User Proxemics Diversity and Their Effects in Using Electronic Device

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Track 8: Understanding The Cultural Context Of Your Design

ABSTRACT

Industrial designers strive to comprehend how users interact with products. Also, products form their own space between the users based on their function and purpose while interact with the users. Proxemics theory, the study of spatial relationship of human, demonstrates how people use their surrounding spaces and also understand differently due to the influence from the different cultural background.

This empirical paper will focus on how different proxemics can influence and affect user's preference in using electronic devices. In the conclusion, the relationship between the proxemics and the user preference will be highlighted. This will automatically lead to a discussion why the diversity of proxemics need to be considered by industrial designers.

Keywords

Proxemics, cultural model, industrial design

INTRODUCTION

In the modern world, as user-centered design becomes more emphasized in the field of design, designers often put efforts in defining and understanding users of the product. To achieve this, designers train themselves to satisfy the personal, cultural and universal aspects in their design [1].

Thus, designers strives to comprehend how target users interact with the products. Who are the target users? Is the design aimed for a single user activity or for group activity with multiple users? For example, soccer ball might be designed to be used by group of people creating social interaction when books are more designed to be used by single person. However, for children, books might be something to be read with their parents which creates totally different experience. As a result, the designers perhaps consider children books in bigger sizes to allow more group activity.

The reason of stressing this issue is to argue that each product forms its own space between the users. Especially in electronic devices, the distance between users and products varies in more explicit way [2]. For instance, Walkman audio with earphone involves direct contact to the user when amplified speaker requires certain distance apart from the user. Similarly, iPad and cinema can show the same movie but from different distance from the user. Thus, each product has their own

appropriate user distance which, for some products, can be more rigorous (see figure 1).

Figure 1. Curved screen TV expects audience to position themselves at certain 'sweet spot' to maximize the intended experiences [3]

Let us rephrase this as such that people define certain distance from the products while they interact with them. We can relate this matter with proxemics theory which is originated by American anthropologist, Edward T. Hall. Proxemics, the knowledge on human's spatial relationship, discuss human's interpretation with their surrounding space [4]. Hall describes how the space between people affects their behavior, social interaction and communication. He also pointed out that "People from different cultures inhabit different sensory worlds. They not only structure spaces differently, but experience it differently because the sensorium is differently 'programmed'"[5]. People perceive differently because their culture embedded to their body are different. Despite people are not aware of how they set their own boundaries, they do so as influenced by their own culture.

Hall highlights proxemics are not universal but varies due to the cultural diversity. Cultural diversity is emphasized in the field of design and cross-cultural design will become a key point in design evaluation in the future [6]. On the other hand, former example of earphone and amplified speaker represents two products delivering same media from different distance. This paper will focus on the diverse proxemics of the users and its effect on their use of different electronic devices.

Proxemics

From his book "The Hidden Dimension", Hall defines proxemics as "the interrelated observations and theories of man's use of space as a specialized elaboration of culture." Like other animals, human set interpersonal boundaries in different distances and feel or react differently within the certain space. The space can be categorized into 4 zones. (See figure 2)

- Intimate space – 1.5 feet (50cm)
- Personal space – 4 feet (1.2m)
- Social space – 12 feet (3.0m)
- Public space – 25 feet (7.6m)
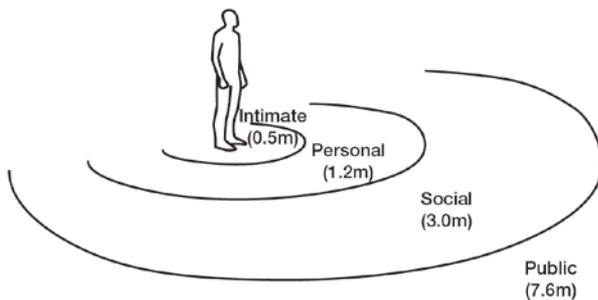
Figure 2. Interpersonal distances in 4 different zone (radius in meters)

Psychologically, people see their personal space as their own territory. As result, people feel anxiety and discomfort when their personal space is encroached by others. This also means that entering other's personal space or even closer can only be allowed to close friends or family [4]. Whereas, social space is allowed for strangers or newly met people while public space is used when giving speech or lecture to larger audience.

This theory was applied in other fields such as space designing in architecture field [7], mise-en-scène technique in filming or lately, interactive display design in virtual environment industry [8]. Social media is another example of how people with their own different cultural background form their own boundaries in virtual space. People allow sharing certain sensitive contexts to only their close friend or family. (See figure 3)
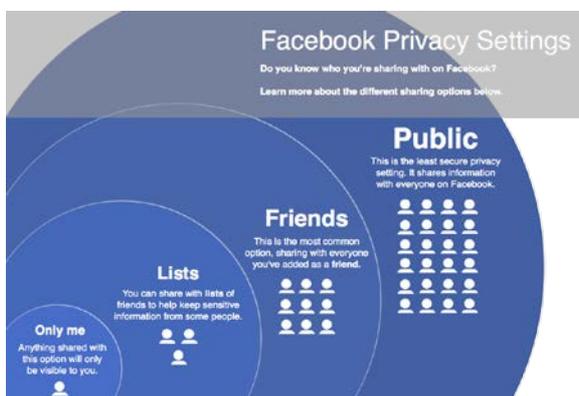
Figure 3. Facebook's privacy settings can help users to set the territories within their virtual space [12]

Cultural Aspects in Proxemics

Difference in setting of personal space is associated with culture or cultural values [9]. In the United States, privacy is highly valued so that Americans want more space than people in Mexico. Where the cultures lean more toward individualism, such as England, the United States, Germany and Australia, seek for more spaces. But in collective culture, due to their interdependent characteristic, people tend to spend their time close to others [10]. Arabs, Latin Americans and U.S. Hispanics would be considered as collective culture that requires less space. Or, in some Asian culture, it has been noted that people tend not to sit too close to their teachers or bosses due to the strong hierarchy in their society. [9]

Understanding and recognizing other's cultural background and their proxemics can help avoiding any discomfort moment. For example, people with bigger personal space may feel offended when people with smaller personal space approaches too close. In some cultures, hand shaking may be enough to greet people when in more collective cultures, close and intermediate gestures such as embracing is used to greet people [9].

EFFECT IN USING ELECTRONIC DEVICE

It has been discussed that people have different proxemics due to their different cultural background. Also, it has been mentioned earlier that proxemics is especially embedded in electronic devices [2]. The products require their own distance from the users when the users also have their very own proxemics influenced from their cultural background. My focus will be on how those two different distance, from the product and the user, react to other parties. If people want to do certain activities such as listening to music or watching movie, which tools would they prefer when each tool has different distance required? This becomes more critical in the modern world as we encounter more technologies enabling us to experience certain qualities in more various manner. For example, we can think of many more different ways of sending message to friends now than 20 years ago.

The main question is on how users with various proxemics have different preference in using their electronic devices. My assumption is that there should be some interrelation between product preference and users' proxemics. In addition, it is also expected to have relationship with user's cultural background since the proxemics diversity is influenced by the culture.

RESEARCH

The key of this research was to gather data from diverse people. Questionnaire was made to evaluate 2 following aspects.

- Individual proxemic distance
- Individual preference in using electronic devices

17 random people were picked from the opportunistic sampling and participated on the questionnaire. They were mixed gender with mixed ethnic groups.

To evaluate participants' proxemics, their tendency of approaching to other people were asked. For instance, someone who wants to keep distance might wave their hands or shake hands only to say hello when someone with shorter proxemics distance might give hug or kissing on the cheek more easily. Also, how the participants would spend their weekend can vary a lot. Some people want to go to bar or night club when others prefer to stay at home reading books because everybody has different interpretation of being in the crowd. [5] The questions were open and even vague to give more room for the participants to answer freely.

Further questions were asked to measure their preference in using electronic devices. What would they use the most when they listen to music or when they watch movie? Some people prefer to use earphone to concentrate solely on music when some people prefer to use speakers as socializing tool with his/her friends. Furthermore, some people prefers to watch movie with his/her iPad while lying on their bed and others prefer to go to cinema. Their national and cultural background were also asked.

For the first step, their questionnaire responses has been measured in certain criteria. Their proxemics distance are considered small or big by their tendency of preference in physical touch or tendency of being alone. In the other axis, their electronic device preference has been measured from public to personal criteria. More personal means preference on device that involves closer distance from the user such as earphone or iPad. On the other side, public means the preference of using device that involves longer distance from the user such as cinema or amplified speakers. The measurement was illustrated as a scattered chart. Nationalities of the participants has been indicated to help searching any relation. (See figure 4)
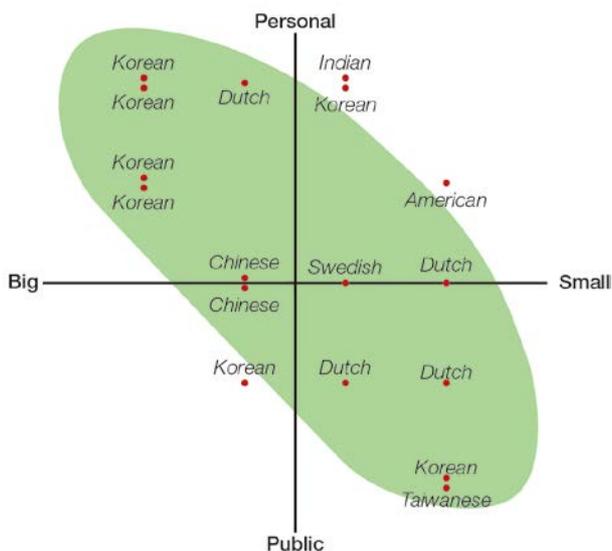
Figure 4. The result showing the relationship between participants' proxemics tendency (horizontal) & preference of using device (vertical)

RESULT
The results varied much per individuals. Although there were some 'odd ball' data, the graph gently explains that the participants with bigger proxemics prefer more personal electronic devices. On the other hand, participants with smaller proxemics prefer more public devices. Also, participants' ethnics did not represent clear phenomenon or relation.

DISCUSSION
As my previous assumption, the result shows linear relationship between the proxemics and preference in using electronic devices. It can be notified from the result that certain group of people prefers certain type of devices. However, the result alerts that the relationship is not distinct. Instead, participants' proxemics and their preference relied much on their individual tendency. At the same time, their nationalities did not influence their result significantly which against my assumption. This may be caused by the cultural globalization but further study is required.

We should be cautious that the measurement of individual proxemics in this exercise might also be influenced from their other characteristics. People with bigger proxemic space might represent more individualistic people with more privacy [9]. However, this should not assure that individual people with more privacy all have bigger proxemic space.

LIMITATION
The questionnaire to evaluate the participants' proxemic tendency had limit of only reach explicit idea of the people. Deeper research with more time should arouse better understanding of participants' proxemics in latent manner. Also, the research was done to age group mostly from early 20s to mid-30s. This limited age group of people could have resulted more monotonous result.

The ethnic of participants are not the most ideal since most of them were limited to either eastern Asians or northern Europeans. More ethnical groups could enrich the result with more diversity. Also, the questionnaire was made in English which means that all the participants have some English education. Therefore, those participants might less of cultural influence than those who do not know any English.

CONCLUSION
This paper discusses how different proxemics can influence and affect user's preference in using electronic devices. The research result shows the linear relationship between the proxemics of the user and their product preference, explaining that user with bigger personal space prefer to use electronic devices that need to be used close to their body. This paper concentrated on using electronic device only but other products may be tested in separate study.

This study also lead to another important conclusion that understanding wrong or not considering the proxemics can cause inappropriate design. As an example, Curved screen TV design receives criticism because it forces

users to be positioned on limited spot. Users experience its full potential only when they are positioned at the certain area, resulting limited 1 or 2 people can position on the 'sweet spot'. [11] Therefore someone has to deal with inconvenience if more than 2 people are to watch TV at the same time. (See figure 1 and 5) For those who prefer to watch alone, this will not be any problem since they will see the distance between themself and the TV as personal space. But for those who prefer to watch TV with other people will be irritated.
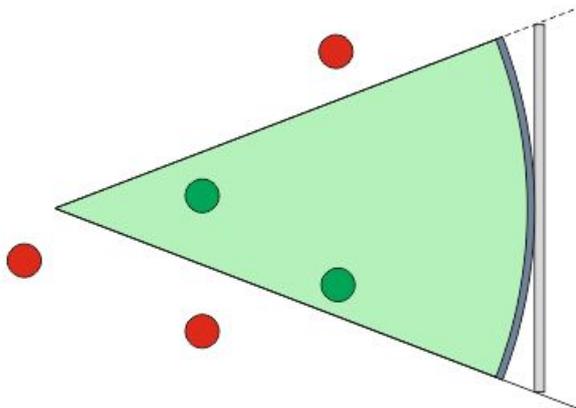
Figure 5. Only the users within Green area can enjoy the curved screen TV in full potential

The ultimate purpose of this study was to demonstrate why the different proxemics of the users should be considered in designer's perspective since understanding the needs is the key basis in user centered design. It can also be argued that understanding different proxemics may be done from understanding their cultural background.

Lastly, this paper should be considered as an attempt to question this topic. As indicated in limitation, this research still contain many gaps and require more supplemental study. Furthermore, this research result shows an idea which makes this paper as a general outline only. Further study and research should be conducted if this topic need to be concrete.

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