

Using Gamification And Mobile Application For Scientific And Numeric Miracles In The Holy Quran

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Abstract: The Quran is the Holy Book that is a revelation from God to guide humanity. The Quran has many chapters and verses concerning science. This study aimed to show through a mobile application the miracle of the Quran to Muslims and non-Muslims by providing scientific facts and numerical analysis calculations. The motivation and engagement difficulties of students are present in higher education. Among many technologies to increase student motivation and participation, the gamification technique is the most suitable. Our experiment of using gamification in the learning process and based on the use of Agile methodology to obtain the best results and engagements from the students to build our mobile application using dual language (Arabic and English) to be more generic and beneficial. Applying Gamification in software engineering is not as straightforward as it may appear. Current research in the area has already recognized the possible use of Gamification in software development and mobile applications.

Keywords: Gamification, Agile methodology, Mobile application, Holy Quran.

1. INTRODUCTION

In the increasingly rapid technological development in this globalization era, especially in the field of information and communication technologies, provides a significant effect [1]. The Holy Quran is the holy book of Muslims, revealed in the classical Arabic language. The Quran contains infinitely more precise data that are directly related to facts discovered by modern science: these are what exercise a magnetic attraction for today's scientists [2]. Therefore, the Holy Quran is a miraculous book. It contains texts and descriptive words for natural phenomena. Recent scientific facts confirm that these descriptive words are accurate descriptions. Over the years, there has been growing interest of Islamic Knowledge by both Muslims and non-Muslims, especially the Quran. The Quran has been Muslims' main source of knowledge, wisdom, and law. Since the first revelation, the Holy Quran has remained among the most influential books that exist [5].

In this paper, we have proposed a mobile application that was initially divided into three sectors. The first sector is designed for scientific miracles, the second and third sectors are designed for numerical miracles. We are proud to be the first research group covering that area in the UAE and Oman that shows the whole world the actual miracle of the Quran in an easy way. In this paper, we have introduced gamification in education and linked it with Agile methodology to create our coursework experiment, which was applied to the final year project. The paper is structured as follows: Section two presents the methods that we have used, which were divided into two subsections; the first focuses on gamification in education. The second focus is on the Agile methodology that we have used in the project. Section three introduces data collection and analysis of the project. Section four focuses on the implementation of the application. Section five focuses on the results and discussion of the mobile application. Finally, section six presents the conclusion and suggestions for future studies

2. APPLICATION METHODS

We have integrated the Agile methodology with gamification in education to be fit with our project time plan and with the nature of dealing with students to increase their productivity and engagement by using gamification to evaluate the student progress and activity for each team member. We have used Agile methodology to divide our work and task priorities to be implemented.

A. Gamification in education strategy

The concept of gamification may be simple, but effectively gamifying a concept isn't. However, it can be simplified by following a five-step process as shown in Fig. 1. In the first step, we need to understand the Target Audience and the Context. Who is the target audience, and what is the context that surrounds the education program? A key factor that determines the success of an education program is a good understanding of who the student is. This, combined with the context in which the program is being delivered, will help in designing a program that empowers the student to achieve the objective of the program [4] [5].

While an analysis of the target audience will help you determine factors like age group, learning abilities, current skill set, etc., analyzing the context can provide you with details of the student group size, environment, sequencing of skills, and the time frame. For example, if the learning program is held right before lunch, students may lack focus due to hunger. If the course is a prerequisite to another course that the student is interested in, they may have more motivation to complete this prerequisite course [6] [7].



Fig. 1 Gamification steps process

B. Agile Methodology

In mobile software engineering, we have found that Agile methodology is appropriate for mobile application development [8].

Agility means having the capacity to move rapidly and effectively. Utilizing Agile methodologies in the software development process improvement makes the procedure sufficiently adaptable to adjust rapidly and effectively to the changing patterns and innovations.

In mobile software engineering, methodology is of extraordinary significance, since software applications are perpetually changing and developing quickly, given client requirements. The team concentrated on customer satisfaction using the advancement of a very well-designed application through methods of generation process.

Agile methodology was adopted. Projects were produced through an arrangement of emphases called "sprints." Projects are developed through a series of iterations called sprints. Each sprint was, in a perfect world, a pack of low-level SDLC forms where a little sub highlight is driven from thought origination, planning to testing stage, which took around two to four weeks to finish. Short meetings were held once a day to talk about the announcements of the group's sprint undertakings.

In our case, we propose weekly meetings. Post-print review meetings led to reporting the shortcomings and improvements. It has been found that the agile-scrum process is most appropriate for project development scenarios with highly emerging or quickly changing requirements, as in the case of mobile software development. Agile methodologies aim to improve the efficiency and quality of the final developments, having the ability to respond to changes and new definitions, and by providing the greatest possible satisfaction to the final user and continuous feedback [9]. Therefore, in contrast to traditional methodologies, Agile relies on incremental development with very short iterations, giving greater value to individual issues with high effectiveness in unclear and changeable environments. Agile development encompasses a broad set of principles and methodologies [6]

3. DATA COLLECTION AND ANALYSIS OF APPLICATION SYSTEM

This section includes three subsections that explain the data collection part and the challenge. After collecting data, we start the analysis process for our mobile application, and it is the final design. We took into consideration the target audience when we created our final design for the mobile application before starting the implementation part.

A. Data collection progress

The data collection for this project was the hardest part. This is because we need to check all the data we get. We have faced the problem that this type of data is available only in books and with only experienced people. We made a lot of visits to the library and met many qualified people.

In Appendix A, we have added the list of references and videos that we collected during our data collection process. The second challenge for us was not to acquire data on the net and some books when we checked them with the Quran. We have downloaded more than one application to check the count of the word in the Quran, especially in the numerical part. While in the scientific part, the challenge was to find the original scientific fact with acquired reference and link it to the Quranic scientific fact.

Appendix B shows that we based some old numerical calculations to convert the Arabic letters to numbers, and we also used them to analyze the relationship between surah sorting and chapter number in the Quran

B. Analysis of mobile application

Our progress in the project fits our time plan. We have used Agile methodology to divide our work and task priorities to be implemented. Furthermore, as I am a supervisor of the project and at the same time, I am the supervisor for the final year project for the team members, I have followed the concept of gamification to evaluate the students' progress and activity for each team member.

We have completed the project and integrated all sections together. Our project is appearing in two languages, Arabic and English, and it is a friendly user interface.

In this stage, I have asked the students to work individually in each sector, then the next stage will be the integration of the whole work and providing a mobile application.

C. Audient target

Our mobile application project is designed for non-Arabic Muslims and non-Muslim. We need to show the miracle in the Quran to them. We need to show the miracle in the Quran to them. We have a plan to add

more languages such as French, German, Hindi, and Japanese. Currently, we have added readable versions of the Quran in many languages, as shown in the screenshot in the implementation phase.

4. Implementation and Test of Application Acceptance

The list of images below shows a sample of screenshots of our application, which has more than 80 screens. It was perfect work for undergraduate students. Due to the limitation of paper size, we will include only the English language screens and the major screenshot. We will divide them into three parts. First, for the introduction part, and second, for the scientific metrical screen. The third part is for the numerical miracle

A. Introduction part of the application

This section includes the introduction of the application and shows that the application is in dual language and includes also the Holly Quarin in many languages as shown in Fig. 2



Fig. 2. Introduction part of the application

B. Scientific miracle part of the application

This section includes the scientific miracle of the application and shows that the application is in dual language, as shown in Fig. 3 and Fig 4



Fig. 3. Scientific miracle part of the application



Fig. 4. Scientific miracle part of the application

Furthermore, we have added a reference from the accrued reference and also some useful videos that prove the scientific fact that matches with the holy Quran as shown in Fig. 5

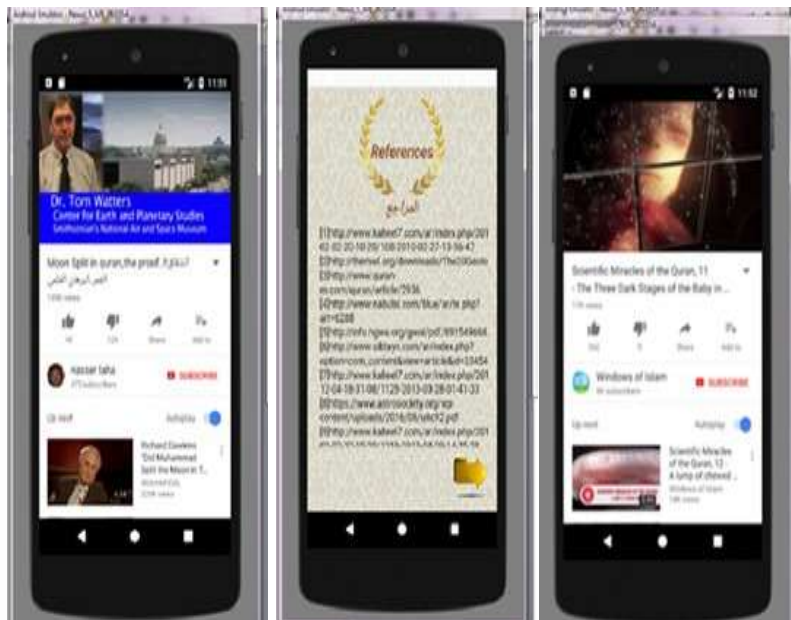


Fig. 5. Reference part of the application

C. Scientific miracle part of the application

This section includes the scientific miracle of the application and shows that the application is in dual language, as shown in Fig. 6 and Fig. 7 below

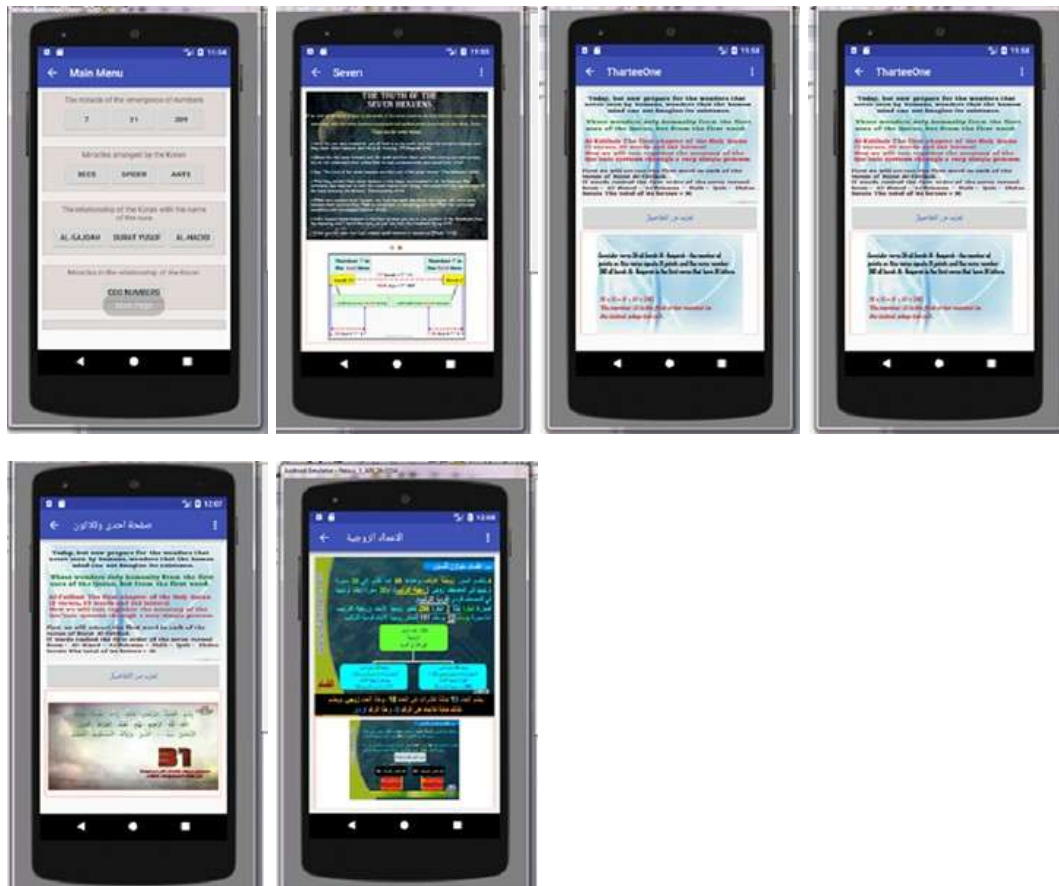


Fig. 6. Scientific miracle part of the application

5. RESULT AND DISCUSSION

Several research projects about gamification success in driving desired behavior already exist [10] [11] [12]. Gamification does not necessarily mean success. It also depends on the form of gamification integration, the used elements, and the target domain. By using Gamification Agile in our experiment, we have been able to increase students' engagement and motivation and increase the project quality. Finally, it gave us a good benchmark to evaluate the team individually and as a teamwork. The application was developed using important features from (Agile), technique from (gamification, software application by using (Android Studio). The Mobile industries need to adopt software development methodologies that provide a balance between market-oriented and technical activities to sustain in today's market.

It is conceivable to enhance the current experiment by augmenting the project and running it over a more extended period. Through this approach, the information could be analyzed cross-sectionally. This would, in turn, diminish the probability that the outcome was identified distinctively. A further augmentation to this would run the gamification in more than one group. Another area of research would be searching for a way to acquaint observers with a group in a convincing way. As talked about in the evaluation, the group profited from exact estimation of the venture, yet at the same time opposed observing to help them to accomplish exactness. In summary, education and gamification turned out to be good fits. Gamification helps to increase engagement in a fun way. The aim of this paper was not only to report on the outcomes of

the research project, but also to describe our experience with an approach for teaching and a learning method.

We face a big challenge with that project because we want to be sure that we are giving the correct information. The following shows the list of our project achievements:

- All applications in the world were dealing with only scientific miracles while our application focused on both scientific and numerical also which was really a big challenge and achievement
- The quality and the contents of the applications by creating more than 80 screens and adding many android features such as video, audio, animation was an excellent achievement for undergraduate students.
- Providing an application in dual language that duplicates the work for the team. We insist on providing it in English also to let our application be understandable for non-Muslim and non-Arabic Muslims also.

Integrating three parts of students' work and presenting one application with user user-friendly was a big challenge and took us a lot of time to combine three Android projects into one project.

- Collection accrued with data and searching for related scientific facts, and integrating with our project was also huge work for the team.
- Spending a lot of time doing analysis and calculations to provide two sections of numerical miracles in the holy Quran.
- The students' team starts to get involved in a very positive way and enjoy the gamification concept during their work and increase the competition between them.
- Provide the written copy of the Holy Quran in many languages (English, French, German, Korean, Spanish, Japanese, Russian, Hindi and Chinese)
- Provide an audio sound in Arabic and the translation in English.

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- ## Appendix A

Topics	References
The Seas not mixing with each other	https://www.youtube.com/watch?v=oUAQy14g0Qc
Splitting of the moon1	https://www.youtube.com/watch?v=eYiqImG7bB4
Splitting of the moon2	https://www.youtube.com/watch?v=Gvljl2TlsY4
The Three Dark Stages of the Baby in the Womb	https://www.youtube.com/watch?v=CykKJpaQSA8
The Function of Mountains	https://www.youtube.com/watch?v=61oM3-uL-PE
The Female Honey Bee	https://www.youtube.com/watch?v=s3DxEELxeSLk
Quran scientific miracles mosquito what above	https://www.youtube.com/watch?v=6Qz4QbSUPrY

Appendix B

Chapter	Book Name	Beginning Verse	End
1	Al-Fatiha	1	5
2	Al-Baqara	1	286
3	Al-Imran	1	200
4	Al-Nisa	1	176
5	Al-Maidah	1	120
6	Al-An'am	1	165
7	Al-Araf	1	131
8	Al-Ankabut	1	29
9	Al-Zumar	1	75
10	Al-Mumtahanah	1	60
11	Al-Hajj	1	22
12	Al-Ma'idah	1	120
13	Al-Baqara	1	286
14	Al-Nisa	1	176
15	Al-Maidah	1	120
16	Al-An'am	1	165
17	Al-Araf	1	131
18	Al-Hajj	1	22
19	Al-Ma'idah	1	120
20	Al-Baqara	1	286
21	Al-Nisa	1	176
22	Al-Maidah	1	120
23	Al-An'am	1	165
24	Al-Araf	1	131
25	Al-Hajj	1	22
26	Al-Ma'idah	1	120
27	Al-Baqara	1	286
28	Al-Nisa	1	176
29	Al-Maidah	1	120
30	Al-An'am	1	165
31	Al-Araf	1	131
32	Al-Hajj	1	22
33	Al-Ma'idah	1	120
34	Al-Baqara	1	286
35	Al-Nisa	1	176
36	Al-Maidah	1	120
37	Al-An'am	1	165
38	Al-Araf	1	131
39	Al-Hajj	1	22
40	Al-Ma'idah	1	120

طريقة حساب الجُمَّل

الف	حرف	الف	حرف	الف	حرف
العدد	العدد	العدد	العدد	العدد	العدد
1	أ	2	ب	3	ج
4	د	5	هـ	6	ز
7	ح	8	ط	9	ي
10	ك	11	ل	12	م
13	ن	14	س	15	ع
16	ف	17	ق	18	ش
19	ص	20	ض	21	ظ
22	غ	23	ف	24	ك
25	خ	26	د	27	ذ
28	ر	29	ز	30	س
31	ج	32	ح	33	ج
34	ب	35	ب	36	ب
37	أ	38	أ	39	أ
40	أ	41	أ	42	أ

أما الزئفلة في ليلة القدر وما أوردنا ما ليلة القدر
ليلة القدر هي من أشد نهاره تهول الملائكة والروح فيها
يأتون وهم من كل أمرئ صلاف **في حشر مطلع القدر**
عدد كلمات سورة القدر 30 كلمة بعد آياتها **قدرات القدر**
عدد أحرفها 114 حرف بعد سور القدر **القرآن الكريم**
وكلمة إله في الأية رقم 27 والروح أيها ليلة القدر
وكلمة القدر في السورة تكررت في آيات 10، 12، 15، 17، 27
وعدد جمعهم 12+10+15+27 = 64

إِن تَجِدِ الزَّيْفَةَ لَيَالِي الْقَدْرِ وَالْأَحْشَى
سورة القدر
سورة القدر
سورة القدر