elements of web sites appear; in content, structure and navigation and in appearance. Differences were found in focus on authority, used colours, usage of abstract, symbolic or realistic images, the extent and depth of used structures, feedback about this structure, tone of voice and focus to individuals or groups of people etc. For more information about this project see the poster IWIPS 2005 presentation 'How to design cultural appropriate web sites for knowledge transfer ' by Femke de Wit.

3. Discussion

Only recently research by design disciplines on diversity in material culture has been started. The problem with this kind of cross-cultural product design research is that the subjects of the case studies are fragmentised and that the used methods are multiform. To prevent this fragmentation, institutes like universities and multinationals should focus more on cross-cultural research projects with a structural character. Additionally, research teams from different disciplines, such as Social Science Informatics, Anthropology and Industrial Design Engineering, should be composed.

We need a new perspective regarding the interaction between culture and design. As discussed earlier in this paper, the known models for culture are inappropriate to apply in product design. Those who are interested to generate general methodology based on case study results are very welcome to participate together with the faculty of Industrial Design Engineering of the Delft University of Technology.

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