Missed Call Use Across Cultures

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ABSTRACT

With the ubiquitous use of mobile phones everywhere, mobile phone users constantly invent new ways to use their mobile phones to satisfy their communication needs. An example of how technology sometimes is used in a way that was not anticipated is the use of "the missed call". The missed call is an intentional action whereby a person places a call and disconnects the call before the recipient on the other end answers the call. Despite the popularity of the missed call, to date the missed call as a form of communication has not been considered in mobile phone design. Therefore, the aim of this research is to propose a solution that employs an icon-based missed call service (IBMCS) to help users interpret the different meanings of the missed calls. Two contrasting cultures were selected for this study; the UK as a representative for the mature mobile technology market and the Sudan as an emerging market for mobile devices. The results from the study indicated that the IBMCS allows for better interpretation of the missed calls. The Sudanese had more positive attitude towards the developed service than the British participants. However, the British deemed that the icons were self explanatory and more informative and expressive than the old missed call service. The Sudanese were satisfied with the new IBMCS but they suggested adding more icons to the IBMCS. .

INTRODUCTION

The use of the missed call is grown popular especially in Africa. Samuel, Shah and Hadingham (2005) observed missed calls or *beeping* among users in Tanzania and South Africa. Gamos consultancy (2003) found that 38% of participants used payphones and telecentres in Uganda, Botswana, and Ghana to beep mobile phone users.

Donner (2005c) found that users in sub-Saharan have produced elaborated codes and social messages to be exchanged over the network without bearing any cost or at least not from those who are in a less secure financial position. Donner (2005c) found that the missed call/beeps is used mainly to mean 'call me back'; where the caller's intention is to request the recipient to bear the cost of the call. Missed call is also used as 'instrumental message', or 'relational sign' such as "pick me up now", "I am thinking of you" respectively

Chakraborty (2004) observed the missed call phenomena in Sitakund, Bangladesh. Here, users invented ways to communicate through the network without paying for the call. An example for the missed call code is: one ring = 'I am at home, where are you?' two rings = 'I'm at your house, where are you?'

Understanding the intended meaning of the missed call is a challenge that faces missed call users. To eliminate the ambiguity related to the interpretation of the missed calls an icon-based missed call service (IBMCS) was developed.

AIMS OF THE STUDY
- To investigate whether an IBMCS will clarify the meaning of the missed call in comparison to the traditional missed call system
- To investigate the impact of culture on users' perception of an IBMCS.

PARTICIPANTS

Eighty participants took part in this study. 35 British (16 male, 19 females) and 45 Sudanese (18 males and 27 females) ranging in age from 13-34 years old, with the average of 20 years old. All participants were mobile phone users. Experience of mobile phone use for the Sudanese participants ranged from 2-5 years whereas the British participants had used mobile phones for 4-12 years.

DATA COLLECTION

A Likert-type scale (Likert, 1932) was used to ascertain people's perception of using the IBMCS. The questionnaire was a fully revised version of the Computer System Usability Questionnaire developed for IBM by (Lewis, 1995) the scale had a 7 point format with responses ranging from strongly disagree to strongly agree with a neutral mid point. An example of the format is given below in Figure 1.

In addition to the Likert scales, a semi-structured interview was completed to get richer data about the users' perception of the IBMCS.

PROTOTYPE

Flash 8 Macromedia was used to create the prototype used in this study. The prototype consists of set of screens that enable the user to place/receive an icon-based missed call. Figure 2 shows an example of the missed call icon based service.

PROCEDURE

Participants were briefed about the purpose of the experiment and provided with the task instructions.. Examples of typical tasks participants were asked to complete is given below:
- Place a missed call that means "Reminder for prior arrangement"
- Place a missed call that means "After sending sms"

Following this, participants were asked to complete the Likert questionnaire statements. Finally, participants were interviewed for one hour regarding their experience of using the service.

QUESTIONNAIRE RESULTS

A Mann Whittney test indicated that significant differences were found between the British and the Sudanese in relation to the sending and receiving missed calls using the IBMCS.

For sending, Sudanese participants showed a more positive attitude in all measures in comparison to the British. For example the likeability and the overall satisfaction of using the service to send missed calls measures indicated the Sudanese willingness to use the service in comparison to the British (U= .000,p<0.001), (U=.008,p<0.01).

For receiving, again the British were less enthusiastic about using the IBMCS to receive missed calls. For example the enjoyability measure and the ease of use

Figure 1. Example of attitude statement used in the study

It was easy to learn how to send a missed call using the IBMCS.

Strongly disagree	Slightly disagree	Disagree	Neutral	Agree	Slightly agree	Strongly agree

Figure 2. Shows an example of the missed call icon based service
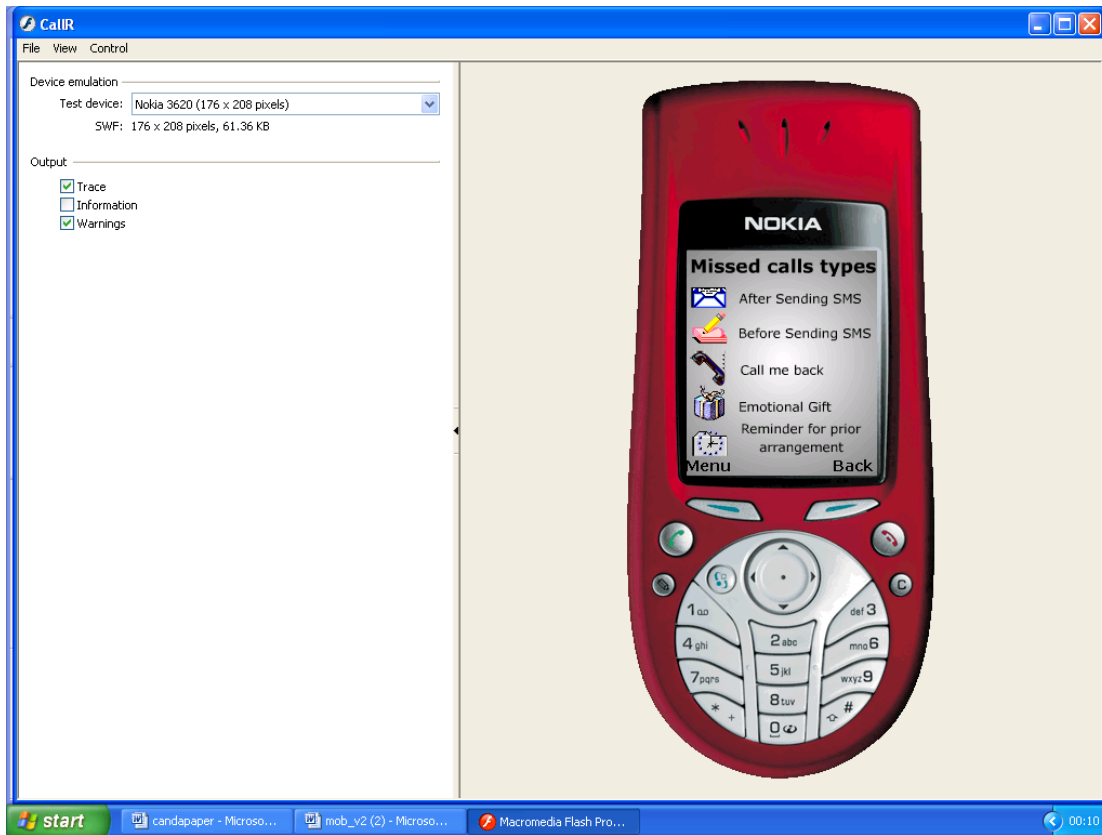
both indicated the Sudanese positive attitude (U=.001, p<0.001), U=002, p<0.001). Please see Table 1 for a summary of the main results.

INTERVIEW RESULTS

The interview results also reflected the Sudanese positive attitude towards the developed service in comparison to their British counterparts. Participants from both cultures appreciated the ability of the new service in conveying missed call messages in a quick and clear way as one of the British interviewee commented:

"I like the new missed call service, on the old system it was tricky to figure out the meaning of the missed call sent."

The British and the Sudanese differentiated between the sms and the IBMCS. The cost element was the main theme that was highlighted by the British and the Sudanese. They believed that using the IBMCS to convey social messages is more cost effective than using sms. The IBMCS enable users to scan and understand the message quicker than the sms message where the user needs to read through the whole text to perceive the intended meaning. As one of the interviewee commented:

"You need to read the entire text to understand the meaning of the message where with the missed call just one quick scan at the icon will explain the message"

DISCUSSION

The results on this study highlighted the importance of missed call rituals as a developed mode of communication that facilitates social interaction. The IBMCS

seems to offer users a unique form of mobile phone interaction possibly that is not offered by phone calls or text messages.

The Sudanese were found to be more positive about enjoying and using the new service than the UK participants. Measuring these results against Hofstede's typology (1980) the enthusiasm of the Sudanese towards the IBMCS can be viewed through their collectivistic way of living, where they expected to look after each other, care for others social interests and stay connected. Apparently the IBMCS enable users to fulfil their social commitment with less effort, time and cost.

Both the British and the Sudanese identified differences between the sms and the new missed call. The Sudanese appreciated the ability of the new missed call service in conveying social meanings using the icons. The Sudanese also perceived the IBMCS as a better channel of communication in comparison with the sms in terms of cost, time and effort. One justification for the Sudanese attitude might be related to the difficulty they experience when using sms. For example, the maximum limit of the sms is 160 characters but in Arabic it is only equivalent to around 78 characters. Therefore, a single message might need to be written in 2-3 different sms. Some of the Sudanese mobile phones do not have comprehensive support for Arabic language or the Arabic alphabet may be absent on the key board, as a result, writing an sms may require memorization or a workaround texting and thus they perceive the IBMCS as more of a simple and clear way of communication.

CONCLUSION

The rationale for using the missed call has unmistaken economic and financial connotations. However, diversity in the users' perception of the IBMCS between the two cultures implies that the conventions of the missed call perhaps are shaped by cultural differences. For example, the British perceived the IBMCS as an entertaining mode of communication to fill empty times, whereas the Sudanese

Table 1. Users' attitudes towards the new missed call service in the UK and Sudan

Theme	Country	N	Mean Rank	Asymp sig 2 tailed	Sig level
It was easy to use the IBMCS to send a missed call.	Sudan	45	45.20		*
	UK	35	34.46	.031	
	Total	80			
I enjoyed sending missed calls using the IBMCS.	Sudan	45	47.87		**
	UK	35	31.03	.001	
	Total	80			
During sending of a missed call if I made a mistake I recovered quickly	Sudan	45	38.64	.408	
	UK	35	42.89		
	Total	80			
On the IBMCS, the organization of information on the screen is clear.	Sudan	45	44.60	.055	*
	UK	35	35.23		
	Total	80			
I liked using the IBMCS to place missed calls (very similar wording to one above)	Sudan	45	48.16	.000	***
	UK	35	30.66		
	Total	80			
The IBMCS has all the functions I expect.	Sudan	45	45.69	.018	*
	UK	35	33.83		
	Total	80			
Overall I am satisfied with IBMCS in relation to placing a missed call	Sudan	45	45.73	.008	**
	UK	35	33.77		
	Total	80			
It was easy to use the (IBMCS) to receive a missed call.	Sudan	45	47.01	.002	**
	UK	35	32.13		
	Total	80			
I enjoyed receiving missed calls using the IBMCS.	Sudan	45	47.17	.001	**
	UK	35	31.93		
	Total	80			
When receiving a missed call if I made a mistake I recovered quickly	Sudan	45	43.60	.166	
	UK	35	36.51		
	Total	80			
On the IBMCS the organization of information on the screen is clear.	Sudan	45	43.68	.145	
	UK	35	36.41		
	Total	80			
I like using the IBMCS to receive missed calls	Sudan	45	47.04	.001	**
	UK	35	32.09		
	Total	80			
The IBMCS has all the functions I expect.	Sudan	45	42.77	.300	
	UK	35	37.59		
	Total	80			
Overall I am satisfied with the IBMCCS in relation to receiving a missed call	Sudan	45	47.76	.00	***
	UK	35	31.17		
	Total	80			

*$P<0.05$, **$P<0.01$, ***$P<0.001$

with their limited financial resources tied with their social and cultural obligation has made the new missed call service an appealing channel of communication that supports their personal and business communication. The Sudanese actually sought further solutions to maximize their communication opportunities and to develop a sophisticated missed call service that satisfies more personal communication needs.

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