

Dealing with mobile conversations in public places: some implications for the design of socially intrusive technologies

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ABSTRACT

In this paper we describe the results of a study investigating the behaviour and views of bystanders in response to a proximal mobile telephone conversation by a third party. Analysis of the data revealed that despite varied expressed views on embarrassment, discomfort and rudeness, patterns of behaviour were remarkably similar. Mechanisms of disengagement were employed by all of the participants so that they were demonstrably not attending; yet all of them were able to report on the precise content of the overheard calls. Other social mechanisms were used by the bystanders to diffuse the perceived intrusiveness of the call and to grant “permissions” for these intrusions. Implications are drawn from the study for the design of mobile and ubiquitous computing applications.

Author Keywords

Mobile telephones, ubiquitous computing, intrusive technology, public behaviour, social co-ordination.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION

It is a commonplace event for most of us (at least in most wealthy countries) to be subjected to a noisy conversation on a mobile telephone by people in close proximity to us in public spaces. In this paper, we explore how people perceive and behave when confronted with this behaviour in a controlled setting. This paper is specific and unusual (particularly in HCI) in that it addresses the bystander to the call, and not the user of the technology itself.

There is a small but growing body of research that indicates that use of mobile communications is influencing how we go about our daily lives. For example, as mobile phone usage increases it is no longer unusual to see mobile phones being used in a wide variety of contexts (e.g. social, business) in various locations (e.g. train, cafes). Against this backdrop, Palen, *et al.* [6] describe how mobile phones can occupy concurrent social spaces with norms that sometimes conflict, for example between the physical spaces that the conversation takes place in and the virtual space where the conversation takes place—each having different codes of

behaviour and appropriateness. In relation to this, Ling [3] describes how the public use of mobile phones has been recognised in defining socially appropriate/inappropriate behaviour. He concludes that people perceive mobile phone use in places such as restaurants as unacceptable, partly because users tend to talk louder than usual when using mobile phones, and as a result of this, individuals located near mobile phone users felt coerced into eavesdropping into their conversation. Even mobile phone companies are issuing guides on “mobile etiquette” encouraging sensible and responsible mobile phone behaviour in public places [e.g. 1]. This is clearly a topic of technological, social and organisational relevance.

STUDY SETUP

The intention of the study was to investigate the reactions of naïve bystanders to a call received on a mobile telephone by someone in their close proximity.

Procedure and data collection

The study was carried in the Human-Computer Interaction lab in the Department of Psychology at the University of Portsmouth. On entering the lab, 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 person who was apparently taking part in the experiment. Both sat in seats at right angles to each other, approximately 1m apart. Unknown to the participant, the second person was a confederate and had been instructed 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 their 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 and recorded on 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 then informed about the true nature of the study and interviewed about the

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“experiment”, their attitudes to the call and similar situations that they might have experienced. After this they were paid, thanked for their participation and shown out of the lab.

Participants and instructions

10 participants took part in this exploratory study. There were 7 females and 3 males aged between 22 to approximately 50 years old. The confederate did not know any of the participants who took part in the study. One participant guessed the nature of the study and her data was subsequently excluded from analysis. Participants were paid five UK pounds for taking part in the study.

FINDINGS

Pre-mobile phone conversation behaviour

After the experimenter left the room, 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?*”. This was allowed to develop briefly before it was interrupted by the call.

Bystander behaviour

As soon as the confederate’s mobile phone rang and he started to have a conversation, changes were noted in the behaviour of all participants. The are discussed below:

Orientation, posture and focus

As soon as the mobile phone conversation started, a change in the orientation and posture of all the bystanders was clearly visible. The emphasis appeared to be on displaying non-attentiveness to the situation that they now found themselves in. This behaviour was characterised by all of the participants physically turning their bodies away from the caller.¹ Some participants even stood up and walked around the room. In addition, participants adopted “closed” postures such as sitting with their arms folded and crossing their legs. After changing their posture most of the participants appeared to focus their attention on a particular point in front of them. For some participants, this involved staring at their own informed consent form, whilst for others it appeared to be some point in the middle distance in front of them. In a sense, these behaviours demonstrate the participants’ attempts to *visibly not attend* to the call – that is to be seen to be making an attempt to ignore the call. This is interesting to contrast against the fact that this did not limit what the participants actually heard: all of the participants we able to comment in detail on the call, as one put it “I can tell you every word”.

Glancing and ‘closure’

As the mobile phone conversation progressed, all of the participants glanced towards the confederate, sometime several times. It appeared as if they were checking on

call(er) status in order to regulate their own behaviour, but occasionally, this was done too frequently for simply that purpose. In these frequent glances, it is surmised that this may be due to the participant attempting to police the caller’s behaviour in a non-intrusive way, demonstrating that they are aware of the caller (still) talking (an interesting notion, since how could they be anything other than aware of the call, given its proximity). In addition, towards the end of the mobile phone conversation, all of the participants glanced at the confederate as the mobile phone call was being wound up – indeed, they were clearly aware enough of the content of the call to visibly adjust their posture and orientation at this point.

Interestingly, almost all of the participants also gave a small laugh following completion of the call before re-engaging in conversation. This laugh may be related in some way to the management of embarrassment (see below), but it also may serve as a marker to delineate the end of the call event and to re-initiate a dyadic conversation. It could be that the participants were looking for some form of closure to the potentially awkward social situation created by the mobile phone call in order to return to their previous ‘pre-call’ state. It may also serve to demonstrate that, whilst taking the call could have been an embarrassing and possibly rude event, the bystanders were showing that they was not overly angry at the caller and that they were happy to carry on their social established social relationship as before.

Talking about the call

In almost all cases, there was a brief exchange about the call before the “experimenter” returned to the room. However, participants did not generally talk about the *content* of the call to the caller; to do so would have reduced the ‘orderliness’ [2] of the situation, creating a problem for the conversants as they attempt to re-establish their social relationship in the wreckage of such a *faux pas*. In the single instance that this happened, this was achieved through a subtle set of questions by the participant establishing that the caller was happy to engage in a conversation about the nature of this call. This careful ‘dance’ around what the bystanders must have known was obvious to the caller clearly illustrates the importance of maintaining their illusion of non-attentiveness.

Attitudes towards the call(er)

As is often the case when it comes to looking at the relationship between attitudes and behaviour, we found that the behaviour of participants often belied their attitudes towards the social situation they found themselves in once the mobile phone conversation started.

Embarrassment and rudeness

Some of the participants stated that they felt embarrassed once the mobile phone conversation had started. Ling discusses this in detail [4] and it is unnecessary to cover this again, other than to note that this was a 2-way process, as embarrassment was noted by some bystanders who felt discomfort that they should not be listening, whilst for others, they were embarrassed for the confederate having to

¹ For simplicity, the term ‘caller’ is used for those using the telephone, although they need not have initiated the call.

speak openly about private matters in front of a stranger.

Several participants expressed feelings that all mobile phone conversations in social contexts such as waiting rooms, cafes and trains involved a certain amount of rudeness on the part of the caller. They felt that the person using the mobile phone in these situations showed no consideration for those around about them. In this study, these participants felt that the confederate should not have engaged in the mobile phone conversation and terminated the call immediately or he should have made sure that his mobile phone was switched off when he first entered into this social situation. Some of those who did not express strong negative opinions about the call made it clear that this was seen as a moral infringement, albeit a minor one, or one that disrupted the fragile orderliness of the setting, and that whilst they “did not mind” the call being taken, that they were permitting this to happen with good grace.

Intrusiveness and ‘listening in’

All participants stated that mobile phone usage “intrudes” into any social situation. However, some were less concerned about this than others. For example, some individuals felt that their presence was deeply intrusive and tried to give non-verbal “privacy cues”, such as turning away from the caller and staring fixedly ahead to ‘escape’ this social situation. Contrary to this, other participants felt that it was up to an individual to assess for themselves whether or not they could make or receive a specific type of mobile phone call in a social situation – as one participant stated: “if you want to have a private conversation, I’m quite happy to listen” (notably, as with all of the other participants, this person also acted disinterestedly during the call observed in the study). Indeed, almost all participants stated that, regardless of how they felt about listening in to the call, they were *curious* about the mobile phone conversation that was taking place—expressing this in benign terms for what is essentially *eavesdropping* (a much more pejorative term than those used by the participants).

CONCLUSION AND IMPLICATIONS FOR DESIGN

Whilst it is hard to draw direct conclusions for the design of communications technology from the behaviour of bystanders (i.e. those who are *not* using the technology), there are important design-relevant lessons that can be learnt about the use and acceptability of (potentially) socially intrusive technologies.

Simple lessons can be learnt from the data about the role of context in communication, and an almost too obvious to mention note can be made about technology that is contextually aware so that communications can be presented in a medium that is situation-appropriate (e.g. text, rather than voice). Apart from two of the participants, the rest of the respondents stated that they would not, or would take care in taking calls in public spaces. However, common experience suggests that those using the mobile telephone do not appear to be greatly discomforted by this—and as a consequence, the design of such a contextually-sensitive media for social amelioration is

unlikely to be of great value to its users, since it is also likely to come with an increased user cost in the complexity of both interface and interpersonal interaction.

There is, nevertheless, a more interesting lesson to be learnt here in the design of networked information appliances (IA) and ubiquitous computing (ubiquitous computing) devices and applications. These IA and ubiquitous computing devices are ‘embedded’ in the world, and allow interaction with a user (or users) as they engage in their everyday activities. In this way, their operation is similar to that of the mobile telephone—users are contacted by, or make contact with the devices or embedded computer system, and this is occasionally likely to take place when others are present who are not involved in the interactive episode—bystanders. The multimodal nature of many of these IA and ubiquitous computing interactions means that voice control is put forward as a key interaction style or may be conducted over public displays, and this interaction may be of a nature that discomforts those bystanders. This begs the question of how we can design IA and ubiquitous computing systems so that this intrusiveness does not disrupt ongoing social activities outside interaction at the user interface.

One of the perhaps surprising features of the study was the extent to which the apparently ‘disinterested’ bystanders had attended to and recalled the content of the telephone conversations. This has an obvious implication to interaction with computer systems—something that is not always desirable, particularly in cases where that information could be recalled and reused by bystanders. On the other hand, it also demonstrates the potential for vicarious learning of systems, as the bystanders are clearly highly aware of the nature and content of interactions. Closure events and the interpersonal mechanisms that support proximal social reintegration are also clearly of importance, as the user’s attention shifts from interaction with the remote person or system back to their local setting. Clear interaction closure cues may be as important for bystanders as it is for technology users in social settings.

Finally, the data suggests something that goes beyond the design of interaction events themselves, but is of relevance in the development of the *social protocols* involved in the management of technological intrusion. Use of the mobile telephone is clearly an issue that conforms to people’s beliefs about *morality*—what is (believed to be) right and wrong. As with other moral judgements, these beliefs can differ across people and contexts. What (in the bystander’s view) is socially allowable or acceptable, what pushes the boundaries of acceptability, and what is unacceptable is central to the levels of discomfort felt by the bystanders. What is interesting to us here is the low levels of variance in bystander behaviour (although we have not attempted to test the significance of this) towards callers despite the variation in their beliefs about the callers’ levels of perceived transgression.

One way that this morality is manifested in this study can

be seen in the normative ‘rules’ [see 7] that all of the bystanders oriented towards and expected the caller to orient towards. This can be seen, for example, in their common fixation on a neutral object or the ‘acceptable’ behavioural methods they use to control the call length. It could also be seen in their expectation that the callers would also conform by orienting towards these same norms through their behaviour through, for example, call brevity, conversational volume, and post-call contriteness. Nurturing these social protocols can be achieved through two main techniques, and these should be considered in interaction design:

1. Through advertising and other image management techniques.
2. By building systems that do not distort or require transgression over these existing social protocols.

The first point is not generally held to be the role of the technology designer; however, these form a component of what Norman [5] calls the ‘system image’. Whilst this is something that is not typically seen by interaction designers as relevant to their work, these techniques should not be dismissed offhand as they are crucial in promoting an understanding of the purpose and use of such systems.² However, it is the second of these that we concentrate on here. In order to do this we need to explore and make explicit the social norms around current mobile telephone use. Whilst, as we have noted, these are likely to differ across people, occasions and cultural groups, we attempt to make a start on this, drawing from the initial data collected in the study. A simple set of normative rules are suggested below, grouped into a) expected caller behaviour, and b) acceptable bystander behaviour:

a) expected caller behaviour:

- i. Callers are expected to assess the situation and moderate the length of the call, conversational volume, and the content of the conversation.
- ii. Callers are expected to make an effort to become as ‘apart’ from bystanders as the setting allows.
- iii. Callers are expected to appear to be contrite about their call, if not apologising directly, at least acting with some gratitude to the bystanders for ‘putting up’ with their conversation. The level of their contriteness is proportional to the level of transgressing the previous point.

² An example of this can be seen in telephone etiquette, where it is expected that the caller announce themselves to the recipient of the call (and not vice versa), or that the recipient should answer with “Hello?”. These are not ‘natural’ and emergent user practices, but were actively promoted by the telephone companies early in the last century (according to folklore, “Hello” was championed by Eddison, over Alexander Graham Bell’s less successful greeting of “Hoy, Hoy”).

b) acceptable bystander behaviour:

- i. Glancing occasionally at the caller to show that they are aware of the ongoing nature of the call. This may be accompanied by a moderated expression (smile, concern, etc.)
- ii. Bystanders are expected to be inattentive to content of the call, despite their often extreme close proximity to the caller. However, both caller and bystander recognise that this is a sham, albeit one that they should continue to act out.

Note that these are not absolute behavioural rules, but are used for social orientation. Attentiveness to these social norms and to the breaches to them are important features of social interaction that designers can use in developing appropriate technologies that have the potential for social intrusion, but using existing social cues for their moderation, rather than complex interactional protocols.

We recognise that the study is limited through its somewhat artificial setting, for example that it is dyadic and not multiparticipant (limiting opportunities for social action between bystanders) or that the participants do not know each other (which might affect bystander behaviour and attitudes). We are therefore planning a larger study in a naturalistic setting in which we examine bystander behaviour between different groups of people and involving other types of technology as well as the mobile telephone. This should offer up a rich data set that will lead to a better understanding of this behaviour and its implications for design.

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