A Study of Users' Perceptions Toward Mobile Dua and Zikr For Hajj (MDZ4H) Usability

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Hajj consists of several rituals which require the pilgrims to recite specific dua and zikr for each of them. Since there are so many dua and zikr involved, pilgrims who are not well versed in Arabic have difficulties to memorize them. They require a tool which is portable that can help them to recite the dua and zikr easily and conveniently. This paper introduces the Mobile Dua and Zikr for Hajj (MDZ4H), an Android application to help pilgrims to recite the dua and zikr while performing all the Hajj rituals. Android platform has been chosen due to the dramatic increased in the Android mobile phone users worldwide. This paper discusses the development process and also evaluation of MDZ4H among sample of users. In developing the application, all the required Dua and Zikr were gathered, compiled and verified before the application could be developed using J2ME. The application displays the Arabic text, the translation in Malay and also the Arabic audio files of the dua and zikr. The application has been evaluated among users and experts and the results indicated that the application fulfills the functional and non-functional requirements of the developers. The users were also satisfied with the interface of the application and rated highly the application in terms of Usability, Ease of Use, and Outcome and Future Use. It is hoped that the developed application could be made available in order to help Hajj pilgrims to easily and conveniently recite the Dua and Zikr towards achieving Hajj Mabrur.

Keywords- Mobile phone; MDZ4H; Android; Usability; Hajj; Dua and Zikr; Arabic Language

I. INTRODUCTION

Hajj (pilgrimage) is the fifth pillar of Islam that must be carried out at least once in a lifetime by every able bodied Muslim. It is the largest annual convention of faith in the world that requires travelling to Makkah. Hajj is performed based on predetermined dates, times, and places. It is a demonstration of the solidarity of the Muslims and their submission to Allah. Hajj is an important event in every Muslims’ life, which offers religious, educational, scientific, social, economical, political and other benefits that are rewarded by Allah to Muslims [1, 2]. Over three millions out of 1.5 billion Muslims around the world performed Hajj annually and the number increases yearly [3, 4, 5]. Annually, Kingdom of Saudi Arabia allows each Muslims’ country to send only 1% of the population for Hajj [4]. However, countries such as Malaysia [6] keep trying to increase the Hajj quota (pilgrims’ number), but always fail [7]. In addition, the number of Umrah pilgrims reached 5.4 million in 2012 [8].

Hajj literally means to resolve for visiting a sacred place. However, technically it means to visit a sacred place for performing certain acts of worship (Ibadah). In Islam, the term Hajj implies to visit the Kaabah for the sake of performing a particular kind of Ibadah that Allah (SWT) has made an obligation for those Muslims who fulfill certain conditions stipulated by him [9]. The cubical edifice that is known as Kaabah is situated in Makkah at the site of a house that Ibrahim (May Allah grant him peace) had built by the command of Allah (SWT) to worship Him. Allah (SWT) revealed in the Qur’an in the following verse about his sacred House:

The first house ever set up for mankind was indeed at Bakkah a blessed place, and guidance aula all the worlds, wherein an- clear signs, the place where Ibrahim stood, and whosoever enters it, finds peace...”. (Al-i-’Imran 3:96, 97) [10].

Ibn Kathir [11] wrote in his Tafsir that it is the first house that was built in the blessed place of Makkah for performing the Manasik of Ibadah to Allah (SWT), for doing Tawaf around it, for establishing Solat and for staying in i’Itkaf in it. Allah (SWT) revealed in the Qur’an:

“And Hajj to the Home (the Kaabah) is a Duty that mankind owes to Allah, for those who can afford the Sabil (means), and whoever disbeliefes (denies Hajj). Then Allah is not in need of the worlds (of mankind and jinn and all that exists)”. (Al-i-’Imran 3: 97) [10].

Hajj involves several rituals which among others include Ihram, Tawaf, Saie, staying in Mina, staying in Muzdalifah, Wuqaf, and stoning of the Jamarat and etc[12]. All these rituals are accompanied with duas that have to be recited by the pilgrims. Since there are so many duas, it is impossible for the pilgrim to memorize all of them [2, 13]. Thus, several methods have been introduced to help the pilgrims to recite the duas while performing the rituals of Hajj. Among others include
book, booklet, pamphlet, and etc. These are the most popular methods that have been widely used. Electronic gadgets have also been developed to cater for this, for example Hajj Player. It is a portable device like an MP3 Player containing only audio of dua and zikr for Hajj [14].

Today, mobile technology is applied in a wide range of our daily activities [15]. It is rare to get a person who does not have a cell phone [16]. In addition, the mobile devices are regarded as very flexible devices because they are easy to handle and to be used everywhere by the users [17]. Mobile phones have become powerful useful devices [18]. Statistical studies show that around the world there are more than 3.3 billion mobile connections, and the number is increasing daily [15]. By employing the mobile applications, different interests can be gained in various domains such as health [19], tourism [20], education [21], transportation [22], logistics [23], disaster [24], and management activities as well as monitoring projects [25-31]. Since mobile applications support the requirements of various users, it is essential that the mobile applications are useful as well as usable in order to be successful [15]. In the same context, usability of any product is crucial to ensure that the product is useful [32]. Mobile applications which are able to enhance knowledge and taking full advantage of improved capabilities are still limited and that include applications related to dua and zikr for Hajj [13].

This paper focuses on the development and evaluation of the MDZ4H in helping pilgrims to recite the supplications of Hajj rituals (dua and zikr). Believing that Allah SWT needs no specific language to understand the believers' supplications, all the texts and audios for the dua and zikr were in Arabic. This is because the Muslims want to follow what has been done by Prophet Muhammad SAW. Since this study has been conducted in Universiti Utara Malaysia, the translations of the supplications are in Malay. In addition, MDZ4H was developed to work on Android and ios platforms, since the development language is Java and both platforms have the Java Virtual Machine.

After a brief introduction on the importance of Hajj and the problems faced by the pilgrims while performing the rituals, we review some of the current approaches which have been developed to facilitate those problems. The rest of this paper is organized as follows; section II explains the problems faced by the non-native Muslims concerning Arabic language and the limitations of the current approaches used in the recitation of dua and zikr for Hajj. In addition, the mobile penetration issues were presented in this section too. Section III reviews some of the related studies in the field, section IV explains and reviews the proposed application. The methods used in the MDZ4H evaluation process were described in section V, while the results for the MDZ4H evaluation were presented in section VI. Finally, the conclusion was discussed in section VII.

II. PROBLEMS AND ISSUES

A. Arabic Language and Non-Native Muslims

Since Arabic is the Quran’s language, Muslims need the Arabic language to understand the commandments and the doctrines of Islam. Many approaches and methods of teaching and learning Arabic language such as grammar-translation, reading, and memorization were utilized to ensure that Islam is understood well by new Muslims [33]. Regrettably, those approaches resulted in neglecting of some skills in the Arabic language [34].

Non-Arabic Muslims face a lot of awkardness in applying the Arabic language rules in the language tasks (speaking, spelling, writing, and reading) [35]. Some countries such as Malaysia integrated the grammar with orthographic and morphology systems in the Arabic language curriculums. As a result, the students could not read the Arabic text correctly without morphology [36]. Beside that, they cannot write their spoken expressions without orthographic mistakes [37]. Furthermore, non-native Arabic speakers face difficulties in writing and pronouncing some Arabic characters such as Hamza, Elgin, ha “خ”, eye, Z “ض” and Ù “ط”. They also have awkwardness in differentiating and identifying the similar forms of letters such as (c “ق”, h “خ”, x “خ”). Even though it is hard, Muslims are required to use the Arabic language in their prayer (Solat) and also while performing the Hajj. While memorizing is necessary in prayer (Solat), reciting the supplications for Hajj can be simplified by using some form of tools.

B. The Crowded Environment and The Current Approaches

Every year over three million [3] Muslims come to Makkah to perform the Hajj and 5.4 million for Umrah [8]. Islamic communities in countries such as Malaysia and Indonesia conduct a month of training on ways to perform the hajj rituals. Hajj pilgrims need to know and memorize the important prayers that need to be recited in every rituals such as in Tawaf [38]. Normally, the dua and zikr are available in the form of books, booklets, leaflets, and even pages. Some of the dua and zikr are grouped together as a book while some are separated based on the rituals to be performed. Even though these approaches have been the most popular and widely used approaches, there are some limitations to them. Among the limitations include difficulty to find pages of the required dua and zikr especially while performing ritual such as Tawaf which involve large crowd. Some of the pilgrims are not able to read Arabic thus they are not able to recite the dua and zikr properly. When performing Tawaf and Saie, difficulty arises when identifying the exact number of rounds. On top of that, most of the approaches do not provide detail step-by-step recitation of the dua and zikr.

Electronic gadget has been developed to cater for this, for example Hajj Player. It is a portable device like an MP3 Player containing only the audio of the dua and zikr [14]. The user is still required to refer to a booklet for the Arabic and translation texts of the dua and zikr. By using this player, the pilgrim has to carry the player as well as the booklet. This does not really help the pilgrim especially while in a large crowd. Thus, mobile phone has been considered as a practical choice for developing the MDZ4H application.

C. The Mobile Penetration

In 2013, the number of mobile subscriptions around the world has reached 6.8 billion and more than the half of this number is in the Asia-Pacific region with 3.5 billion subscriptions [39]. The global mobile phone penetration rate has reached 96% with 128% in developed countries and 89% in
developing countries [40]. Meanwhile, in 2013, the number of mobile phone subscribers in Malaysia is expected to reach 41.9 million with a mobile penetration of 132.9% [41].

III. RELATED WORK AND PREVIOUS STUDIES

In previous studies, several tools and devices have been developed to facilitate the pilgrims in performing the Hajj. Researchers from the Electrical Engineering and Information Technology Department of Gadjah Mada University in Indonesia have developed a web-based Hajj Simulation software. It is an interactive application to enhance the Hajj performance’s usefulness by delivering a new media in the education of Hajj for pilgrims. Their study indicated that although benefits could be gained from their work but there would be an increased in the management system of Hajj organizing process. The cost of organizing Hajj would be reduced and the surplus cost will be used to support other training activities [42]. The application has been published on the internet and it is accessible to all pilgrims. Figure 1 shows some snapshots of Web-Based Hajj Simulation Software.

Meanwhile, researchers at the Universiti Utara Malaysia have developed V-Hajj, a courseware for learning to perform Hajj, Umrah, and Ziarah. V-Hajj encompasses all the requirements, steps, and procedures in performing Hajj and Umrah. It incorporates interactive multimedia and virtual environments which enable users to learn and understand the Hajj and Umrah procedures step-by-step as well as participate in 3D environments in enhancing user experience in performing the Tawaf, Sa’ie and stoning of the Jamarat [43]. The snapshots of the courseware are shown in Figure 2.

A research on developing a comprehensive module for Hajj has been conducted by Hameed [44]. He proposed a comprehensive Hajj model which consists of three components; Hajj database module, Hajj educational module, and Hajj emergency and guidance module. This comprehensive solution offers religious, educational, scientific, social, economical, political and other benefits for Muslims. Beside that, an architecture for a Web service-based Hajj Information System has been proposed by Harmain and friends [45]. The implementation of this system provides background knowledge about Hajj and its environments to most of the pilgrims. The system also helps on updating the latest information on Hajj and guiding people during the Hajj season.

IV. THE PROPOSED SYSTEM

The MDZ4H system is divided into several sections. Logo Screen is the first screen (splash screen) of the application (see Figure 3(A)). It shows the system name and logo with background sound. This screen is displayed in a few seconds only, and then it automatically disappears to show the main menu (Figure 3(B)). It allows users to navigate the MDZ4H by clicking on the required dua to be displayed. The user can only exit from the system through the main menu. The third screen is the Information screen (Figure 3(C)). This screen contains information and instructions, which are expected by the users. It informs users about the time and place where the dua is most acceptable (mustajab).

There are three buttons at the bottom of each screen, which allow users to navigate the system and go through the system screens. The user can proceed to the next screen by clicking the forward button or return to the previous screen by clicking the back button. The user can also go to the main menu by clicking the home button. The last screen contains dua in Arabic with Malay translation at the bottom plus audio of the
dual recitation (Figure 3(D)). The user can play or pause the audio at any time by clicking the speaker icon on the top of the screen. The back, home, and forward buttons are also provided in this screen.

V. EVALUATION METHODS

After the MDZ4H has been developed, it was evaluated by the experts and users. The purposes of the evaluations are to validate the contents and user interfaces of the MDZ4H as well as to measure the Ease of Use, Usefulness, and Outcome / Future Use of the application among users. Three types of evaluation have been conducted as discussed in the following sub-sections.

A. The Contents Validation

The contents have been validated by a qualified Hajj trainer of the Lembara Tabung Haji of Malaysia who is also a lecturer at the Islamic Studies department of Universiti Utara Malaysia. The process involved checking the dua and zikr of the Arabic text, the Malay translation as well as the recitation audios in Arabic in order to ensure that they are correct and valid.

B. Expert Evaluation

The MDZ4H application has also been evaluated by six lecturers from the School of Computing and School of Multimedia Technology and Communication of Universiti Utara Malaysia. All of them have already performed Hajj and Umrah. They were asked to use the MDZ4H and later answered the user interface satisfaction questionnaire. The questionnaire which was adapted from Chin and friends [23] comprised of measurements which include: system capabilities, learning, screen, terminology, system information, and overall reaction to the application. A 6-point Likert scale anchored by "Very Unsatisfied" (1) through "Very Satisfied" (6) was used.

C. User Evaluation

The application has been installed in 30 Smartphone of 30 respondents. 15 of the respondents have been to Makkah to perform Hajj or Umrah and the other 15 have not. User evaluation was conducted using a set of questionnaire among 30 respondents [46,47]. The questionnaire involved measurements such as Ease of Use, Usefulness, and Outcome / Future Use. The questionnaire were adapted from Davis [48] and Lewis [49]. A 5-point Likert scale anchored by "Strongly Disagree" (1) through "Strongly Agree" (5) was used.

VI. RESULTS

A. Expert Evaluation results

Having collected the data from experts, results are detailed in Table I. For the Overall Reactions toward the use of MDZ4H, the results indicated that the MDZ4H is wonderful (5.33), easy (5.50), satisfying (5.33), adequate (5.00), stimulating (4.33), and flexible (4.67). Similarly for Screen dimension, the results for reading characters on the screen (5.33), organization of information (5.17) and sequence of screens (4.83) are all high, which indicate that the MDZ4H screens are very clear. For Terminology and System Information dimension, the results for use of terms throughout system (5.33) and position of messages on screen (5.17) are consistently high. It is similar with Learning dimension. Particularly the results for learning to operate the system (5.67), exploring new features by trial and error (5.50), and remembering names and use of commands (5.50) are easy, while performing tasks is always straightforward (5.50). Finally, System Capabilities dimension is also good, with system speed (5.17), system reliability (5.50), and system tends to quiet (5.00) are all high.

TABLE I. DESCRIPTIVE STATISTICS FOR ALL ITEMS IN QUESTIONNAIRE FOR USER INTERFACE SATISFACTION

<table>
<thead>
<tr>
<th>Item</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERALL REACTION TO THE SOFTWARE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDZ4H is wonderful</td>
<td>4.00</td>
<td>6.00</td>
<td>5.333</td>
<td>.81650</td>
</tr>
<tr>
<td>MDZ4H is easy</td>
<td>4.00</td>
<td>6.00</td>
<td>5.500</td>
<td>.83666</td>
</tr>
<tr>
<td>MDZ4H is satisfying</td>
<td>5.00</td>
<td>6.00</td>
<td>5.333</td>
<td>.51640</td>
</tr>
<tr>
<td>MDZ4H is adequate</td>
<td>4.00</td>
<td>6.00</td>
<td>5.000</td>
<td>.63246</td>
</tr>
<tr>
<td>MDZ4H is stimulating</td>
<td>3.00</td>
<td>5.00</td>
<td>4.333</td>
<td>.81650</td>
</tr>
<tr>
<td>MDZ4H is flexible</td>
<td>4.00</td>
<td>5.00</td>
<td>4.666</td>
<td>.51640</td>
</tr>
<tr>
<td>SCREEN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading characters on the screen</td>
<td>4.00</td>
<td>6.00</td>
<td>5.333</td>
<td>.81650</td>
</tr>
<tr>
<td>Organization of information</td>
<td>4.00</td>
<td>6.00</td>
<td>5.167</td>
<td>.75277</td>
</tr>
<tr>
<td>Sequence of screens</td>
<td>4.00</td>
<td>6.00</td>
<td>4.833</td>
<td>.75277</td>
</tr>
<tr>
<td>TERMINOLOGY AND SYSTEM INFORMATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of terms throughout system</td>
<td>4.00</td>
<td>6.00</td>
<td>5.333</td>
<td>.81650</td>
</tr>
<tr>
<td>Position of messages on screen</td>
<td>4.00</td>
<td>6.00</td>
<td>5.167</td>
<td>.75277</td>
</tr>
<tr>
<td>LEARNING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning to operate the system</td>
<td>5.00</td>
<td>6.00</td>
<td>5.666</td>
<td>.51640</td>
</tr>
<tr>
<td>Exploring new features by trial and error</td>
<td>5.00</td>
<td>6.00</td>
<td>5.500</td>
<td>.54772</td>
</tr>
<tr>
<td>Remembering names and use of commands</td>
<td>5.00</td>
<td>6.00</td>
<td>5.500</td>
<td>.54772</td>
</tr>
<tr>
<td>Performing tasks is straightforward</td>
<td>5.00</td>
<td>6.00</td>
<td>5.500</td>
<td>.54772</td>
</tr>
<tr>
<td>SYSTEM CAPABILITIES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System speed</td>
<td>4.00</td>
<td>6.00</td>
<td>5.167</td>
<td>.98319</td>
</tr>
<tr>
<td>System reliability</td>
<td>4.00</td>
<td>6.00</td>
<td>5.500</td>
<td>.83666</td>
</tr>
<tr>
<td>System tends to be quiet</td>
<td>4.00</td>
<td>6.00</td>
<td>5.000</td>
<td>.70711</td>
</tr>
<tr>
<td>Designed for all levels of users</td>
<td>4.00</td>
<td>6.00</td>
<td>4.666</td>
<td>.81650</td>
</tr>
</tbody>
</table>

B. User Evaluation results

There are three dimensions in the questionnaire, which are Ease of Use, Usefulness, and Outcome / Future Use. The data collected from the respondents were analyzed using descriptive statistics. The mean values for all dimensions are shown in Table II, which indicated that all dimensions are above 4. This means that the respondents have highly rated the MDZ4H in terms of Ease of Use, Usefulness, and Outcome / Future Use.

Further, Table III shows the descriptive statistics for all items. The minimum mean value for item is found in item "Using MDZ4H would improve my performance in reciting the dua and zikr for Hajj" (4.30), while the maximum mean value is for item "I would find MDZ4H easy to use" (4.57).

TABLE II. USER FEEDBACK

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usefulness</td>
<td>4.4080</td>
</tr>
<tr>
<td>Ease of Use</td>
<td>4.4467</td>
</tr>
<tr>
<td>Outcome / Future Use</td>
<td>4.4833</td>
</tr>
</tbody>
</table>
C. Comparing groups of users

The users were divided into two groups; those who have been to Makkah to perform Hajj or Umrah (experienced) and those who have not been to Makkah to perform Hajj or Umrah (inexperienced). The independent sample t-Test has been used to compare the mean values between the two groups. The significant value of the t-Test should be less than 0.05 to indicate a significant difference between the mean values of the two groups [50]. Based on Table IV, the results of the t-Test indicated that there are significant differences in means between the experienced and inexperienced users for all dimensions (Ease of Use, Usefulness, and Outcome / Future Use).

The inexperienced users have higher mean values for all the dimensions compared to the experienced users. This probably because the experienced users have been to Makkah and performed the Hajj or Umrah, so they have the experience of using other approaches such as books, booklets, and Hajj player to assist them to recite the dua and zikr. In contrast, the inexperienced users have never been exposed to any of the previously mentioned approaches, which explains the higher mean values for all the dimensions compared to the expert users.

VII. CONCLUSION

The development and evaluation of the MDZ4H has been elaborated in this paper. The application has been developed to help pilgrims to recite all the dua and zikr while performing Hajj. It is perceived useful by the users as it is capable of helping them to make their dua and zikr recitation easier regardless of their competency in reading the dua and zikr in Arabic. This application is not intended to replace the existing approaches of reciting the dua and zikr, instead to complement them through the utilization of smartphone technology.

The application has been evaluated and the results indicated that the users highly rated the application in terms of Ease of Use, Usefulness, and Outcome / Future Use. Besides that, the results also indicated that there were significant differences between the experienced and inexperienced users where the inexperienced users have higher mean values in terms of Ease of Use, Usefulness, and Outcome / Future Use.

Hence, it is hoped that the findings of this study will encourage more researchers to involve in finding new ways and methods to improve and help Hajj pilgrims to perform the rituals easily and conveniently. It is also hoped that Hajj agencies of any country would be interested to incorporate MDZ4H into their existing services in order to improve and enhance the pilgrims’ Hajj performance. Finally, the authors hoped that one day MDZ4H is widely used by all the Hajj pilgrims in helping them to achieve Hajj mabarr.

REFERENCES
