

# Mobile Phone Preferences and Values: The U.K. vs. Korea

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## Abstract

Two studies were designed to identify cross-cultural patterns of mobile phones usage and preferences for User Interfaces among Korean and British users.. The first study was a quantitative study (Questionnaires analysed by factor analysis), whose results demonstrated the two groups have different frustrations with and are satisfied by different aspects of mobile phone. The second study was a qualitative study (User Evaluation), which showed different values and focuses on different aspects of the User Interface.

## 1 Introduction

It has been said that mobile phones have become an integral part of human everyday life (Lindholm et al. 2003). In particular, unlike other technologies, mobile phones are being used without any training in every place and every situation, even on the move. This makes it essential that mobile phone interface be built to be intuitive and usable to users (Väänänen-Vaino -Mattila & Ruuska, 1999). This study questions if the criteria for usability, intuitiveness and satisfaction with the user interface (UI) are the same across different countries. Kiljander & Järnström (2003) at Nokia insist, “customers in Japan differ from customers in the US, who differ from customers in China”. They have learnt that some customers prefer “simplicity”, whilst others are “highly cost-conscious”. These different preferences and needs may be crucial in terms of usability. It is taken for granted that different users in different countries have different usability criteria. Marcus (2002) argues that in a global business, differences may reflect worldwide cultures and “the impact of culture on the understanding and use of technologies should be taken into account”. Evidence of these different preferences is seen in difference in the most popular mobile handset manufacturer in each country: Nokia is most popular in Europe (BBC, 2004) whereas Samsung is in Korea (Brandstock, 2004). One of the reasons for this may be the different brand power in these countries. However, Nokia (Lindholm

et al. 2003) regards User Interface (UI) styles “as a competitive asset in the race for market dominance.” Practically all the different mobile handset manufacturers have their own UI solutions and conventions. It can be argued that users in different countries prefer different UI styles, because different mobile brands are popular in different countries, each with its own UI. Although cultural differences in technologies are very crucial (Lee & Kim, 2003), little research has been conducted in the area. Del Galdo and Nielsen (1996) also emphasises that “much research and investigation on the subject of the interaction of culture and technology is needed.” The aim of this study is to identify the cross-cultural patterns of mobile phone usage and the different preferences for UI design between the U.K. and Korea.

## **2 Background**

### **2.1 Motivation & Observation**

When Nokia launched cultural end-user research in India, they started with ethnographic research methods such as contextual enquiries (Lindholm et al. 2003). They said this a structured starting point that offered good information on user’s activities and relevant cultural aspects. Informal contextual observations were, naturally, carried out in this study although they were not specifically premeditated. In conversations with users from each culture, British users said, “Samsung mobile phones are very complex.” On the other hand, some Korean users said, “Nokia mobile phones are too simple.” The primary author was inspired by these opposite opinions and undertook a series of short informal interviews with Korean and British users. These informal observations identified some differing preferences. In addition, the author was given an opportunity to participate in research into different preferences for web portal sites between Korean and European countries, undertaken by a web-portal company. This experience added to the pre-research observational opportunity for the first author. Briefly, in the aforementioned study, the most popular portal site in Korea is “Daum” (Kim 2004), in European countries it is “Google” (Smale 2004). The two sites have obvious differences: daum.net has many features on the first screen, whereas google.com’s front page is much simpler. When interviewed, some Koreans said that Google is too simple. These contextual observations also motivated the need for cross-cultural research into different UI preferences between the U.K and Korea.

### **2.2 Literature Review**

*2.2.1 Well-known Culture Models.* What is culture? It seems that there is no agreement to a specific or universal definition of culture (Crabtree et al. 2003; Sarker, 2003; Barners, 2003). However, many studies have been conducted on culture, and reviewing these and what is generally known in this area may serve as a meaningful starting point to develop a new culture model for this study (Jarvenpaa et al. 2003). Amongst well-known models of culture, especially, in cross-cultural research into technologies (Kim et al. 2004; Lee & Kim 2003; Hofvenschiold 2003), Hofstede's (1991) cultural dimensions appear frequently. He obtained comparable data about culturally determined values from 50 countries and three multi-country regions. His fifth dimension "Long-term vs. Short-term Orientation" makes his model applicable in that it is an effort to break from a "Western" way of thinking. Although he recognises his western bias toward research on culture it seems to be difficult to say that his five dimensions equally represents the aspects of culture from all of 50 countries. In fact, it is difficult to understand Asian cultures from a western way of thinking and vice versa. The first author of this paper who is Asian also found some disagreements with the classifications in the four well-known models of culture. This disagreement motivated a broader literature review that led to another cultural model. It is suggested the new model is more balanced between Asian and Western ways of thinking. Its arguments and findings, although developed by a Westerner (American), seem reasonable and agreeable to the first author.

*2.2.2 New Culture Model.* Professor Nisbett (2003) was inspired by his Chinese student who said, "The difference between you and me is that I think the world is a circle, and you think it's a line." Nisbett launched on a series of comparative studies, working with students in America, China, Japan, and Korea. Through analysis of extensive results of, he (2003) highlights that Europeans tend to be more interested in the "behaviour of objects and their categorisation" and to understand them "in terms of straightforward rules." In contrast, East Asians tend to observe objects in their broad context. When they understand events, they always consider factors that influence "in relation to one another in no simple, deterministic way." To summarise this viewpoint into a new cultural dimension: European people have "analytical approaches to objects" and Eastern people have "contextual approaches to objects." The remainder of this paper will refer to the cultural differences identified by Nisbett (2003) as "Nisbett's dimension".

### **3 Study 1- "Questionnaire" [Quantitative Study]**

This study focused on differences in UI preferences (UK vs Korea) for on mobile phones, but it also considered users' values and satisfaction with mobile phone

usage. A questionnaire was designed as a quantitative study based on the researcher's pre-observations, in order to identify patterns of mobile phone usage between the two countries: U.K. and Korea. (full questionnaire available on requested from the first author). In total 66 British & 71 Korean users participated in this questionnaire by email or hand.

The questionnaire data was analysed using factor analysis. For the remainder of this paper we will refer to relations above .65 as "very strongly related," those above .5 as "strongly related," and those between .4 and .5 as "weakly related." This same pattern will hold true for negative relationships only they will be noted as negative.

*3.1.1 Nokia vs. Samsung:* As noted in the informal contextual observation, it was also revealed from the factor analysis that British participants are strongly related with Nokia, whereas Korean participants are strongly related with Samsung.

Sample questions: 1) Nokia                    2) Samsung                    3) Motorola  
4) Siemens                    5) Sony Ericsson                    6) Others (                    )

What are the brand names of all the mobile phone that you have used from list above?

What is the brand name of the mobile phone that you like the most?

The brand name: (                    )

Reason why you like it most: (                    )

*3.1.2 Calling rather than text-messaging:* The factor analysis shows that British participants prefer talking in person (very strongly related) to the text-message, whereas Korean participants have weak relation with text messaging. This question was designed because previous research by Susan Oak et al. (2000), comparing American culture to Korean culture, showed that Korean people tend not to express their feeling directly. They prefer indirect ways of personal conversations. The questionnaire analysis shows that Korean participants tended to choose text-message to express personal feeling.

Sample question: When you want to say something very personal to a friend, family member, and lover (such as "I love you"), do you do most often do it by:

1) using text messaging    2) talking in person                    3) calling them

4) sending email                    5) others (                    )

*Personalised Features:* One of the latent factors showed that Korean participants are highly related to personal add-ons such as the changing and personalization of wallpaper and ringtone. In contrast, British participants are negatively related to these features. Interestingly, if users tend to change one of them (wallpaper, welcome message, and/or ringtone), they also change the others; the three factors are strongly related with each other. This result suggests that if various ringtone

options or easy ways of making changes to the ringtone are provided for Korean mobile phones it will lead to a better user experience for Korean users.

*3.1.3 Frustration:* When British users accidentally miss calls, the factor analysis shows that they (strongly related) feel more annoyed. This implies that one of the factors that may cause British users to be frustrated with the technology is the technology itself, at least in the case of missed calls. It seems that more careful considerations needs to be given when designing aspects related to use in context such as the outdoors. This could minimise the frustration felt by British users and give them better experiences.

**Sample question:** When you accidentally miss calls from your friends?

Feel: annoying (1)      uncomfortable (2)      not concerned (3)

*3.1.4 Turning off mobile phones:* One of the big issues identified in some studies of mobile phone users is anxiety caused from usage itself. An international study of mobile phone users (Jarvenpaa et al. 2003) presents a Hong Kong worker who expressed anxiety when he forgot to bring his mobile phone along. It seems that British participants are more willing to turn off their mobile phones when they do not feel like communicating with others (weakly relate) than Korean participants. It is possible this difference can be explained by one of Hofstede's dimensions: Individualism vs. collectivism (IND), where Korea and the UK have opposite characteristics. While Great Britain is one of the highest individualistic cultures (rank 3), Korea is one of the highest collectivist cultures (rank 43). Hofstede (2001) explains that individualistic cultures tend to emphasise rights to privacy and "self-determination" (Gould et al. 2000). They are more faithful to their own feelings. Future research into the relation between the Hofstede's IND dimension and anxiety of switching off mobile phones is suggested.

*3.1.5 Different favourite features:* There are many features on mobile phones but users do not use all of them. Interestingly, it was identified that the favourite features of Korean users are different from that of British users. The factor analysis demonstrated that the alarm, game, and calendar functions are all weakly related to Korean participants. It seems meaningful to investigate favourite features since these are closely related to how people are use their mobile phones.

## **4 Study 2 – “User Evaluations” [Qualitative Study]**

Based on the findings from the first study and Nisbett's dimension, the second study (User Evaluations) was designed focusing on different values of the user interface on mobile phones as the qualitative study. Two different high-fidelity prototypes, which looked similar to real mobile phone interfaces to help simulate the feel of real context of use, were built using "Macromedia Flash 4" (the

“Nokia” like prototype and the “Samsung” like prototype.). The models were also based on the results of the questionnaire and the cultural dimensions. It was hoped that as subjects conduct some real tasks with the prototypes it would help encourage them to judge their preferences between two mobile phones. An example of the interface is given below.

(1) One Main Option vs. All Options at the Same Tim

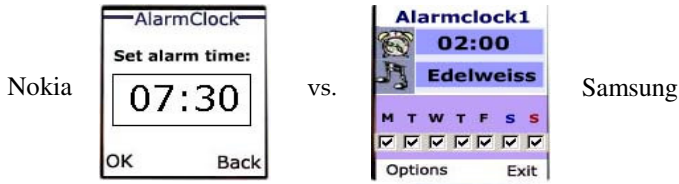


Figure 1 Nokia vs. Samsung Phonebook

The data was analysed and compared focusing on the different preferences between Korean and British subjects. However, general usability issues that the subjects commented on during the evaluations will also be discussed.

There were some limitations in recruitment of subjects such as mobile phone usage and cultural experiences, age, academic background, etc. as the most optimal criteria on the given condition. In the end seven subjects Korean and seven British subjects were recruited.

*4.1.1 First levels of menus on one screen:* Korean subjects said that when they clicked the menu button, they expected to see an overview of all of the first levels of menus on one screen. They said, "I want to look at all of the menus at the same time because it makes it easy to figure out all of them and decide where to go."

*4.1.2 Different frustration:* The two groups have different factors that lead to frustration and dissatisfaction. Most Korean subjects looked unhappy with the Nokia model. In contrast, even though most of the British subjects finally chose the Samsung model as preferred, they also liked the Nokia one. Interestingly, a Korean subject said: "I thought that I might like the very simple one. I thought that I did not want to be bothered with complex features. However, when I conducted this evaluation, I realised that I have been satisfied with more options and features even if I would not use the features."

*4.1.3 Different focus between two groups:* Whilst British and Korean subjects were evaluating the prototypes, they appeared to have different focuses. For Korean subjects, it seems that the aesthetic appearance is one of the most important aspects for having a good mobile phone user experience. Most of the Korean, but only a few British, subjects commented on the specific aesthetic aspects. "I like the mobile phone which has pretty font." and so on. On the other

hand, British subjects tended to be focused on "wording" problems more than Korean subjects, on "pop-up screens". Some British subjects found some mistakes in the instruction words on other screens of the prototypes, though none of Korean subjects commented on them. Connecting this to Nisbett's dimension (2003), it seems that British subjects are more critical in analysing words on the screen. This qualitative data seems to provide valuable evidence of the different preferences and values for mobile phone usage and user interfaces between the two groups that cannot be found from the quantitative data.

In terms of Nisbett's dimension, some aspects that were anticipated to be different and were designed differently into the two prototypes could not be identified in the evaluations. Rather than clearly showing that one group had an analytical or holistic point of view, both groups may place more significance on saving time, minimising their mistakes, and doing tasks quickly. Nevertheless, differences demonstrate that British users have analytical viewpoints and Korean users have contextual viewpoints.

**British users** tended to analyse wording and instructions from an analytical viewpoint. In addition, it seems that most of them did not like features that were too complex and preferred simpler views.

**Korean users** preferred looking at the whole of the first level of menus all at once from a holistic viewpoint. Furthermore, most of them seemed frustrated with features that looked too simple.

## **5 Discussion**

One of the purposes of this study was to identify the different preferences and needs for mobile phones between the U.K. and Korea. Two different studies, a quantitative and qualitative study, were undertaken in order to identify these differences. Although not all of the anticipated results were obtained, the results revealed many interesting and surprising findings.

Our two studies demonstrated that British and Korean users have some different values on and preferences for using mobile phones. Firstly the quantitative factor analysis revealed that there are strong differences in the preference for mobile phone brand between Korean and British users. Secondly, the features which Korean users frequently utilise are different from that of British users. Thirdly, the style of communication that British users prefer is different from that of Korean users. Finally in terms of personalised add-ons, Korean users are more interested in changing these features than their British counterparts.

In addition to the cultural differences discussed previously, both the quantitative and qualitative studies demonstrate that British and Korean users have different

needs, UI preferences, values and frustrations when using mobile phones. The qualitative data indicates that while most Korean users are frustrated with features that are too simple, most British users feel annoyed with feature that are too cluttered. The quantitative analysis also showed that British users felt annoyed if they missed calls by accident; Koreans did not. Secondly, the qualitative data established that most British users are concerned with instructions, *an analytical approach*. Whereas most Korean users are satisfied with the aesthetic appearances and the whole picture of the first level of menus, *a holistic viewpoint*, matching Nisbett's dimension (2003).

In spite of these differences, both British and Korean users have common preferences. First of all, the qualitative data showed that both groups like saving clicks and conducting easy tasks. Furthermore, both groups are also concerned about making mistakes, revealing that some features designed for minimising mistakes are necessary (confirmation messages and pop-up screens for instance).

### 5.1 Literally the same words, but different meanings:

After conducting the user evaluations, it was acknowledged that the meaning of "simple" which both Korean and British users had mentioned could be different. The qualitative study showed that most of Korean users thought that the screens on the "Samsung" prototype were simple and clear. In contrast, most British users thought the Nokia model was simple. Even British users who thought the "Samsung" prototype to be convenient, still judged it a bit cluttered and complex. Despite these obvious differences both user groups still use the word, "simple". Similarly, "relevant information" could also mean different things to the two groups. One of the Korean subjects said that the number on screens let him know where to go, so it was necessary. On the other hand, one of the British subjects thought that in order to make the screen less cluttered, it might be better to remove those same numbers, as they were unnecessary information. It is possible that some questions, designed to focus on the general concepts of the user interface differences based on Nisbett's dimension, might be understood differently by Korean and British participants. Specifically the question asking about "simple relevant information" may have been understood differently by Korean and British users, making it problematic.

## 6 Future research

Future work could focus on a revised and more advanced study addressing some of the limitations of the current research. This study began with informal contextual observations and enquiries. However, as Lindholm et al. (2003) at Nokia recommend, a cross-cultural study starting from ethnographic research



methods can help establish deeper insight into the research at the outset. Any future ethnographic study, whether diary study or contextual interviews, should include users from various educational, age, gender and professional groups. More detailed mobile phone prototype designs be considered. Due to the complexity of mobile phones all the above mentioned aspects can have impact on users' preferences and values. It's important to consider how all these challenges can be coped with in designing prototypes. Lastly, in respect to some of the finding from the quantitative data discussed in the "Results" section, the causes and reasons for the findings were assumed and suggested. These should be researched further and demonstrated. In particular, the favourite features of Korean users are different from those of British users. This may have important implications for the user interface design and may need more detailed research with many different cultural groups. In addition, this study was targeted for cross-cultural differences between regions: Asian and Europe. This is one reason why the authors used Nisbett'S (2003) dimension, as this was his focus as well. Nisbett in his introduction states that these categories are overly broad. Research by others has shown differences between countries in Asia, such as Hong Kong, Japan and Korea (Kim et al., 2004). Galdo & Nielsen (1996, p79) emphasis that "Europe is a relatively small continent, but the cultural complexity is immense." Similar cross-cultural studies on mobile phone usage and user interfaces could focus on differences within countries of the same region, Korean - China or France - U.K. for instance.

## **6 Conclusion**

When a product is designed, there are a lot of trade-offs, and it is crucial to prioritise between them according to the user's needs and values. In other words, establishing an understanding of culture in each country can give the designers good guidance and lead to the most optimal choice. This study is about the understanding of culture and its implications in designing mobile phones. There have not been many cross-cultural Mobile phone UI studies and this study hopes to promote other relevant future research. Likewise this study differs from other cross-cultural studies on technologies as it suggests other recently identified cultural dimension, those of Nisbett (2003). In that culture is affected by a variety of aspects (Gould & Nielsen, 1996), the suggestion of the new dimension may have a positive impact on future research. This study also demonstrates the important of cross-cultural research being undertaken by those who have experiences in both cultures. The study benefited from the first author's ability to feel, hear and see the actual context of mobile phone usage and get an insight into users' daily life as Lindholm et al. (2003) explain. Moreover, as identified from

the finding of cultural differences in the differing interpretation of the words 'simple' & 'relevant', language has an impact on conducting user evaluations and analysing the qualitative data. Lastly, from a pragmatic point of view, this study provides implications for real world mobile phone design in that the findings of the different patterns of mobile phone usage and the different preferences for user interfaces between Korea and the U.K. The methods and findings of this study can be used by global mobile handset manufacturers not only to make the recommended changes but also to do further investigation in other countries.

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