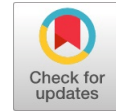# Determining Areas of Improvement in Quranic Arabic Vocabulary Learning Mobile Applications through Analysis of App User Reviews

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Abstract— Muslims constitute roughly around one fifth of the world population, the majority of which are not Arabic speakers. This poses a problem for them in their devotional activities such as performing the five obligatory daily prayers and reading the Holy Qur'an because they could not understand what they are reciting or reading. Added to this, Muslim adults who are busy working usually find it hard to find the time to attend Quranic Arabic classes. In order to rectify this problem, some mobile app developers have created apps with the objective of teaching Muslims Quranic Arabic vocabulary items so that they could begin to learn and understand Quranic Arabic. In March 2019, there are about eleven Quranic Arabic vocabulary teaching mobile applications which could be downloaded from Google Play Store. These apps come with differing features and are of varying quality. This exploratory qualitative study aims to analyze the user reviews of these apps in order to determine areas where they can be further improved by the developers. The findings of this research found that generally developers should concentrate on three areas of improvement; their applications' content, technical capability, and pricing strategy. It is hoped that the findings from this study can be used by Quranic Arabic vocabulary mobile app developers to further improve their apps so that the Muslim public can benefit more from them.

Keywords: Mobile Assisted Language Learning, Quranic Arabic, User Reviews, Vocabulary Learning.

I. INTRODUCTION

The majority of Muslims in the world today are not native speakers of Arabic. This is understandable because Arabs only constitute less than 20 percent of the total Muslim population in the world (PewResearch, 2017). Out of the 80% or so Muslims who are non-native Arabic speakers, only a small percentage of them had the opportunity or the inclination to learn Arabic in the primary, secondary, or tertiary schooling years. As these Muslims become adults and started their working lives to earn their livelihoods, usually the learning of Arabic no longer becomes such an

important consideration in their lives. However, as these adults got older and started to approach their middle ages, many of them would become more pious and would start to make preparations for the afterlife. This is usually when they would be searching for ways to improve their devotional activities such as the performance of the obligatory Salaah, the recitation and understanding of the Holy Qur'an, and the recitation of zikr and supplications. Due to their lack of understanding of Qur'anic Arabic vocabulary, they would feel lacking in these devotional activities because they could not understand some or many of the Qur'anic verses that they are reciting.

Furthermore, the Holy Qur'an is written in precise language and without knowing the meaning of a particular word in the Qur'an which is used in a particular context, the Muslim adult could not truly appreciate the Holy Qur'an in terms of its language. Muslims are also encouraged to read the Holy Qur'an every day. The daily reading would be more meaningful and enjoyable if the Muslim adult knows the meaning of what he/she is reading. Added to this, for the more studious Muslim adults, knowing Quranic Arabic might be the first step for them in their path to learn Islamic religious knowledge from books written by Islamic scholars of the past. Not knowing Quranic Arabic, the Muslim adults who want to delve into Islamic scholarship will have a very difficult journey ahead. And the first step in understanding the Arabic of the Quran is by learning the vocabulary of the Quran.

For these Muslim adults who are becoming interested and motivated to learn Qur'anic Arabic, many of them do not have the time, the energy, or the financial means to go to Qur'anic Arabic classes. In today's world, working takes a huge chunk of time out of a person. Office workers for example would go out of their houses early in the morning and would only come back in the evening or at night. This leaves them with little time to do other things during the week days. After five or six days of work, they would usually prefer to spend their week-end time relaxing or spending time with their family rather than attending classes. Similarly, for older adults who are in their 50s and above, whose energy levels are not as high as when they were in their prime, going to classes after a full day of work would be a tiring endeavor and many would not choose to do so.

Even if these adults have the time and the energy to go to classes, financial constraints might discourage or stop them from attending the classes

In our current world of ubiquitous smartphones, some app developers have made the effort to rectify this problem by introducing apps to educate the masses of lay Muslims on the Arabic vocabulary of the Qur'an. However, unlike the plethora of apps which are available for the study of English vocabulary and the numerous research in this field (Wu, 2015; Ahmad, Armarego & Sudweeks, 2017; Deng & Trainin, 2015; Mindog, 2016; Wang, 2017; Zou, Yan, Li, 2018), there are not many apps currently available for the study of Quranic Arabic. Furthermore, to the best of our knowledge, empirical research within this area is almost nonexistent.

In March 2019, there are about eleven Quranic Arabic vocabulary teaching mobile applications which could be downloaded from Google Play Store. These apps come with differing features and are of varying quality.

II. OBJECTIVES

This exploratory qualitative study aims to analyze the user reviews of these apps in order to determine areas where they can be further improved by the developers. It is hoped that the findings from this study can be used by Quranic Arabic vocabulary mobile app developers to further improve their apps so that the Muslim public can benefit more from them.

III. METHODOLOGY

This study employed a qualitative approach to its data collection methodology. Our search on Google Play Store with the keywords "Quranic Arabic" and "Understanding Arabic" listed about 300 applications. However, after reading the product description page of each application, we narrowed down the number of applications to only eleven. These small number of applications listed in the table below are the only ones that satisfy the requirements of being 'Quranic Arabic vocabulary mobile applications'. Once we had the list of applications to be studied, we analyzed the 'product description' page of each application on Google Play store which listed the user reviews of the application. We extracted user reviews with ratings of 1, 2, and 3 in order to find out the dissatisfactions of users on that particular application. We did not take user reviews with ratings of 4 or 5 because these reviews almost always depict only positive sentiments towards the application (Liu, 2015). The extracted user reviews were tabulated into an excel file and later were analyzed. Table 1 displayed in the next column lists the analyzed the Quranic Arabic applications and the number of reviews they received based on a 5-star rating.

Table 1: List of Quranic Arabic Vocabulary Mobile Applications in Google Play Store with Number of Reviews

App	App Name	No of Reviews	5*	4*	3*	2*	1*
A1	Quranic: Learn Quran and Arabic	297	261	20	8	2	6
A2	Learn Quran – Arabic Learning App	1272	1120	113	27	4	8
A3	Learn Arabic Quran Words	765	615	97	25	6	22
A4	e-iqra - Quranic Arabic	103	79	7	4	3	10
A5	Quranic Words	126	106	8	9	1	2
A6	Learn Quran & Arabic Grammar	18	14	0	1	1	2
A7	Quran Coach Vocabulary	53	38	8	4	0	3
A8	Quran Progress-Learn and Understand the Quran	945	723	178	29	3	12
A9	Learn Quran Vocabulary Gold	45	31	4	4	0	6
A10	AnalyzeQuran	248	226	18	3	1	0
A11	Learn Quran	337	268	29	12	9	19

IV. FINDINGS AND DISCUSSION

Table 2 below shows 'areas of improvement' categories found after analysis of the user reviews for all eleven apps. In general, the user reviews were categorized into four main categories which are content, technical problems, price, and not relevant. The findings of each category will be discussed below.

Table 2: Categories of Negative User Review Comments

App Code	No. of Reviews	No. and percentage of Negative reviews	Content	Technical Problem	Price	Not Relevant	Total
A1	297	16 (5%)	2	3	7	4	16
A2	1272	39 (3%)	7	15	13	4	39
A3	765	53 (7%)	15	27	0	11	53
A4	103	17 (17%)	0	16	0	1	17
A5	126	12 (10%)	9	2	0	1	12
A6	18	4 (22%)	0	3	0	1	4
A7	53	7 (13%)	0	7	0	0	7
A8	945	44 (5%)	10	9	20	5	44
A9	45	10 (22%)	1	8	0	1	10
A10	248	4 (2%)	3	0	0	1	4
A11	337	40 (12%)	5	16	16	3	40

Table 2 on the previous page shows that generally, all eleven Quranic Arabic vocabulary learning applications depicted above enjoy high ratings of 78% or more. The lowest percentage of negative reviews is only two percent out of the total number of reviews (A10) while the highest percentage of negative reviews was 22 percent (A6 and A9). However, there are still areas of improvement for these applications as suggested by the users in their reviews. Areas of improvement within the category of content include items like too little content, too advanced content, poor pedagogical approach, request for free trial, request for specific features to be incorporated, confusing content, no audio pronunciation of words, incorrect translation of words, and little or no instructions leading to navigation problems for users. The category of technical problems includes problems which could be improved upon by app developers such as bugs, display not working properly, frequent hanging and/or crashing of the app, slow loading of content or even failure to load (Banimahendra & Santoso, 2018).

The price factor includes users' complaints that the applications are too expensive or users' requests that the applications should be given free of charge. In the category not relevant are the comments of users which do not make sense, rants, praising the application highly but giving it only a rating of 1 or other reviews of that nature.

In terms of content improvement, 5 reviewers complained that app A1 has content which is too advanced for them. Therefore, A1 developers should consider adding content which cater to beginner Quranic Arabic vocabulary learners. Many reviewers also complained about the incorrect translations and mistakes in diacritic placement for Quranic Arabic words present in A3, A5, and A10 applications. Since these are serious matters to Muslims (Menacer, Arbaoui, & Arbaoui, 2013), developers should hasten to correct these mistakes in their applications.

For technical problems, the applications A7 and A9 were heavily criticized by reviewers due to their apps' frequent crashing and hanging. Out of the total 53 reviews it has gotten, there were 7 reviews which were in the category of 1 to 3-star rating. All the 7 reviews were about technical problems. This shows the importance for developers to ensure that their applications are free of technical problems and to continue to monitor their users' feedback and deal with technical problems immediately. Out of a total of 45 reviews, application A9 received 10 user reviews with a rating from 1 to 3-stars. From the 10 reviews, 8 were regarding technical problems, one for content, and one for not relevant. Similar to A7, the developer for A9 must ensure that these problems are dealt with in a timely manner.

In the matter of price, seven out of the eleven apps are provided free of charge so there were no complaints about their price. The other four applications (A1, A2, A8, and A11) which have to be bought or which users have to pay to unlock more content were criticized for charging money for their products. This complaint is a general complaint among all mobile application users and not only limited to Quranic Arabic mobile applications. In the first quarter of 2018, there were 3.8 million mobile applications available for download from Google Play Store (Statista, 2018). Because many of these applications can be downloaded for free, it seems that mobile application users have come to expect that every mobile application should be provided for free as well. Moreover, some Muslims have the opinion that a good Muslim should not charge a fee to teach Quran as this is like selling the religion for personal gains. This causes a dilemma for full-time application developers because they need money to sustain themselves and their work and they cannot fully concentrate on the development of their apps if they had to do other jobs for their sustenance. Therefore, they must be creative enough to carefully choose their monetizing methods for their mobile applications.

V. CONCLUSION

Through this study, negative user reviews for Quranic Arabic vocabulary applications were gathered and analyzed. The findings pointed to three areas of improvement which can be broadly categorized into content matters, technical problems, and price considerations. In order to reach a wider audience, the content of these applications must cater to learners from the basic to the advanced level. Furthermore, there should be a mechanism to determine the current knowledge/skill level of users so that they can be introduced to lessons at the right level. Perhaps a placement test should be administered to users the first time they open the application. Alternatively, the application could just ask users to choose the level they wanted to begin with. Technical problems such as slow loading, hanging, and crashing applications must be minimized as much as possible (Hwang & Fu, 2018) and as soon as possible. This is because once a user is frustrated and considered an application unusable due to technical problems, he or she would usually find other similar applications elsewhere. Even though solving technical problems is a difficult matter, considering that users access these applications using a variety of devices of varying power and capabilities, developers must strive to provide content that can be accessed by even 'weak' devices. Furthermore, developers must always test their applications on different devices before deployment to ensure that applications can be used by a large number of devices and gadgets without any problems. For pricing considerations, developers should be creative in adopting business models that could be used to not only sustain themselves financially but could also result in their customers only having to pay minimal fees to use their products.

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