# DETERMINING CULTURAL ISSUES IN ATTITUDE TO AND USE OF MOBILE PHONES

**Elizabeth Hofvenschiold**

*Fraunhofer IAO*
*Nobelstraße 12*
*70569 Stuttgart*
*elizabeth.hofvenschiold@iao.fhg.de*

## ABSTRACT

*Cultural background and occupational status can influence the way people interact with and perceive technology. A study was undertaken to gather information on the possible differences in the use of and attitude to mobile phones of British and German university students and young professionals. The research findings were to contribute to the development of future mobile phone interfaces and applications. Geert Hofstedes's work on culture was used as a framework for interpreting the results and also determining its relevance to the field of Human-Computer Interaction (HCI) in general. The study proved that there were differences between the groups but also many similarities. Also, some of the differences were not as was predicted according to Hofstede.*

## Keywords

*Emotional issues, culture, mobile phones, occupational status*

## 1. INTRODUCTION

Many factors need to be taken into consideration when designing interactive systems. Ergonomists and usability professionals have traditionally concentrated on the physical and the cognitive issues involved in product development. More recently issues concerning the emotional and motivational aspects have increased in importance and relevance to the fields of Ergonomics and Human-Computer Interaction (HCI). There is a growing move towards addressing the soft or emotional issues of interaction design (i.e. what the user wants) or understanding why a customer actually chooses and uses a product. As Teague and

Whitney (2002) have pointed out, the emotional and motivational needs of users have direct impact on the usability and ultimate success of a design. Culture is a factor that shapes the development of a person's values and beliefs and therefore conceivably influences his/her interaction with a product.

## 2. RESEARCH OBJECTIVES

The general research objective was to gather information on the possible effects of a user's cultural background and occupational status on his/her attitude to and use of mobile phones. Additional objectives were to test the applicability of Geert Hofstede's cultural dimensions to HCI and to identify motivational and emotional issues for consideration in the development of future mobile phone interfaces and applications.

University students and young professionals from the United Kingdom (UK) and Germany made up the participants for the study. The UK and Germany were chosen for several reasons. Firstly, they are part of northern Europe and have to a major extent been marketed to and designed for as a group. The two cultures have many similarities but differ considerably in certain areas. Also, the UK and Germany are the two countries that spent the most on 3G licenses. How far do the cultural differences need to be taken into consideration when designing interfaces (and interactivity) for future mobile phones? Cultural and other issues will influence the strategies that mobile device manufacturers and service providers decide to take.

Two occupational groups were chosen so as to ensure that the groups in both countries were as similar as possible. A subsidiary objective was to see if there were differences between occupations, as they are in themselves their own sub-cultures.

## 3. THEORETICAL CONTEXT

There are many definitions for what makes up a culture. For the purposes of this study, Hofstede's cultural dimensions (see Hofstede 1980 and 1997) were used as a framework for contrasting and comparing the UK and Germany. Hofstede's work was chosen because his research has been used by

many researchers and practitioners in various fields to define a culture (Pugh and Hickson 1996). Also, his work has defined the strategies developed for countries in advertising and marketing campaigns and more recently, HCI design practices (e.g. Jordan 2000). Using Hofstede's research for this study was also a way of determining its applicability to HCI in general. His dimensions have been successfully applied to the fields of advertising, marketing, management and naturally organizational psychology. How useful are they for HCI?

### 3.1  How do Germany and the UK differ?

Four out of the five dimensions Hofstede defined were used for this study. According to these, the UK and Germany are both masculine, individualistic and low-power distance cultures. However, the UK is a much more individualistic country than Germany is. And the dimension in which the UK and Germany differ most is in uncertainty avoidance. The UK scored very low in uncertainty avoidance whereas Germany has very high uncertainty avoidance. This was thought to be of particular importance to this study as the way in which people deal with uncertainty affects the technology, laws and religion(s) of a country (Hofstede 1997).

Does the level of uncertainty avoidance and individualism influence the way different cultures interact with their mobile phones? Based on the information above, it is plausible that Germans would use and interact with their mobile phones in ways that would reflect a society that has high uncertainty avoidance. No fixed assumptions are offered as to how each group would differ according to where they are placed in the dimensional matrix. However, two general research hypotheses were constructed to guide the study. The first states that a person's culture would affect the way he/she perceives, understands and uses a mobile phone. The second states that there will be differences in the perception and use of mobile phones between the different occupational groups (for more information please see Hofvenschiold 2002).

## 4. METHODS AND RESULTS

### 4.1  Data Gathering Techniques

A literature review was undertaken for the preparation of the study and to help develop the framework of analysis. This was however not sufficient to fulfill the research objectives as at the time of the study hardly any literature could be found on the topic. A questionnaire was developed to gather data and a representative of each group was interviewed in-depth. The questionnaire was essentially divided into five categories: (i) personal information including nationality and occupation; (ii) mobile phone functions used and their usability ratings; (iii) suggestions for changes and additions of function and display; (iv) attitudes to mobile phones in general; (v) frequency of, reasons for and perceived usability of personal Internet use.

### 4.2  The Participants

78 people participated in the study. Out of the 25 university students, 8 were British and 17 were German. And out of the 53 young professionals, 21 were British and 32 were German. The participants were 21 to 40 years old and 65% were male and 35% were female.

### 4.3  Questionnaire Results

Only the most relevant results from the questionnaire are presented in this paper. Nearly all participants found the same four functions easiest to use when asked to list what they thought were the four easiest to use functions on their mobile phone. These were receiving a call, making a call, receiving and reading a text message and writing a text message. Only one group differed in the last function – the German young professionals found that the fourth easiest to use function was looking up entries in the phone book and not writing text messages. Generally all of the groups found the same functions harder to use and it is interesting to note that writing text messages was also included in this list.

A majority of the British participants specified that they would like a colour screen while a large number of the Germans said that they would prefer a larger screen. Some of the British also specified that a larger screen was preferable and other German participants mentioned that a colour screen was desirable. They wanted the same things but prioritised them differently.

Seven attitude statements were included in the questionnaire. The Mann-Whitney U test was used to check for significant statistical differences in the responses. 2 values were found to be significant at the 5% level. The university students of both countries were more likely to agree to the statement, "What a mobile can do is more important than its 'look and feel'" than the young professionals of both countries were (significance value was 0.026). German young professionals were likely to disagree with the statement, "Your mobile is a status symbol" than the British young professionals (significance value was 0.05).

### 4.4  Interview Results

The data gathered from the interviews was of a qualitative nature and much richer in detail than the questionnaire data. More interviews were planned but unfortunately were not carried out due to time and budget restrictions. The sample size was very small but from the answers given, it seemed that the British participants were more likely to individualize their mobile phones and more emotionally attached to them than their German counterparts.

# 5. DISCUSSION AND CONCLUSION

The information gathered for this study suggests that culture and occupation do, to a certain extent, affect the way in which people interact with their mobile phones. For general usability issues, the groups responded in much the same way. Differences began to occur when the questions began to explore the more emotional and motivational aspects of mobile phone use. It is highly likely that a larger population sample and a different statistical approach would illuminate more than what was discovered for this study.

Hofstede's work did provide a good framework for this study but perhaps his dimensions are not entirely suited to this type of research. Based on his dimensions, the differences found in the data were not what were expected. For example, if someone came from a high uncertainty avoidance culture, he/she might be more disposed to having a mobile phone for security reasons. When asked, more British than German participants stated that they had purchased and intended to use their mobile phones for security purposes. The two cultural groups did vary in certain ways but perhaps not as you might expect, if your theoretical framework was based on Hofstede. However, some of the other findings related to the individualism dimension were more predictable. It is also conceivable that the dimensions affecting mobile phone use are the ones in which Germany and the UK are very similar and therefore no striking differences were discovered. Therefore a different approach to defining cultures might have been more appropriate for the study. In general, a tailored set of Hofstede's dimensions and other cultural determinants might be more applicable for HCI.

Another factor that has to be taken into consideration when discussing the data is that the mobile phones at the time of the study had predominantly text-based interfaces. Therefore they did not contain the culturally specific elements, such as icons and graphics that web sites or software applications do. This might be part of the reason why not as many differences were discovered as was expected from Hofstede's results. This has implications for the development of coming mobile interfaces and applications. The mobile phones of the future will have increased functionality and graphical capabilities, which could lead to more complex graphic interfaces and culturally specific elements. It is not enough to study the existing mobile phones. It is important that other existing systems are involved when gathering user requirements for future developments. This study did include questions about Internet use (and personal digital assistant use in the interviews) but they were few and rather general in nature.

# 6. REFERENCES

[1] Hofstede G., *Culture's Consequences: International Differences in Work-Related Values,* Sage Publications, Beverley Hills, USA (1980).

[2] Hofstede G., *Cultures and Organizations: Software of the Mind,* McGraw-Hill, USA (1997).

[3] Hofvenschiold E., Cultural Issues in Human Computer Interaction and Ergonomics and the Design of Smartphones, *Contemporary Ergonomics.*, 372-376 (2002).

[4] Jordan P.W., *Designing Pleasurable Products: An Introduction to the New Human Factors,* Taylor and Francis, London, UK (2000).

[5] Pugh D.S. & Hickson D.J., *Writers on Organizations (fifth edition),* Penguin Books Ltd, London, UK (1996).

[6] Teague R. & Whitney H.X., What's love got to do with it? *User Experience,* **Vol. 1**, no. 3, winter edition (2002)

# Referentin



**Elizabeth Hofvenschiöld** is a freelance HCI and interaction design consultant. She currently works with the Fraunhofer IAO in Stuttgart on a range of projects. In 2001 she completed her Masters of Science in Human-Computer Interaction with Ergonomics at University College London, England.

Her main interests are in cultural issues, interaction design for mobile devices and applications and developing the user experience for ubiquitous human-computer interaction. She has presented and published her work on these subjects as well as on implementing a holistic approach to product development and evaluation through using a range of methods from different fields (e.g. marketing).