

## EXPLORING THE NEEDS OF OLDER ADULT USERS FOR SPIRITUAL MOBILE APPLICATIONS

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### ABSTRACT

The increasing number of aging populations worldwide versus the vast developments in mobile technology creates questions on how older adults adapt and apply mobile technology in their daily life. As older adults are said to be more spiritually inclined in the ageing process, thus, mobile spiritual applications can work as medium for serving the older adults spiritual needs. In this study, a series of workshop was conducted with fifteen volunteered older adults' participants to give exposure and experiences of using mobile spiritual android application. After about a week, an interview session was then conducted with the participants to investigate the older adults' design requirements for developing mobile spiritual application and also to investigate the older adults' interests in using mobile spiritual applications. As a result, these older adults appreciated and agreed on the benefits of the application. However, several issues arise in the existing mobile spiritual applications such as improper design for older adults, lack of exposure and fear towards technology deter their interests. Participation in the workshop is seen as one of effective way to reduce technology anxiety among the participants hence increased enthusiasm in learning new mobile applications, particularly for spiritual applications. Feedbacks that were gathered from interview session with the interviewees were highlighted in this paper to be the input in developing mobile spiritual application for older adult users in future.

**Keywords:** *Older people, elderly, spirituality, mobile phones, techno-spiritual, qualitative*

### 1. INTRODUCTION

Older adults are those who saw a sharp increase by 2030 in which most countries in the world have a high percentage of older adults [1][2]. Although currently, there are many researchers and institutions that producing guidelines for developing mobile applications for older adults, however, older adults are yet seen as the neglected group in the design and mobile applications usage [3]. This unhealthy scenario would suppress the development of older adult's successful aging where, according to [4] and [5], a country must ensure its citizens are experiencing successful ageing by ensuring that the older adults can afford independent living and healthy from the aspects of physical, mental, spiritual and also social well-being. Mobile applications on the other hand, are seen as possible tool in boosting older adults' capability to live independently. Technology person especially academics and researchers should play role in reducing the gap between older people with technology. Therefore, this workshop is intent to

give technological awareness to older adults, besides, work as a medium of exposure for older adult's to use mobile applications successfully. The aims of this paper are to achieve the following;

1. To gain feedback on the design requirement for mobile spiritual application that tailored to older adults needs.
2. To investigate older adults' interests and experience in using mobile spiritual applications

### 2. RELATED WORK

#### 2.1 Ageing, Mobile Technology And Spirituality

Nowadays, aging is a major concern by many countries in the world. The increasing number of aging populations in future creates question whether the older adults population are able to live independently and achieving good life quality. According to [1], elderly with aged 65+ are estimated to present 22% of population by the year 2030. While in Malaysia, older adults population (aged 60 years and above) is projected to reach up to 15% by the year 2030. Vast developments in



mobile technology make us doubt how older adults adapt and apply new technology in their daily life. The technology design should fit to the end user physical impairments; the application interface must be sufficiently acceptable to the users to overcome any unfamiliarity felt; the benefit of using the applications must be significant, in order to gain plea for its use [6].

Several works related to provide guidelines for older adult users' has been found. The field of this works as according to [7] ranging from three bio-psycho-social model area including cognitive functions, physical abilities and societal benefits. At the cognitive level, a lot of technology guidelines discussed especially on how to improve memory [8], attention and also monitoring capabilities. There are also a lot of system guidelines particularly on the improvement of physical abilities such as health monitoring, daily activities assistant etc. [7]. Furthermore, other studies focus on equipping older adult users with societal technology benefits such as smart home environment [9] and also internet technology especially the social network. [10], in his research suggested that improvements in today's technology design were needed for older people as technology that tailored to older adults needs may alleviate many problems. It is important for the older people to get connected with mobile technology since it offers various services from connecting people, entertainment, information and also, spirituality that can enrich older adults' life and knowledge.

Study among Malaysian older adults discovers that older adults practice religious and have spiritual intelligence as they aged [11]. Older adults often have a feeling of cosmic communion with God [12] whereas spirituality is also defines as one element for positive successful aging in Rowe and Kahn Model [13]. Therefore, mobile spiritual applications can work as a medium of serving the older adults spiritual needs. Technology practitioners and researchers should play a role in giving awareness and exposure towards spiritual applications usage by teaching and assisting older adults.

### 3. METHODS

#### 3.1 Participants

This study was carried out in Shah Alam Senior Citizen Complex, Selangor, Malaysia. The complex was chosen because it is located in Selangor which is one of the states with high population in Malaysia [14]. The complex is a community club

and act as platform for older adults to gather and run beneficial activities during leisure time. Member's registration was open to people aged 56 years old and above as club members who will obtain various benefits when joining this club. This workshop involves fifteen older adults aged from 60 to 74 years old. The average age for all the participants is 66. Most of the older adults were retirees and housewives, and only one of them is still working. The workshop intention is to demonstrate and teach older adults on how mobile spiritual applications can be used to help older adults remain spiritually inclined, physically and mentally healthy.

#### 3.2 Workshop Procedures

The following is the explanation on the workshop procedures starting from setting an appointment until the end of the workshop:

1. *Set an appointment and asking for participant's approval.* The relationship between researcher and complex manager was good since researchers have conducted several community activities with older adults at the complex in the past. The researchers went to the complex two weeks before the workshop was held to make appointment. This shows that the complex manager was really pleased and looks forward to run the workshop. Researchers were also provided the attendance list of participants who are interested to participate in the workshops organized by the manager of the complex. One week before the workshop took place, the researchers went back to the complex to get the list, however the list of participants had yet to be given by the manager. The researchers at that time were participating in an ongoing religious class in the complex, hence made an announcement in the classroom about the workshop to get participants. At that time there were 15 participants who were interested to join the workshop and given their names.

2. *Introductory and video demo.* The agenda of the workshop started with a speech from the Program Director about the objectives of the workshop. After that, a montage and video demo on how to use the Quran Bahasa Melayu application as in Figure 1 was run. Upon completion of montage and video (10 minutes), participants were divided into few small groups with either 2 to 3 participants per group. Each group was conducted by facilitators who are lecturers and doctorate researchers from the Universiti Selangor (UNISEL) and MARA University of Technology (UiTM).



Figure 1: Presentation of Montage and Application's Demo Video

3. *Small teaching group.* The training was carried out concurrently in all groups (refer Figure 2) where each group was provided with a set of the tablet PC. Firstly, the facilitator will demonstrate on how to use the tablet to the first participant which was selected randomly from the group.



Figure 2: Small Teaching Group

The following is the steps used in the application demo:

- Turn on the tablet
- Download the application into a tablet PC
- Teach how to use Quran Bahasa Melayu application and its features including listening to audio readings, making the page and select Verses in Quran
- Close the application and also the tablet

Secondly, after the first participant had understood how to use Quran application, he is then needed to teach the application to the second participant. The session occurs with close monitoring of the facilitator. Next, the second participant will teach the other participant until everybody in the group knows very well on how to use the application. This method is used to ensure the participants understand and successfully use the application in the future.

4. *Lunch and dismiss.* When the training session has ended, the participants were provided with tokens and food for lunch before leaving. Tokens were

given to appreciate the willingness of the participants to spend time and attend the workshop. Workshop started at 11.15 am and end at 12.40 pm.

5. *Interview.* A week after completing the training session, all participants were contacted back by the researchers to set for an appointment for an interview session. The participant consent was also asked in advance to ensure that only those who agreed will be interviewed. The purpose of this interview was to obtain feedback about the suitable design of mobile spiritual applications for older people. In addition, another purpose of the interview was to obtain the participants' background information in detail, participants' experience in using mobile technologies as well as their experience in using any mobile spiritual applications. This information is essential, especially for designing a new mobile spiritual application that could tailored to their needs. There are two sections of the interview, section A consists demographic questions while section B consist of question pertaining to the users' spiritual experience evaluation towards the mobile spiritual application usage.

#### 4. RESULTS AND DISCUSSION

The results of the study were reported based on the following categories:

##### 4.1 Participants' Demographic Information

These data were gathered from the participants' attendance list. Once the older adult participants arrived, they were first asked to take their seat while being served with some refreshments. An in charge facilitator takes the responsibility to jot down each participants' details and signature for the record. Table 1 summarizes the participant's demographic information.

##### 4.2 User's Feedback on Interview Questions

During the interview, all participants were given a list of 11 mobile spiritual apps categories (refer Figure 3) available in the market, they were then asked to rank the list of mobile spiritual apps that they deemed important. Obviously, fourteen out of fifteen participants choose mobile Quran as the most important apps in their daily life. This was followed by the Doa collection, prayer reminder and lastly the hadith/sunnah application. From this study, and also supported by previous finding [15], had indicated that older adults put high priority on Quran recitation mobile application in assisting their daily spiritual activities. One participant suggested the researchers on adding another two

categories of mobile spiritual apps which are Manzil (Ruqyah) and Tahlil applications in the list.

Id	Age	Gender	Background	Technology background
P1	68	Male	Retiree	Smart phone
P2	61	Female	Retiree	Smart phone
P3	67	Female	House wife	Smart phone
P4	70	Female	House wife	Hand phone
P5	74	Male	Retiree	Hand phone
P6	61	Male	Retiree	Hand phone
P7	65	Male	Working	Smart phone
P8	68	Female	Retiree	Smart phone
P9	61	Female	Retiree	Smart phone
P10	63	Male	Retiree	Hand phone
P11	63	Female	House wife	Smart phone
P12	60	Female	House wife	Smart phone
P13	63	Female	House wife	Hand phone
P14	72	Male	Retiree	Hand phone
P15	74	Female	Retiree	Hand phone

Table 1: Participant's Demographic Profile

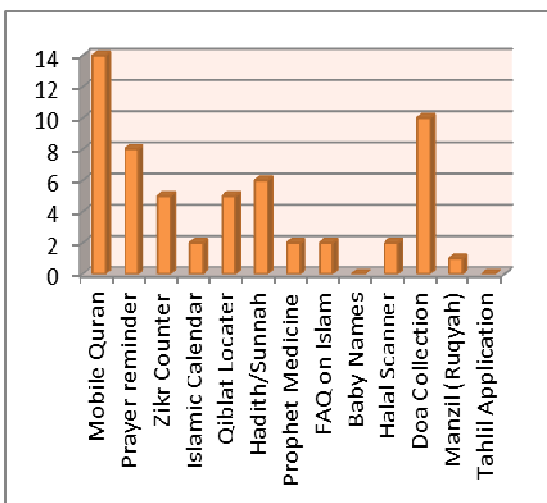


Figure 3: Ranking of Spiritual Mobile Applications Available in Market by Older Adults

Next, since all participants have attended the workshop on learning mobile spiritual application which were organize previously, each participants was asked a question regarding their experiences on using the application. They were also asked to

provide comments on the mobile spiritual application and give some input on their desired application in terms of application's features including interaction, presentation, content and function. This is to make sure that the mobile spiritual application that is going to be developed in future can meet the criteria and requirements of older adult users. The following is the feedback that the researchers gained from all the interviewees.

Table 2: Older Adult Users Comments on Mobile Spiritual Application Design

ID	Comments
P1,P2,P3,P5,P6,P7,P9	Should have a function that can resize the font suitable for elderly that have short-sighted and long-sighted
P3,P6,P10,P15	Better use Bahasa Melayu compared to other languages, easier to understand
P3,P4,P9,P15	Use of color is important especially to highlight tajwid and look more attractive
P2,P3,P7	No need so many functions, it can make the elderly confuse
P10,P11	Tablet PC screen is big and the lights helps me to see the text clearly. Easy to bring anywhere
P2,P8	I like applications that have audio, it helps me to gain more attention
P9	For Quran applications, it is good to provide video as I can see the reciter correct pronunciation
P15	It is good to have the image, I want to see the reciter face
P6	Translation makes me happy to use the application
P1	The Tablet PC screen is too sensitive
P1	Virus notification is so irritating
P4	Put together all important applications in only one application. Easy for us, just one single click

As far as our concern, there is a lot of mobile applications design guidelines being developed for other categories of mobile app's except for mobile spiritual applications. Therefore, based on the feedback that the researchers gained from this study, the researchers had identify certain room of improvement for future mobile spiritual applications development as stated in Table 2. The researcher highlighted all the feedbacks into several categories including simplicity, language use, text resizing function, use of color, mobility, multimedia elements and other issues as depicted in Figure 4.

This study tried to answer the question about what are the design requirements for mobile



spiritual applications for older adult users. Based on the findings from the evaluation of existing mobile spiritual application, the researchers believe that the spiritual application is among the required mobile applications for older adults instead of other type of applications. Application designer ought to consider the following elements while developing mobile applications to ensure high acceptance level among older adults.

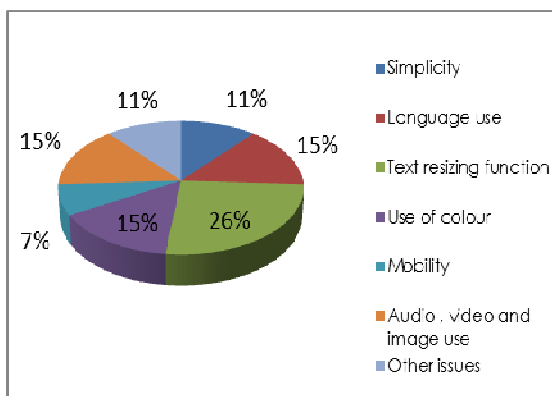


Figure 4: Summary of Application's Design based on User Feedback

**Simplicity.** Mobile spiritual applications for the older people should apply the concept of simplicity. Mobile application developers in general should consider cognitive, behavior and physical impairment faced by older adult generation in developing apps for them. Try to simplify the user interfaces including the number of button provided in the interface, minimize number of functions into the most usable functions and integrate several mobile spiritual application categories in only one application with only single click to open it.

**Language use.** The Malay older adults' community in the study is seen as proudly trying to keep the Malay language as their dominant language even in mobile applications. Majority of the participant urge the use of Malay language in all the mobile applications that were introduced to them for better understanding of the apps content. Despite of the overwhelming mobile spiritual applications in the market that uses English as the medium; the older adult users still prefers mobile applications that use their native language.

**Text resizing function.** According to literature review in gerontology study, it is stated that older adults are suffering from vision impairment especially when reading. In order to complement their sensory disability, the application designers have to consider of implementing text size increasing function. This function apparently helps to boost older adults' confidence level when using

the mobile applications. On the other hand, it helps older users from suffering runny eyes when they looked at the mobile phone screen for too long.

**Use of colour.** Mobile application interfaces for the elderly should in general contain colored text or colored graphics especially to display relevant information. The use of color could in other hand guide older adults physical (eye) and cognitive motor to highlight the important information in the application. Besides, it could give an attraction to older adults to prolong their enthusiasm in using the mobile application. As stated by the participant in the study, colorful text makes them happy to use the application for quite a long time as it gives sense of aesthetic.

**Mobility.** Mobile technology is without a doubt, offers mobility aspects that attract older adult to use its applications. According to several interviewees, they kept mobile phones all day long with them for the purpose of communication with their children or friends and at the same time whenever they need to engage with spiritual activities they can just open the mobile phones and recite the Quran immediately. It is simple, fast and easy when using mobile applications as they do not need to follow certain procedures such as to perform ablution before reciting the Quran, hence, they can recite the Quran whenever on plane, in the car and everywhere.

**Audio, video and image use.** The "look and feel" of the applications helps to encourage older adults to experience the applications. Aesthetical and graphical aspects should be carefully considered when designing for spiritual applications. At a first glance, user interface of the applications do attract older users to use the applications, so, it is very important to consider how the interface can fulfill their sensorial abilities. For instance, the use of audio and video where applicable in the applications must be given a more comprehension on the subject matter. Simple image and not too embellished can also be used to avoid plainness of the applications.

**Other issues.** Since older people are not born in the era of technology, therefore, through the study clearly reveals some side issues affecting the degree of smoothness of the older people in the use of mobile technology. One of the problems raised by the elderly is caused by a function on the mobile phone as the screen is too sensitive and cause a shift of the interface that is being read to other pages. Another issue is the presence of free ads that pop out suddenly when seniors are using an



application causes the older people to feel stuffy and disturbed. However, there are also older adult users who expressed their satisfaction in using mobile applications for instance the bright screen illumination which facilitates the older people to see clearly the applications content at any time.

## 5. CONCLUSIONS

In this paper, the researchers described the purpose of this study; which is to investigate the design elements and the older adult user's experiences in using mobile spiritual applications. Obviously, older adults are often the neglected generation in many application developments, but they are the only increasing age group worldwide. Older adult users are actually do not possess much interest in the brand and the sophistication of the design like youngsters do, but rather interested in using mobile phones that can deliver real value services for them. In the Malaysian culture for instance, there was a clear consensus among the interviewees that older adults living in their old age will dedicate their old age with as many spiritual activities for the preparation of their afterlife. The uses of mobile phones equipped with applications that can assist them in daily spiritual activities are most-welcomed. From this study, the researchers have identified several issues that need to be taken into account when designing mobile spiritual applications for older adult users. Therefore, in the next project, the researcher planned to develop a mobile spiritual application for older adults considering all the design elements that have been discussed earlier. This application will work as mobile ibadah kit for older adult users in future.

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