

# Space Invaders: Do Mobile Phone Conversations Invade Peoples' Personal Space?

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## **Abstract**

This paper presents the results of an exploratory study designed to investigate whether or not participants felt that they were encroaching upon the personal space of an individual who became engaged in conversation using a mobile phone in a public place. The hypothesis being tested was that people would perceive themselves as being drawn into the personal or intimate zone (Hall, 1966) of the person having the mobile phone conversation. The study also explored whether or not this was dependent on the perceived nature of the conversation, e.g. private (a telephone call from the bank regarding an overdraft request) or social (arranging to meet a friend for a drink).

The data obtained from the study was analysed in two parts: analysis of video recordings of user behaviour during the trial and the data obtained from open-ended questions answered by participants after the mobile phone conversation had taken place. The findings suggest that participants felt that they were being drawn into the personal space of the receiver of the mobile phone call, regardless of the perceived nature of the call. Although some participants felt uncomfortable about this, others admitted they enjoyed the voyeuristic aspect of this type of situation.

These findings are discussed in relation to Hall's (1966) theory of interpersonal distance and suggestions are put forward of how to develop this exploratory work into a more formal research investigation.

**Key words:** personal space, personality differences

## **1 Introduction**

Studies on human-environment relationships cover a broad range of topics. The majority of studies investigating interpersonal space issues have been carried out in public places such as shops, libraries, and workplaces. For example, Wollman, Kelly and Bordens (1994) focussed their study on the intrusion of in an individual's personal space in the workplace. Others such as Veitch and Arkkelin (1995) investigated the relationship between individuals who did not know each other.

One major underlying factor emerging from this work has been the idea of an individual feeling crowded when they perceive their personal space to have been invaded. Sears, Peplau and Freedman (1988) define crowding as the feelings of discomfort and stress related to spatial aspects of the environment an individual is currently in. The idea of personal space being related to some measurement of interpersonal distance can be traced back to the work of Hall (1966).

Hall (1996) stated that personal space could be divided into a series of zones:

- **Intimate zone:** a distance of up to 45cm from the individual. Only close relatives or close friends are normally allowed into this zone (e.g. girlfriend or boyfriend)

- **Personal zone:** a distance of up to 1.2m from the individual. Usually family and friends are allowed in this zone
- **Social zone:** a distance between about 1m and 3m from the individual. An example of the social zone is the typical space between work colleagues who are engaged in conversation
- **Public zone:** a distance between about 3m and 8m from the individual. An example of the public zone is a lecturer delivering a lecture to a group of students in a lecture theatre

However, there are several factors which can have an effect on the interpersonal distance preferred by individuals. Firstly there is the cross-cultural dimension. Shortly after Hall published his work Watson and Graves (1966) published an account of the difference in personal space preferred between individuals from America and some Mediterranean countries (who preferred a shorter distance between the speakers) when it came to having normal conversation. A violation of this space by either party led to a feeling of discomfort by the other. Personal characteristics can also have impact. Studies have suggested that females interacting with other females tend to have a smaller distance between them than males interacting with other males (Gifford, 1987). In addition, Kaya and Erkíp (1999) suggest that females prefer a greater distance between themselves and males.

Another important factor in determining interpersonal distance is the situation the interaction takes place in. For example, in high density situations (e.g. travelling on an increasingly crowded underground train) people can experience feelings of discomfort. In situations like this, limited physical resources have to be shared between a greater number of people and, at the same time, there is a concomitant increase in physical contact between individuals which can lead to a decrease in the individual's feelings of privacy. As a result of situations like this Hall (1994) reports that people tend to experience more negative feelings towards others in high-density situations than in other lower density situations.

Taking situational variables as a starting point, the aim of this exploratory study was to investigate the idea that participants perceived themselves being drawn, short-term, into the personal zone of an individual who engaged in a mobile phone conversation while seated in a waiting room. The idea of this work was to explore the notion that when mobile phone conversations take place in public places it is not the receiver of the call who necessarily experiences the feelings of discomfort but the individuals around about them. In addition, the study aimed to investigate that participants' feelings of discomfort would be mediated by the perceived nature of the mobile phone conversation (e.g. a social call or a call from the bank).

## **1 Method**

### **1.1 Design**

This was a pilot study that employed an observational design (analysis of video tape recording of participant behaviour) combined with a quasi-experimental approach (open-ended question analysis) to explore peoples' behaviour and attitudes when they were exposed to a mobile phone conversation in a confined public space.

### **1.2 Participants**

10 participants took part in this exploratory study. There were 7 females and 3 males with ages ranging from 22 to approximately 50 years of age. All of the participants were unknown to the confederate who helped run the study.

### **1.3 Data Collection Method**

There were two forms of data collection used in this study: an analysis of the video recording of participants behaviour during the mobile phone conversation and the data obtained from the answers given to open-ended questions asked by the experimenter once the mobile phone conversation had finished.

### **1.4 Procedure**

The study was carried out by asking participants to take part in an experiment in the Human-Computer Interaction lab in the Department of Psychology at the University of Portsmouth. On entering the HCI lab at their allocated time slots, participants were directed to a seat to sit on while they were waiting to take part in the experiment. Also waiting in the room was another participant who was taking part in the experiment. Both participants sat in seats that were at right angles to each other, approximately 1m apart, and with a coffee placed in front of them.

The other participant was, in fact, a confederate of the experimenter and was informed beforehand to expect either a “private” (arranging a bank overdraft) or “social” (meeting a friend for a drink) mobile phone call. After the participant sat down, the experimenter asked them to complete an informed consent form. At this point the confederate informed the experimenter that he had not been given an informed consent form. The experimenter left the room at this point ostensibly to get an informed consent form for the confederate to complete.

About one minute later, the confederate received a call on his mobile phone and proceeded to have either a “private” or “social” conversation for approximately three minutes.

Throughout the mobile phone call the participant was observed through a two-way mirror by the experimenter, and the participant’s behaviour was recorded on to videotape for analysis afterwards. After the mobile phone conversation finished, the experimenter came back into the waiting area and asked the confederate to leave the experimental room. The participant was informed about the true nature of the experiment. Participants were then given a debriefing form to read and sign which stated that they knew that they had been filmed, unknown to themselves, during the experiment and they agreed that the video recording could be used for research purposes. Participants were then asked if they would like to answer some questions about the “experiment”. On completion of the open-ended questions, participants were asked if they had any comments or questions they would like to ask. After this they were paid, thanked for their participation and shown out of the HCI lab.

## **2 Results**

### **2.1 Video Tape Analysis**

The behaviour of participants during the exploratory study has been categorised in the following ways:

#### **Pre-Mobile Phone Conversation Behaviour**

Before the mobile phone call was received, all participants engaged in some form of conversation with the confederate. Typically this revolved around questions asked by participants such as “*How did you get roped into doing this experiment?*” “*Do you know what this experiment is about, or what we have to do?*” “*What do you do?*” This type of interaction may have been prompted by the unusual situation participants’ perceived themselves to be in (i.e. taking part in an experiment in a HCI lab).

## **Behaviour during Mobile Phone Conversation**

As soon as the confederate received the mobile phone call, participants immediately disengaged from their conversation with him, as one expect. Participants reacted to the call in a variety of ways:

- After the conversation had been going on for approximately one minute, two participants got up from their seat and went to look out of a window and stayed there for the duration of the call. These participants only sat back down after the confederate had finished the call and said he would turn off his mobile phone to make sure he was not disturbed again while he was in the waiting room.
- Several participants stared straight in front or down at the coffee table once the conversation started and occasionally looked over at the confederate and appeared to listen to his conversation for about 10 seconds before returning their gaze to straight in front or back to the coffee table.
- Two participants in particular appeared to spend most of their time looking and listening to the conversation the confederate was having on his mobile phone. They only changed their behaviour when the confederate met their gaze. This behaviour was observed in both the social conversation and the conversation with the bank regarding an overdraft application.
- In general, it appeared as if all participants were employing some sort of strategy to cope with being in a situation where a stranger was having a mobile phone conversation in a confined area.

## **Post-Mobile Phone Conversation Behaviour**

Once the mobile phone conversation had ended the confederate announced that he would be switching off his phone to make sure he would not get disturbed again before he took part in the HCI experiment. After this, all participants engaged in conversation once again with the confederate. Several actually remarked on the fact that it “...*can be embarrassing getting mobile phone calls in public places, such as waiting rooms, when you do not expect them*”.

### **2.2 Open-Ended Questions Analysis**

The data obtained from the open-ended questions analysis has been summarised as follows:

#### **What kind of call do you think just took place?**

When asked this question, all participants were able to correctly identify the confederate’s call as coming from either a friend or the bank. Those participants who heard the confederate having a conversation with the bank, tended to label this as a “private” call, whereas those who heard the call from the confederate’s friend tended to label this as a “social” call. The majority participants stated that the call was personal in the first instance before identifying it as being either private or social.

#### **How did you feel once the conversation started?**

This question divided participants into two groups: those who felt uncomfortable with the mobile phone conversation and those who did not. The responses of these two groups can be summarised as follows:

- The people who felt uncomfortable once the call started stated that they would look for ways to give the individual space, e.g. getting up and walking to the window. If this were not possible, they would look for ways to try and show the individual that they were not listening

into the conversation. In addition, this group of participants did not like the idea of being drawn into the confederate's personal space as these comments indicate:

*"I didn't want to listen but I didn't know what to do"*

*"I felt embarrassed that I had to listen to the guy's conversation with his bank, even though he didn't appear to be bothered with me being there"*

- On the other hand, those who felt comfortable with being in close proximity to the mobile phone conversation stated it was up to the receiver of the call to change his behaviour, if he felt uncomfortable. Therefore, this group of participants did not appear to be too concerned about being drawn into the confederate's personal space as these typical comments indicate:

*"I can tell you every word of the conversation as I was listening"*

*"I'm happy to listen if people want to have private conversations in public places"*

### **How do you feel about mobile phone conversations in public places?**

Once again participants' answers to this question could be divided into the two categories outlined above:

- Participants who felt uncomfortable with the confederate's mobile phone call stated that in general they did not like people having mobile phone conversations in public places, as these comments reveal:

*"I generally hate them, it's an intrusion. The ring tones are irritating"*

*"I find it embarrassing. They obviously don't care what others may think"*

- Those people who felt comfortable during the confederate's call stated that they were not bothered if people had mobile phone conversations in public places, as these typical comments indicate:

*"It does not bother me in the slightest"*

*"It can be quite good fun listening in, it may be interesting"*

### **Would you use your mobile phone in a public place?**

All 10 participants owned a mobile phone. Once again responses to this question could be divided into the two categories of participants identified above:

- Participants who felt uncomfortable being in close proximity to the confederate's mobile phone call stated that, although they own a mobile phone, they would be very reluctant to use it in public places, as these comments indicate:

*"I only switch it on in public if I'm expecting a call from my daughter"*

*"I would not answer my phone if it went off in public, I'd switch it off"*

*"If I was in the pub, I'd go to the toilet to make a call"*

*"I hate the idea of drawing attention to myself"*

- Participants who felt comfortable being in close proximity to the phone call, not surprisingly, had a totally different attitude to making mobile phone conversations in public places, as these comments indicate:

*"I have stood in the middle of the street laughing on my mobile phone"*

*"It does not bother me making mobile phone calls in public"*

*“Their mobile phones, they’re supposed to be used in public places”*

### **Gender effects and relationship to mobile phone call receiver**

Most participants’ state that the gender of the receiver of the mobile phone call would not have an effect on how they felt about mobile phone calls conversations in public. When asked if their attitude would be changed if they knew the person who received the mobile phone call, participants who felt uncomfortable with the confederate’s conversation said they would tell their friend if they thought their friend was speaking too loud. In addition, one or two participants indicated that they might be embarrassed for their friend, depending on the nature of the conversation.

On the other hand, participants who felt comfortable with the confederate’s conversation stated that they would not be bothered if it was their friend having the mobile phone conversation. One or two stated that they would try and contribute to the conversation if they also knew the identity of the person who was making the call.

### **3 Discussion**

It should be remembered from the outset that this was an exploratory study and any results must be treated with caution. What these findings do provide are useful indications of how this work can be developed (both from a methodological and hypothesis testing viewpoint) into a fully-fledged study of peoples’ perception of mobile phone conversations in public places. Therefore, this study is best summed up as “work in progress”.

Looking at the methodological implications of this study, one issue that needs to be addressed is the idea of ecological validity. The next stage of this research will be to take the work “out of the lab” and, literally, into the public domain. The setting for the next study would, ideally, be a public place such as a train carriage, where it would be possible to observe peoples’ reactions to a mobile phone conversation in a more high density environment. As previous research into people’s responses to crowding has shown (Hall, 1994) people tend to react more negatively towards others (i.e. they like people less) in this type of situation. Another possibility would be to conduct the next study in a public house as this is another environment where people are often exposed to mobile phone conversations.

In terms of research issues, this study has not surprisingly thrown up several factors that need to be investigated in more detail. The first of these to be investigated will be the idea that personality could have an effect on an individual’s reaction to being in close proximity to a mobile phone conversation in a public place. The reverse of this is would also be interesting to investigate: personality has an influence on whether people make mobile phone calls in public places or not. The findings from this study indicated that individuals who appear to be more introverted feel as if they are being drawn into the personal space of the individual receiving the mobile phone call (regardless if the call is perceived as being “personal” or “social”). This resulted in this group of participants feeling uncomfortable in the experimental situation. In addition, this group stated that they would be reluctant to use their mobile phones in a public place because they did not want to draw attention to themselves.

On the other hand, this study indicated that there was a group of participants who could be classified as being more extraverted. This group of participants did not feel uncomfortable about being in close proximity to the confederate’s mobile phone conversation and, in addition, stated that they would not feel uneasy about using their mobile phone in a public place.

The next stage of this work will, therefore, be investigating the effects of personality on peoples’ perception of a mobile phone conversation in a public place. This will be situated in a public

place such as a train carriage or cafe. In sum, this work points to the idea that there is a social dimension to usability that needs to be taken into consideration along with the more traditional aspects of usability such as effectiveness, efficiency and user satisfaction.

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