Cultural Aspects of Global Industrial Design, 'A Diversification Among Cultures'

Mohamad Zamzuri

Jan Lundberg

Lulea University of Technology

Global industrial design principles have recently gained momentum as one viable method of producing useful, usable and desirable products. However, cultural diversification existing between countries seems to be a tall hurdle facing designers. In short, this cultural difference might prevent the object in question from being widely accepted across the world, although it may have been categorized as being "universal" for the purpose of increasing the profit margin of the company. Therefore, the problems associated with this area of design should be addressed and elucidated in research, to avoid cultural disagreement in the future in product design. The aim of this paper is to give an overview of possible reasons for the existence of cultural differences in product design in some markets around the globe and the effects of these cultural differences on global design and product design in general.

The aim is also to provide preliminary explanations of design clashes by using focus group interviews that were made by the authors of this paper among Chinese and Americans in Sweden (22 people). Some examples of design clashes due to cultural differences were discussed and the two cultures of interest here were the Chinese and the Americans. The authors use the focus group in order to clarify and explain studies made by Chan et.al, which implies studies of several products among Chinese and Americans where the two groups differ culturally with respect to the use, perception, labeling, etc of the products. The choice of the two groups of this study is due to the fact that America represents a multicultural and high technological base country and a large market as well in the world, and China represents a monoculture and low technological base country. The examples that have been chosen are; key turn, refrigerator door, quadrant labels, switch, color associations and color signs for the design clashes among this two group. The purpose of the focus group interviews was to find possible reasons for the findings (design clashes) among Chinese and Americans.

The culture of people or users is a very good determinant of efficient utilization of any products. In designing a product, it is therefore necessary to understand the essential component of the culture of any nation before a product is put on the market. Activities that may possibly solve this problem are:

- Multinational companies should form one "big" consultancy consisting of different nationals who understand well the culture of their country.
- Design principles and practices should be an integral part of the entire process of product development from the beginning and throughout the process.
- To understand well the local cultural needs of different countries.
- A participatory representation of views of people of different cultures should be encouraged during the design and testing of new product.
- Human factors such as principles and ideas should be given critical attention in the development of new product.

In conclusion, knowledge and cultural awareness could be a way of improving the effectiveness of global design and its influence on the design process in order to reduce or to overcome most challenges facing designers today.

Cultural Aspects of Global Industrial Design

Diversification among cultures

Abstract

Global industrial design principles have recently gained momentum as one viable method of producing useful, usable and desirable products (The Center for Universal Design, 1997, (1). However, cultural diversification existing between countries seems to be a serious problem for product designers. The aim of this survey is to make a broad overview, by using focus group interviews, of possible reasons for the existence of cultural differences in product design in some markets around the globe and the effects of these cultural differences on global industrial design. In conclusion, knowledge and cultural awareness might be a way of improving the effectiveness of global industrial design and of the product design process for the purpose of increasing the sale of industrial products on global markets.

Key words: Culture differences; product design; global industrial design

1. Introduction

The purpose of this survey is to make a broad overview, by using focus group interviews, of possible reasons for the existence of cultural differences in product design in some markets around the globe and the effects of these cultural differences on global industrial design. The examples studied in this report represent a diverse array of products, selected for the purpose of showing that cultural differences exist and will cause design clashes for many type of products. Malick and Mukhopadhyay, 1997 (2), have, on the basis of theoretical formulas they discuss, formulated a local design strategy that attempts to increase market shares and incomes from sales by designing many variants of a product in order to exploit cultural differences. They discuss the local and global design strategies as well as the interaction complexity between costs and sales revenue tradeoffs. However, they do not discuss cultural differences between countries, nor practical examples of design clashes. The internal and external cues have also been investigated by Forsythe, Kim & Petee, 1999 (3) in the perspective of cross-cultural differences in consumers' evaluations and intentions of buying an apparel product. They indicate that design is an internal component of a product, which influences its evaluations and consumers' attitudes to buying. They also note that among Korean consumers the design of a product is a good predictor of consumers' buying decisions, whereas among the Chinese the brand name is a good predictor. The article by Ito and Hoft, 1997 (4), aims at developing a map for expected future manufacturing systems, as well as at studying the major driving forces for the development of future manufacturing products for each system. Along with a new concept for future manufacture, a new product concept, i.e. the "region and racial-traits-harmonized product", is proposed. Finally, Kathryn Henderson, 1998 (5), also compares two cultures of design (i.e. flexible and interactive and rigid and hierarchical). She discusses technology and its design as both socially constructed and society shaping, which is compatible with design studies. It is obvious from the studies made by the

above authors (2, 3, 4 and 5) that there are several unexplored issues that still need to be investigated to provide a better understanding of culture issues to be integrated into design principles in order to avoid design clashes.

2. Focus group

Focus group interviews were performed by the present writers in order to clarify design clashes among some Chinese and Americans in Sweden. The profile of the interviewees is shown in Table 1. The purpose of the interviews was to find possible reasons for the findings (design clashes) of Chan et al. (6) among Chinese and Americans. To the students in the two groups (Chinese and Americans), the author gave some reading material (compiled by the author from (6) containing the products that Chinese and Americans show cultural diversification about. Both groups gave reasons in writing or orally. However, the non-student Chinese subjects gave oral explanations as the author informed them about the findings of Chan et al. (6). This is due to their limited knowledge of the English language. The author wrote down verbatim the responses of the interviewees. The responses of the interviewees are presented in the findings below.

Subjects' personal profiles	**Chinese**	**Americans**
No. of interviewees	14	8
Age range	24 to 54	23 to 29
Denomination	Buddhist	Christian
Occupation	7 students & 7 non students	Students
Educational background	3 PhDs, 4 Masters & 7 secondary level graduates	8 Masters
Native country	China	USA
Length of residence in Sweden	1 1/2 to 26 years	1 1/2 to 2 years
Length of residence in their native country	17 to 22 years	21 to 24 years

Table 1: Profiles for the focus group

3. Examples of design clashes

The examples below selected for discussion in this section have been taken from a study conducted by Chan, Alan H.S & Courtney, Alan J, 2001 (6). The authors (6) studied design clashes (shown below) among Chinese and Americans where the two groups differ culturally with respect to the use, perception, labeling, etc of the products. However, the authors do not offer any explanation and any pictures of the product examples of the cultural differences in their study. The reason for selecting Americans and Chinese in this study (6) was that the USA represents a multicultural and technologically advanced country, whilst China represents a monocultural country based on a large market. The focus group was recruited to the present study to offer possible explanations of the design clashes selected for investigation. The examples are:

- Key turns
- Refrigerator door

- Quadrant labels
- Switch
- Color associations

3.1 Key turns

It was also reported that the Chinese did not show any clear orientation of their keys and related lock systems, as 57 percent of them were not sure about the position (teeth down or teeth up) of the key. On the other hand, 80 percent of the Americans have strong teeth-down preferences for putting the key into the lock (Fig. 1). In two other tests the authors (6) found that in group number one, 79 percent of the Chinese expected that the insertion of a key into a box followed by a clockwise turn would open the box, whereas 75 percent also expected that an anti-clockwise turn of the key would open the box in the second test. (group number two) From this investigation there emerged two results (clockwise and anticlockwise turns) that indicate a random behavior.

Figure 1: Key with “teeth-down”

The focus group interviewed in this study attributed this random behavior among the Chinese to the existence of different key and lock system designs in China, which also might explain why the Chinese (57%) were confused about the key and lock system orientation. One possible explanation of the behavior of group number one (79%) may be that some Chinese use the “traditional key” (Fig. 2) and most of these types of keys operate in the clockwise direction in order to open the lock system. Hence the test group probably belongs to this category. One possible explanation of the behavior of group number two (75 percent turning anticlockwise) is that most Chinese have now changed their lock system to a new brand that opens the lock in an anticlockwise direction, because the traditional key (Fig. 2) or lock system is no longer produced. Hence test group number two probably belongs to this category. The agreement concerning possible explanations in the focus group was 100 %.

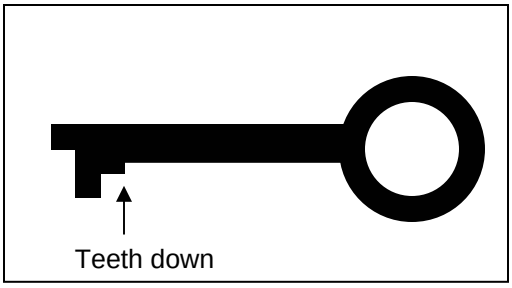

Figure 2: Traditional key

3.2 Refrigerator doors

In an experiment conducted by Alan et al., (6) on Chinese and Americans, they noted some ambiguity in the use of the terms right opening and left opening, when these refer to the position in which the door is ajar. Of the Chinese 82 percent preferred the use of right opening (anticlockwise) (Fig. 3), but of the Americans 57 percent preferred the term left opening for the same meaning. A possible explanation given by the focus group in this study is that, in the whole of China, handles are commonly on the left-hand side of refrigerators, because it is more practical to open the door with the right hand to look inside the refrigerator. The focus group interview indicated that in America they have several different designs and locations of refrigerator handles and that Americans can therefore alternatively use any of the design types. The agreement in the focus group was 86%.

Figure 3: Refrigerator door with right opening (Chinese definition)

3.3 Quadrant labels

Chan et al. (6) reported much greater differences among the Chinese in the way they label the quadrants of the circle than among the Americans. 17 percent of the Chinese and 35 percent of the Americans prefer to label the quadrants in reading order for which the upper quadrant is labeled 1 and 2 from left to right, whereas the lower quadrant is labeled 3 and 4 from left to right. (Fig. 4). 19 percent of the Chinese and 13 percent of the Americans also opted to start counterclockwise from the upper right and to refer to that quadrant as 1 and the upper left as 2, etc.

(Fig. 5)

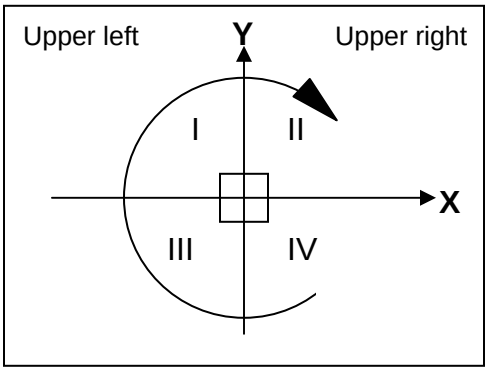

Figure 4: Reading order

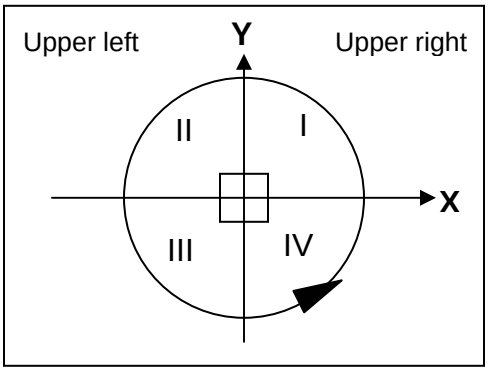

Figure 5: Counterclockwise

One possible explanation offered by the focus group of the Americans' behavior is that figure 4 corresponds to the reading system from left to right in accordance with the educational system in America. The focus group interviewed in this study also suggested that the behavior of the Chinese may be caused by their having variant types of their reading convention system. The opinion of the focus group was however not unanimous, since only 50% of the focus group agreed with the above explanation. With respect to this, more research is required to factor in an explanation of these differences.

3.4 Switches

Differences were also noted between the Chinese and the Americans in the use of toggle switches. In one investigation conducted by the authors (6) they noticed that about 73 percent of the Chinese prefer to move the switch down (Fig. 6) to turn it on and 71 percent up to turn it off (Fig. 7). Of the Americans, on the other hand, 88 percent preferred to move the switch up to turn it on.

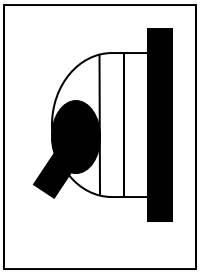

Figure 6: switch down, turning on

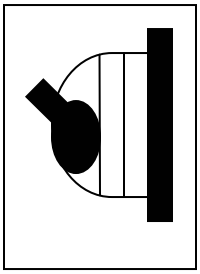

Figure 7: switch up, turning off

A plausible explanation given by the focus group in the present study is that China is one of the biggest markets for toggle switches of the design illustrated in Figure 6 and 7. And this design influences the taste and preference of the Chinese users. However, in America the switches are often of the opposite type. The agreement in the focus group was 100%.

3.5 Color associations

Today the problem of color stereotypes constitutes a major challenge to designers of products. In many countries particular colors or some colors may have different meanings for the nationals of these countries and may thus affect the selling of a product. It is therefore essential for instance that designer pay particular attention to the colors on or of products going to foreign countries. Hence some space will be allotted to discussing color diversification in this paper.

For instance, a red light that means ‘stop’ or a green light that means ‘go’ to an American has the opposite meaning for more than 50 percent of the Chinese. Chan et al.,(6) matched eight colors: red, orange, yellow, green, blue, purple, black and white, to nine concepts; ‘safe’, ‘cold’, ‘caution’, ‘go’, ‘on’, ‘hot’, ‘danger’, ‘off’, and ‘stop’ among the Chinese and the Americans. The groups showed different perceptions of the colors. 100 percent of the Americans associated red with ‘stop’, 99 percent green with ‘go’ and 96 percent blue with ‘cold’. However, of the Chinese, 66 percent, 63 percent and 22.5 percent respectively made similar claims. (Fig.8) In another color-preference test, 95 percent of the Americans associated red with ‘hot’, 90 percent associated red with ‘danger’, 81 percent associated yellow with ‘caution’, 61 percent green with ‘safe’, 50 percent red with ‘on’ and 31.5 percent white with ‘off’. However, of the Chinese, 63 percent associated red with ‘danger’, 40 percent red with ‘caution’, 38 percent green with ‘safe’, 28 percent orange with ‘hot’, 24 percent green with ‘on’ and 23 percent white with ‘off’. (Fig. 9)

A possible explanation given by 86 % of the focus group in the present study is that Americans are more particular about colors that are associated with safety concepts (e.g. red: ‘danger’ and stop; green: ‘go’ and ‘on’). However, among the Chinese colors are associated with events in daily life (e.g. red: ‘luck’, ‘happiness’; black: ‘hard luck’).

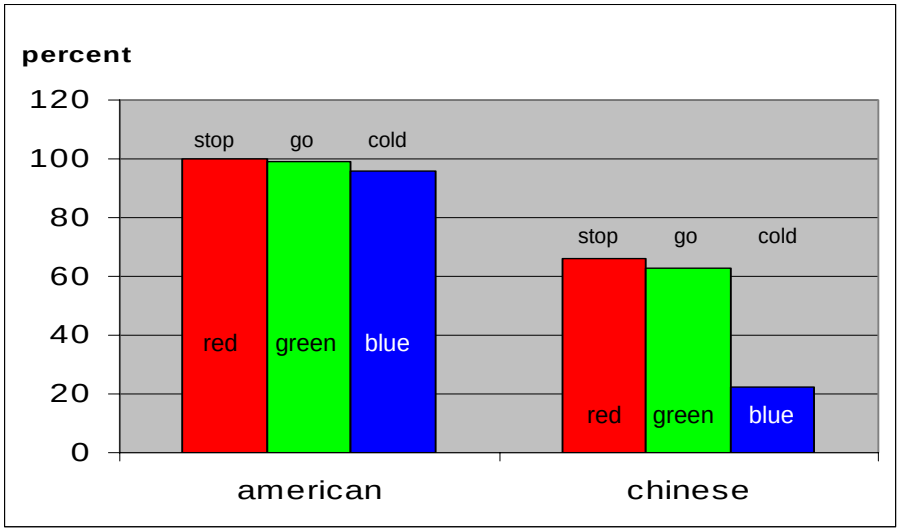

Figure 8: Stereotypes for red, green and blue colors for Americans and Chinese (Adapted from Chan, Alan H.S.; Courtney, Alan J, 6)

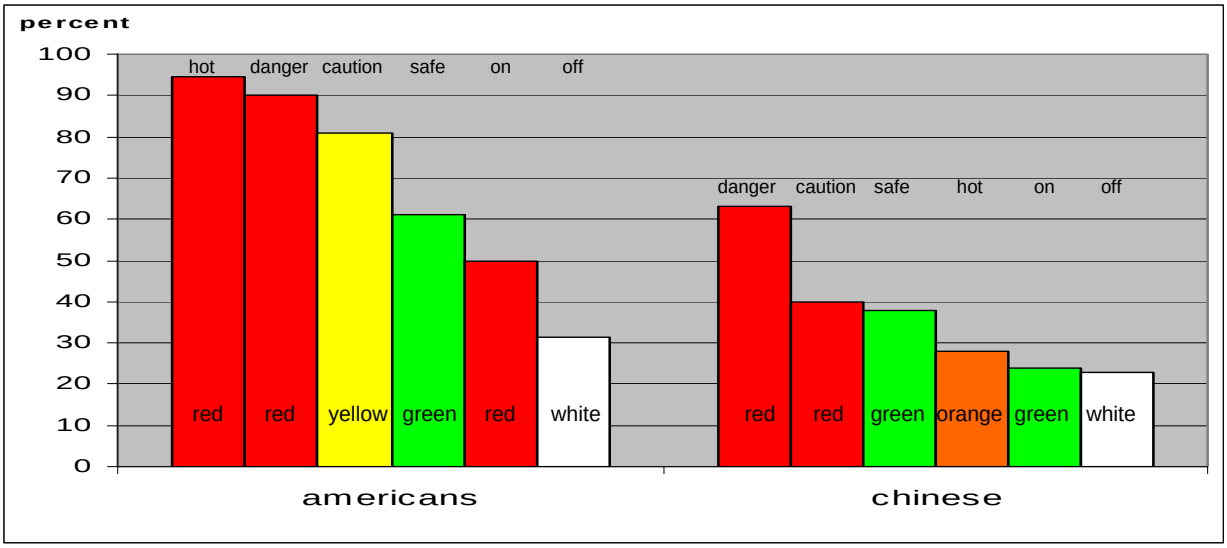

Figure 9: Stereotypes for red, yellow, green, orange and white for Americans and Chinese (Adapted from Chan, Alan H.S.; Courtney, Alan J, 6)

Finally, it is necessary for multinational companies and all companies that export to foreign countries, to understand the meanings of words and their relevance to society. Below some examples of cultural misunderstandings are presented (7).

- General Motors could not understand why the Chevy Nova was not selling well in Latin America, until they were told that in Spanish; *no va* means 'it does not go'.
- A shampoo was sold in Brazil with the catchy name of Evitol – which was translated as 'dandruff contraceptive'.
- In Italy, a campaign for Schweppes Tonic Water translated the name into 'Schweppes Toilet Water'.
- Olympia office products attempted to sell its ROTO photocopiers in Chile, but did not realize until too late that *roto* may mean 'broken' or designate the Chilean lower class.
- Ford had a series of problems marketing its cars internationally. Its low cost truck the Fiera means 'ugly old women' in Spanish.
- Esso S.A.F discovered that its name translates as 'stalled car' in Japanese.
- When Pepsico advertised Pepsi in Taiwan with the ad "Come Alive with Pepsi" they had no idea that it would be translated into Chinese as 'Pepsi brings your ancestors back from the dead'.
- Nike made a television ad promoting its shoes, with people from different countries saying "Just do it" in their native language. Too late they found out that a Samburu African tribesman was really saying, 'I don't want these, give me big shoes.'

Finally we will present one example from Scandinavia. In Sweden, there is a local product of mineral water, named Loka. This word stands for 'water from the toilet' in the Finnish language.

4. Conclusions

The culture of people or users is a very good determinant of efficient utilization of any products. In designing a product, it is therefore necessary to understand the essential components of the culture of any nation before a product are put on the market. Measures that may eventually solve this problem are:

- Multinational companies should form one “big” consultancy consisting of different nationals who understand well the cultures of their countries.
- Design principles and practices should be an integral part of the entire process of product development from the beginning, and throughout the process.
- To understand well the local cultural needs of different countries.
- A participatory representation of views of people with different cultural backgrounds should be encouraged during the period of designing and testing a new product.
- Human factors, principles and ideas should be given critical attention in the development of a new product.
- More research is needed in this area.

5. Areas for future research

Although global design principles have received much attention in recent design practices, cultural differences still exist in different countries that will affect product utilization on the international market. Hence, it is necessary for future design research to focus on integrating existing cultural differences in today’s world into design principles and practices. Today, the authors of this paper are performing a research project that is strongly targeted at highlighting the design clashes. The goal of this project is to increase the sale of products in foreign countries for manufacturing companies in the north of Sweden and Finland, by means of obtaining a deeper knowledge of design opinions in future markets. The process is described in (Fig.10).

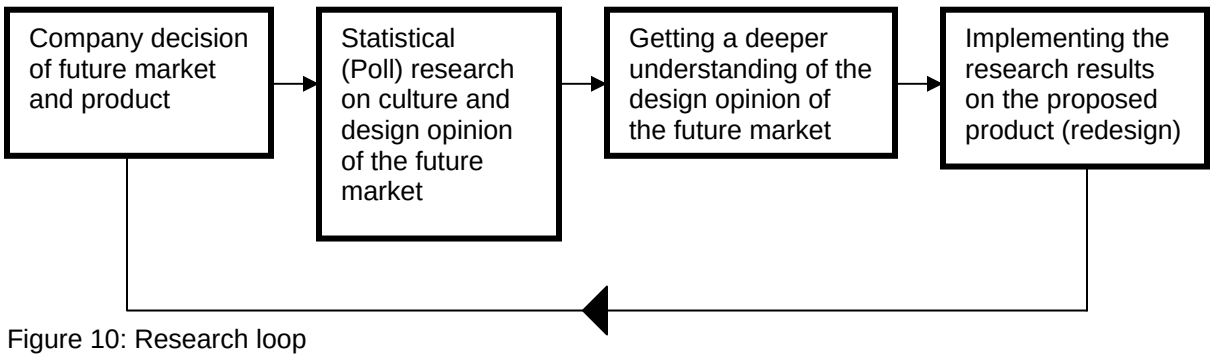

Figure 10: Research loop

The industrial partners in the project are 8 companies (4 from Sweden and 4 from Finland). The sizes of the companies are between 30 and 200 employees. The project will use the companies as case studies and the output will be practical knowledge concerning design opinions of future markets for the participating com-

panies and redesigned products, but also a general method that can be used by any company that is in the process of launching a new product on a new market. The project will start in August 2004 and will end in February 2005 and be conducted by two researchers (one from Finland and one from Sweden), one project manager and supervisor. In order to fulfill the goal of the project, the researchers will spend a lot of the project time in the participating companies and in the countries corresponding to the future markets

References

1. The Center for Universal Design. The Principles of Universal design, Ver sion 2.0. Raleigh, NC: North Carolina State University, 1997.
2. Debanish N. Malick and Samar K. Mukhopadhyay, Local design vs. Global design: A strategic business choice, 1997, pp. 389-399
3. Forsythe S, Kim J.O, Petee T, Product cue usage in Two Asian Markets: A cross-cultural comparison, 1999, Vol.16, pp. 275-292
4. Ito, Y.; Hoft, K, Proposal of region-and racial traits-harmonized products for future society: Culture and mindset-related design attributes for highly value-added products, 1997, pp. 502- 512
5. Henderson, Kathryn, The role of material objects in the design process: A comparison of two design cultures and how they contend with automation, Science, Technology & Human Values; Vol. 23 Issue 2, Spring98, p139, 36p
6. Chan, Alan H.S.; Courtney, Alan J Stereotype (Psychology); Population; Industrial engineering; Design, industrial, 2001, pp. 39-42
7. Cultural Misunderstandings, www.css.edu/users/dswenson/web/335ARTIC/CULTCOMM.HTM, retrieve on 2002-10-21