

Usage of the Memory of Mobile Phones by Illiterate People

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ABSTRACT

A large number of illiterate people all around the world is using mobile phones for serving different purposes of their day-to-day life. Since most of the operations in a typical mobile phone require a minimum level of literacy, it has become interesting to know how these illiterate people manage to operate these phones. Understanding this usage pattern would help us design an effective user interface for these people. At the same time, it would help us understand the human learning behavior while interacting with a technical artifact. In this short communication, we present the initial findings of our ongoing project on investigating many of the questions related to this issue. Here we try to get an idea of how illiterate people use the memory of mobile phones. We present here our initial findings from our investigation upon 15 illiterate mobile phone users in Bangladesh. This study revealed a number of interesting facts about how illiterate people “unbox” mobile technology.

Categories and Subject Descriptors

H.1.2 [User/Machine Systems] Human factors

General Terms

Human Factors, Design

Keywords

Mobile Phones, Developing Region, Illiterate, Design.

1. INTRODUCTION

The burgeoning growth of using mobile phones in developing regions is often being considered as a prospective tool for exploiting technology for development. However this is equally important to understand how people in those parts of the world are using mobile technology before designing any technical solution based on mobile phones. Developing countries like Bangladesh, where a major portion of the population is illiterate, the adaptation of technology is far different from that in any developed region. This motivates us to understand how technology is being used by the people who are illiterate and far away from being trained of using digital technologies. There are two-fold benefits of this investigation; i) this would allow us to design and develop the appropriate technology for those people; and ii) this would help us

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design a technology-mediated social or behavioral strategy for the socio-economic development in those regions. We interviewed 15 illiterate people from Dhaka (the capital of Bangladesh) and outside Dhaka. These people had no (or “almost no” in a few cases) literacy but they had been using mobile phones for at least 1 year. Our focus was on how they use the memory of the mobile phones; in particular, how they save the contacts, recall those, remember their own number, search songs and videos, etc. We could find a number of very interesting and unusual methods, which we have presented in this paper.

2. POPULATION AND METHOD

The condition of being a participant of this study was to be illiterate and be a user of mobile phones for at least one year. In our study, we used Snowball Sampling [1] method to choose 15 participants. We started from one participant known to one of the authors and then found more participants through her. We continued this process till we get 15 participants. We stopped at 15 because of getting sufficient repetitions in the responses. The population was almost equally divided between male and female. Almost half of them would live in Dhaka (in an urban environment), while the other half would live outside Dhaka (in countryside). The monthly income of each of these participants was below 200 US Dollar. The interviews were taken in different times in the summer of 2012. The format of the interviews was very much informal and unstructured.

3. FINDINGS

After analyzing the data, we could see that all of the participants would check the call list (includes receiving the call) and would save the calls in the memory (most of the mobile sets offer this service by default). However, 13% of them would not make any call from themselves and only 47% of them would save the numbers.

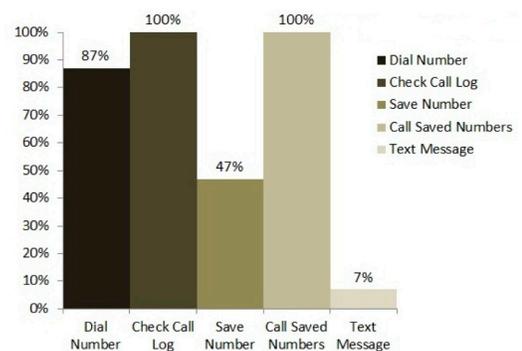


Figure 1: Usage of different services of mobile phones

Only 7% of them were found to use the SMS option of the mobile phones. This usage pattern has been shown in Figure 1. Besides, a good portion of our participants also used mobile phones for consuming music and videos.

3.1 Contact Search

3.1.1 Memorizing Last 2/3 Digits:

Most of the participants were found to use this technique. They would memorize the image of the last 2/3 digits of the contact numbers and they were not aware of the fact that more than one contact could have the same last 2/3 digits.

3.1.2 Serial of the Contact:

Some of our participants would depend on others to get the contacts saved in their mobile phones. In this case, they would remember the position of the contacts in the contact list. They would do the same while searching a contact from their recent calling history.

3.1.3 Memorizing the Contacts' names as Images:

Some of the participants were found to use this strategy. They would memorize the contacts' names (saved by others) as images. They would try to remember how the letters look like when they were put together to produce the contacts' names.

3.1.4 Frequency of Letters

Some of the participants, instead of memorizing the whole name, would memorize the image of individual letters and would try to search contacts based on the frequency of a particular letter. For example: "ABBAS" has 2 "B"s in it.

3.2 Remembering Own Phone Number

3.2.1 Carrying a Paper With the Number:

Many of the participants were found to carry a paper with them, which had their phone numbers written on it.

3.2.2 Service from the Operators:

Some of the participants were found to use the service of the mobile operators for getting their own number. For example by pressing "*566#" they could see their own number on the screen.

3.2.3 Rhyming with 2 digits:

Some of them were found to memorize their own phone numbers just as a rhyme of pairs of numbers. "My number is 'TwoTwo-OneOne-ThreeNine'", for example.

3.3 Searching Music and Videos

3.3.1 Thumbnails:

One of the easy ways for searching videos was to look at the thumbnails. Most of the participants whose mobile phones would support thumbnails, adopted this technique.

3.3.2 Serial of the Content:

Once again the relative ordering of the media contents in one's mobile phone often helped one to recall any particular media content. Some of the participants would remember the serial of each of the media contents and thus access those.

3.3.3 Sequential Search:

Many of the participants were found to make exhaustive sequential search to find out the desired song or video, since they

had no other way to do that. With the increase of the length of the list, this task becomes more and more difficult and time-consuming.

3.3.4 Memorizing the File Name:

In a few cases, they were found to memorize the file names (or last 2/3 digits) as an image to help search the media contents. This particular process was found to be similar to one of the techniques they would apply for searching a contact's number in the contact list.

4. DISCUSSION

Medhi et al investigated the interaction between people with low literacy and different user interfaces [3][4]. Their works could reveal the rote memorization technique among others that is present in that community. The focus of their design implications was hence to introduce more graphical contents in the interfaces. In this communication we present a few more trends that we found in the mobile phone usage of illiterate people and we believe these would help us make more meaning designs in future. Our main focus is narrowed down to the interfaces that involve the memory of the mobile phones. Recently Friscira et al. [2] made such another study on the overall usage of mobile phones by people who are not familiar with the language that was used in the mobile interfaces and they tried to find out how those people would interact with the mobile phones.

We also expect to extend the findings of this paper to help us understand how the "boxing" and "unboxing" of technology mismatch in the developing regions [5]. The future works would include a robust investigation upon why these take place and how we can design a system that help these people to get the best use out of mobile phones.

5. CONCLUSION

The initial findings of an ongoing project on understanding the mobile phones' usage patterns in low-literate communities have been presented in this paper. This study should help us understand different nuances of human learning behavior based on how illiterate people interact with technical artifacts. At the same time, this should give us more clues to design effective user interfaces for illiterate people in developing regions.

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