

# The use of Mobile Phones by Older Adults: A Malaysian Study

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## Abstract

Mobile phone has become essential parts of personal and business life. The recent growth of mobile phone usage is an observable fact that crosses all age and gender boundaries. It can potentially play a significant role in assisting older people in many ways especially in terms of maintaining social relationship, providing sense of safety and accessibility. However, older people seem to be a neglected user group in the design of mobile phone devices and services. Hence, this paper attempts to report the issues which are related with the design of mobile devices and services for older people aged 56 years old and over in Malaysia. The findings may serve as a reference to mobile device manufacturers and service providers when designing mobile devices and services for older Malaysians. This research uses a survey instrument to gather data from older peoples across all the states in Malaysia with the total of 176 older peoples responded. The questionnaires were mainly distributed to older persons who use mobile phones independently in their daily routines

## Introduction

The recent growth of mobile phone use is a phenomenon that crosses all age and gender boundaries. More than just the latest electronic gadget, mobile phone has become integral parts of our business and personal lives. According to the Handphone User Survey in 2005 by Malaysian Communication and Multimedia Commission, nearly 80% of people living in Malaysia aged between 20 and 49 years owned or used a mobile phone. The ownership percentages of people in higher age brackets are slightly lower. The ownership drops drastically to 8.7% for people 50 years old and above [1].

Older people seem to be a neglected user group in design of mobile devices and services, although the requirements to create well functioning solution for them are documented in various published manuscripts. People over the age of 60 use mobile phones for very limited purposes, such as for calling or sms in emergency situations [3]. Most complaints are related to displays that are too small and difficult to see, buttons and characters that are too small causing them to push wrong numbers frequently. They also avoid using more complex function, non user-friendly menu arrangement, and unclear instruction on how to find and use a certain function and services that are too expensive [4]. Mobile phones can potentially play an important role in helping older people in many ways if the problems related to the use of mobile phones can be solved, especially for maintaining and developing social relationship, and providing a sense of security and safety [4].

Unfortunately, there were not many studies that involved older persons in the development phase of mobile phones. This forms the motivation of the reported study.

## The Study

The main objective of this research is to replicate the study performed by Kurniawan et. al. in a different country [2]. The focus of this study will be on verifying the relevance of the identified design issues as well as comparing the similarities and difference between the two user populations. Essentially, we perform the initial literature review on mobile phone usage among older peoples, looking at the broader context of mobile devices and services issues, current problems highlighted in various previous studies. In order to acquire the overall picture of mobile phone usage by older peoples, some published manuscripts related to the mobile phone usage, problems, perceived benefits and features are reviewed. All the information above is collected using on-line searches specifically on the online databases namely ACM, IEEE, technical reports, academic textbooks, magazines, online articles and others.

For this study, we used the original questionnaires reported in [2]. Our respondents are older people who use mobile phones in their daily routines independently across 14 states in Malaysia. One hundred and seventy six older people responded to the survey.

## Results

This section represents the results of the survey of 176 older people in Malaysia who taking part this survey. This section also covered about demography information, usage patterns, and the design of mobile phone that the elderly suggested to use. The results from the questionnaire which rated by respondents were reported in the next section.

### Demographic Information

The survey was dominated by male respondents (60%). As shown in Figure 1, the majority of the respondents were 56-60 years old (56%) and had used mobile phones for more than 2 years (60%).

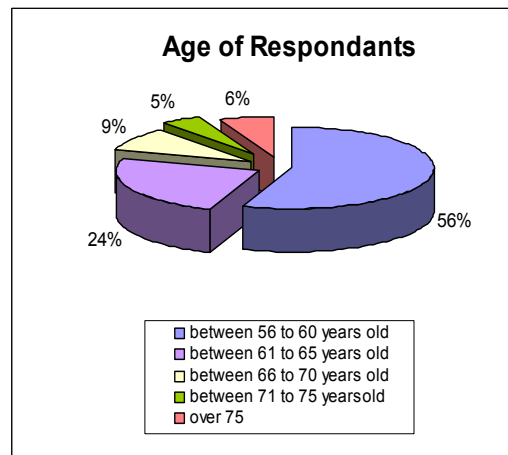


Figure 1 : Number of respondents according to age

### Usage Patterns

This section in the questionnaires cover the usage patterns that usually used by older user. As illustrated in Figure 2, 105 respondents used mobile phones for more than 2 years and only 8 respondents noted that they used mobile phones for less than 6 month. More than half used their phones daily. Almost all were on prepaid scheme. On an average month, 40% paid RM

30-RM70, 37% paid less than RM30 and 23% paid more than RM70. Around half of respondents frequently used 4-5 functions out of the eleven functions listed. The first two reasons for using mobile phones were for emergency (60%) followed by for a casual conversation (48%). They most often called their children/grandchildren (64%) or friends (50.5%).

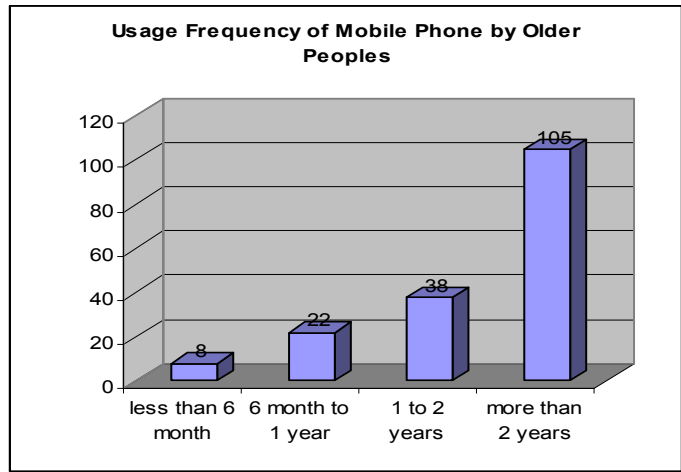


Figure 2 : The usage Frequency of mobile phone by older people

## The Design

Most of respondents realize how important mobile phone to their daily lives. Because of this, and because they use mobile phone on a daily basis, they were increasingly interested in personalizing their phones so that they have the design and functionality that match their preference.

The respondents were instructed to rate each feature either it is 'tolerable' 'annoying' or 'stressful' based on their experience with various aspect of their mobile phones. Around half of respondents marked 'tolerable' for almost all features and very few respondents considered using any features as 'annoying' or 'stressful' (5%) .

The following were highlight some of the major problems when using the current phone the respondent found and explores some of the reasons noted:

- Button : Small, rubbery buttons were disliked.  
Reason: They preferred metallic buttons, which clicked when pressed.
- Menus : Complex and too many options those are often unnecessary.  
Reason: Older users require longer time to think of what to type or to choose from options.
- Functions: That are difficult to understand, complicated and thus impossible to recall  
Reason: These are the functions that should be "hardwired" to particular buttons.
- Display: One that can display large text and whose screen backlight does not turn off when idling  
Reason: Older persons require extra cognitive processing time when dialing number or write text
- Shape/size: That is too small to hold and read easily. Size 'bulky'.  
Reason: Can't grab and held uncomfortably.
- Colours: Although color was not as important as other features, some older persons disliked brightly colored phones.  
Reason: Fear of being too visible

## Roles of Mobile Phones in Their Lives

In this study, we also asked them using 5-point Likert-like scales their views on the roles of mobile phones in their lives. These are:

1. It is **cheaper** to use mobile phone than to use landline phone.
2. I have more **friends** after having a mobile phone.
3. I feel more **confident** to go out by myself after having a mobile phone.
4. I am not afraid of getting **lost** after having a mobile phone.
5. I know I can always call somebody on my mobile phone when I am in **trouble**.
6. I feel safer to be **alone** because of my mobile phone
7. It is **fun** to use mobile phone

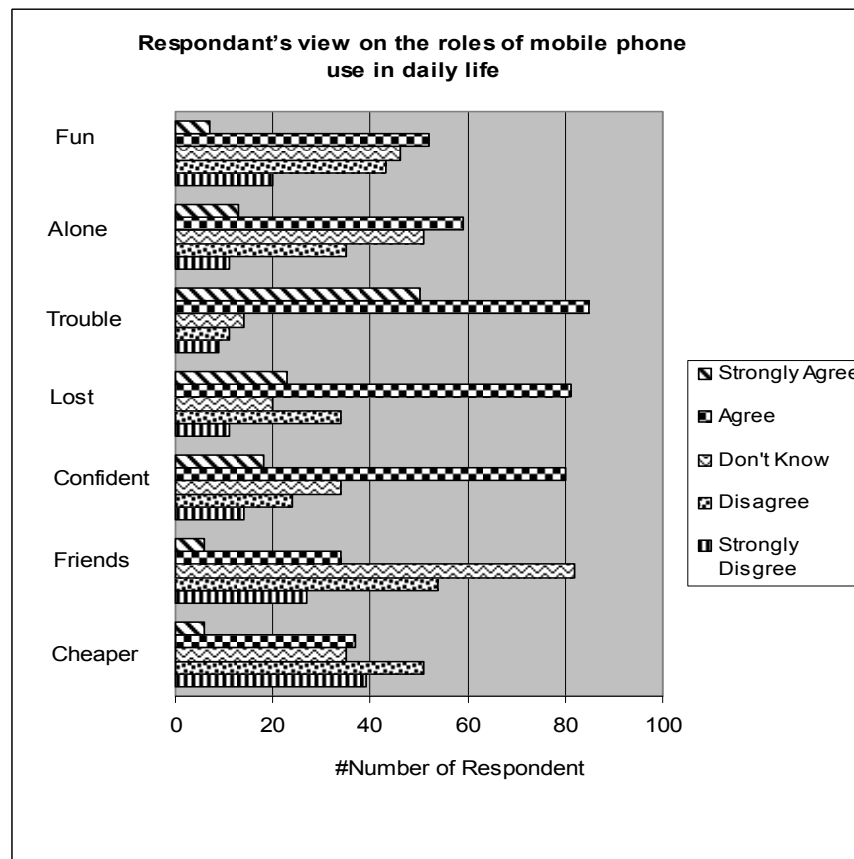


Figure 3 : Respondant's view on the roles of mobile phone use in daily life

Figure 3 above illustrates the distribution of ratings. The most positively respondent statement was the fifth statement, was one that suggests that mobile phones allow older people to call somebody when they were in trouble (90% respondents agreed or strongly agreed to this statement). The most negatively responded that using mobile phone was fun (20 respondents).

To understand mobile phone users' opinions on less common functions, a list was created for the respondents to rate as 'must be removed' (1), 'good if removed' (2), 'can live without' (3), 'good to have' (4) and 'must have' (5). The respondents tended not to choose the 'must be removed' option. Although video and camera is a hot commodity on the Internet right now and the interest in mobile video is growing by the minute, some respondents quickly pointed that camera and video phones must be removed. They thought that camera phones were

the 'most dangerous invention of the 21st century' as it encouraged people to do "evil" things such as bullying. The majority checked 'can live without' or 'good to have'. All these top 3 functions are classified under good to have or must have factor were address book, text messaging and alarm clock, as summarized in details in Table 1. The results gained in this research are not much different with the results survey conducted by Kurniawan *et. al.* [2].

|                             | INFLUENCE LEVEL OF RESPONSE |    |    |    |    |
|-----------------------------|-----------------------------|----|----|----|----|
|                             | 1                           | 2  | 3  | 4  | 5  |
| <b>QE1 (Camera)</b>         | 5                           | 13 | 75 | 61 | 16 |
| <b>QE2 (Videophone)</b>     | 4                           | 17 | 97 | 41 | 11 |
| <b>QE3 (Address book)</b>   | 0                           | 1  | 21 | 55 | 93 |
| <b>QE4 (Diary)</b>          | 1                           | 82 | 49 | 49 | 28 |
| <b>QE5 (Alarm)</b>          | 1                           | 2  | 30 | 80 | 57 |
| <b>QE6 (Text Messaging)</b> | 1                           | 1  | 42 | 58 | 68 |
| <b>QE7 (MP3 Player)</b>     | 9                           | 11 | 83 | 50 | 17 |

**Table 1 : The Influence Level of Response the Features in the Mobile Phone**

## Conclusion

This study is the first step in understanding design issues of mobile devices and services by older people in Malaysia. It presents rich data results from literature review and questionnaire methods. The study shows that older persons used and had strong opinions on some advanced features of mobile phones.

As a research approaches, questionnaire has been proven in this research to be quite successful in gaining an understanding of how some older persons used mobile phones. The survey findings were able to capture basic requirements of a mobile phone preferred by older persons, prior to design. The paper questionnaires were used to highlight analytically several issues that were important for older users.

The survey data confirm the view of the respondents that mobile phones are for emergency, for instance. The survey also indicated that the most important role of mobile phones was to provide assurance to older persons that they could always call somebody when they were in trouble.

The data captured also revealed the preferred physical design of mobile phones for older persons. It is clear from this study that mobile phone design and usage for older persons is not necessarily limited to or based on old style, out-of-date model, and supporting only very basic calling functions. And finally, to unwrap to more interesting findings, more extensive statistical analysis is needed to find functions which can be customized to older user needs and perceived to be senior-friendly and reliable.

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