

CHALLENGES FACED BY ELDERLY WHILE USING SMARTPHONES

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Abstract— A significant increase in the use of smartphones by the senior citizens has been seen. Smart phones can play an significant role in assisting elderly in their day to day life if the problems encountered while using it can be solved. Knowing to use smart phones can help elderly to reduce boredom and loneliness by enhancing their social contacts, Mobile technology has made life easier with access to some services that can make elderly people's life safe and self-sufficient. Therefore the present study is carried out to investigate the various problems encountered by elderly while using smartphones. 30 elderly smartphone users were selected for the study. A self-constructed questionnaire was use to collect the data. The results of the study showed that majority of the respondents were not confident while using their smartphone and encountered various issues mainly with the font size, and keypad. Majority of the respondents preferred using QWERTY keypad than touchscreen keypad. This study will help manufactures of the smartphone to improve the design by eliminating or reducing the level of challenges faced by elderly while using smartphone.

Keywords— *Elderly, older adults, senior citizens, Smartphone, mobile phone, technology*

I. INTRODUCTION

Mobile phones have become an integral part of everyone's day to day life irrespective of the age and gender boundaries. A rise in the use of mobile phones has been seen from past decade. In the past, the use of mobile phone was mainly constrained for making or receiving phone calls and sending messages. However, presently mobile phones are not just used for the traditional use of making phone calls and conveying messages whereas it undeniably offer's plethora of other applications.

A significant increase in the use of smartphones by the senior citizens has been seen from past 6 years. Smart phones can play an significant role in assisting elderly in their day to day life if the problems encountered while using it can be solved. Knowing to use smart phones can help elderly to reduce boredom and loneliness by enhancing their social contacts, Mobile technology has made life

easier with access to some services that can make elderly people's life safe and self-sufficient. It also helps to provide a sense of security and safety for elderly as they can be reached practically anytime and anywhere.

Although smartphones can be of great usage to the elderly, mostly these are designed keeping the younger users in mind. It is seen that unlike younger age group, elderly finds it challenging to get used to or adapt new technology. It is seen that while designing mobile devices and services, Elderly group are neglected or not taken into account. Aging also causes the muscle and nerve function cannot function efficiently over the age of consent (**Chaparro et. al., 2000**). The combinations of these potential functional declines will affect performance of delicate motor tasks such as moving fingers and hand. **Chaparro et al. (2000)** state these functionality reductions is reflected based on speed, precision and consistency of movements by the elderly. As a result the older population faces multiple issues while using such devices. Since older users do not have the same visual and hearing sensitivity, finger dexterity, and working memory as the younger age groups, they may have problems using mobile phones with small buttons, limited size of the screen and text, and complex functions (**S. Mallenius, M. Rossi and V. K. 2007**)

Understanding the mobile phone usage by elderly users provides an outlook on how to improve mobile phone design and functions for older users. This study is carried out to investigate the various problems encountered by elderly while using smartphones. The objective of this study was to investigate various issues faced by elderly while using smartphone. To identify the main purpose for usage of smartphone by elderly. This paper will help in assessing issues, application that create difficulty among elderly smart phone users and thus will help to create design that is suitable for elderly.

II. MATERIALS AND METHOD

This study was conducted by using survey and interview research method. A sample of 30

respondents (15 males and 15 females) were selected using random sampling method. A self-constructed questionnaire was prepared for the purpose. The questionnaire consisted of open ended and close ended questions. Questionnaire was divided into two parts. First part consisted of the personal information of the subjects, which included name, age and gender.

The second part of the questionnaire included questions like time period of using smart phone, daily time spend using smart phone, purpose for using smartphone, difficulty faced while using smartphone, interested in learning new features in the phone, should manufactures consider elderly while making smartphone, which keypad is easy to use.

Statistical Analysis: Descriptive statistics was used for analysis. The data was coded in word excel spreadsheet and analysed to compute mean and percentages

III. RESULT & DISCUSSION

As per the Table1, we can understand that the average age of the people who volunteered for the survey is as below:-

Average Age of Elderly	Number of people
55-60	15
61-65	6
66-70	8
71-75	1
Average Age	63 Yrs

Table1

This helps us to understand that almost all the people by the age of 63 does use a phone. All of these people use mobile phone since an average of 9 years. (Refer Table2).

Mobile used since (yrs)	Number of people
0-5	2
6-10	17
11-15	11
Average Use Since	9

Table2

Even though after using Keypad Phones and Touch phones most of them have choose to using a Keypad Phone, since it causes little difficulty for the more senior people to use the touch phone due to the different UI (User Interface). It is still a close choice for the elderly as the result form the random sampling is Keypad Phone, some also choose Touch screen Phone.

Around 60% of people choose for Keypad Phones. (Diagram1).

Some of the problems faced were mentioned in the Table3.

With the data from Table3 we get to understand that the top three issues people face are Advertisements popup, which gets difficult for the people to manage.

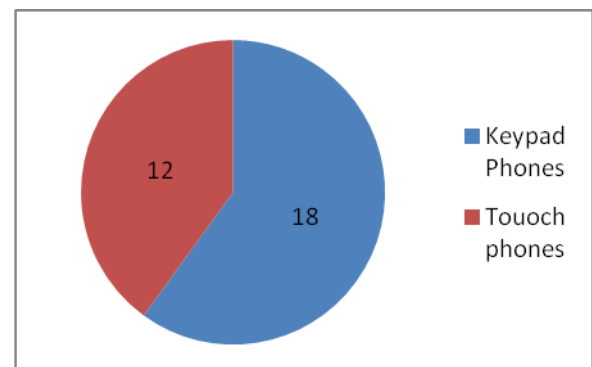


Diagram1

After that the next more important issue is the size of the phone and also to connect the mobile device to the internet. For some people it can be difficult to manage the mobile device single handedly and hence could cause inconvenience to use.

Also connecting the mobile device to the internet could turn out to be a little difficult task for the elderly, as there are some settings which have to be enabled in order for the internet to work.

Earlier Keypad phones did not have the settings to enable internet, was just click and access.

The next major problem faced is UI or the User Interface as it plays a major part in use of the mobile phone. When it comes to the UI it s difficult for them

to remember the last taught path or settings to get done on a new device as the change in UI gets them confused. Also the touch keypad gets them difficult to click on any specific button and also sometime the elderly does not know is the pressed button function has been entered or no.

Problems Occurred	Number of People
Touch screen UI	8
Keypad	8
Visual display	7
Font size	5
Increase/ decrease volume	4
Connecting to internet	10
Size/ shape of the phone	10
Understanding the language used	7
Popping of advertisement	22

Table3

The Below Table4 shows the major use if mobile phone for elderly:-

Used for	Often	Sometimes	Never
Making or receiving calls	25	4	1
Sending or receiving messages	8	10	12
Videos calls	9	18	3
Taking photographs/videos	6	8	16
Alarm or clock	18	12	0
Use social media apps (WhatsApp, Facebook)	16	12	2
Listen music	6	6	18
Download music	6	4	20
Online shopping	8	5	17
Online banking	11	4	15
Booking cab	8	6	16
Order food	9	3	18

Table4

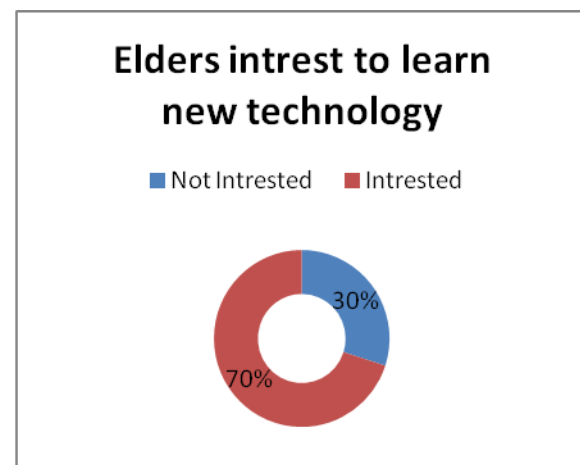
This result shows that the major use of a mobile phone is to call, alarm & social media.

Majorly the use of phones for elderly is to call people which also might face difficulty depending upon the UI and the touch keypad.

Alarm is the next major use of phone for the elderly and is used frequently.

As moving on with the New generation even the elders are getting into social media which comes the next major use.

The Next Diagram shows us how interested are the elderly to learn new technology.



IV. CONCLUSION

With this research we came to know what were the problems faced by elderly people. It helps to achieve our objective which is to investigate the issues faced by the elderly which mainly is popup advertisement that come up randomly and the next which is the size and shape of the device, which is not convenient by some of them and along with that is the connection of internet where the latest technology devices have a specific setting to enable the internet to switch on. Also with that are the problems faced due to the different UI which is with the different companies and also the touch keypad which sometimes become difficult for them to touch and select specific characters or numbers and also sometime does not know whether the key was pressed or no.

The next objective is successfully noted that the main use of a mobile device for elderly is to call up people. This is the main feature of mobile phone that the elderly use. After that the next use for the elderly is the use of keeping an alarm. This is also one of the most common feature used by the elderly. The next usage for the elderly is to social media. Even the

elderly people tend to follow the trend and upcoming tech.

The next objective is also achieved successfully which is to identify the interest of the elderly to learn new and upcoming tech. With a 70% of the people in the survey agreeing and accepting to learn new Tech as time evolves it.

The next objective is to establish the challenges faced by the elderly. Here we have the result where we have seen the issues faced by the elderly very evidently, and hence we can use these thoughts and ideas to create the new Tech with reference that the elderly also has to use it. Just maintaining and keeping these points in mind while putting up or building a new tech can also help the elders hold hand with the New Generation and walk the path of Tech Evolution.

V. ACKNOWLEDGMENT

This Research wouldn't have been possible without the opportunity provided to me by the Almighty and all the members of St. Thomas Syro Malabar Church Kalyan W and also by my College 'Keraleya Samajam Model College' Dombivli. I would like to appreciate the ever guidance and support by my faculty and my mentor Ms.Gauri, Ms Neeta, Ms Shweta, Ms Bindy & Ms Divya. I am most indebt to my role models, my family and parents for their never ending inspiration and encouragement and also all those who were a part of the research and help me with all the required resources whenever needed. I would also like to appreciate all the elderly people who helped me gather the data required for the research for their patient and cooperation .

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