Designing a Mobile Application Based on Gamification Method to Increase Muslims Reading Interest

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Abstract

This research was aimed to design mobile application based on gamification method as an effort to increase Muslims reading interest. This application is designed using a prototype method through several stages, namely determining the problem topic, designing the application as a solution to the problem, validating the application to the expert and ending with a test of the effectiveness of the application that has been designed. There are several features provided in the app's design including points, rewards, levels, badges, daily challenges, quests and leaderboards. All of the features available above are designed so that readers have direct communication with the app so that it becomes more interesting, it can even increase reading interest for users of this application. After an assessment of several users, overall stated that the gamification method with mobile app is very effective, interesting and also useful as a means of improving the reading and literacy of Muslims. The design of this application is a finding of digital technology creativity that has been successfully designed and can even be used, but this application still needs to be developed again so that it is more effective and innovative.

Keywords: *Gamification, mobile application, reading interest, Islamic literature*

Abstrak

Penelitian ini bertujuan untuk merancang metode gamifikasi (permainan) melalui aplikasi smartphone sebagai upaya meningkatkan minat membaca atau literasi umat Islam. Aplikasi ini dirancang menggunakan metode prototipe melalui beberapa tahapan yaitu menentukan topik permasalahan, merancang aplikasi sebagai solusi dari permasalahan, menvalidasi aplikasi kepada pakar dan diakhiri dengan uji efektifitas aplikasi yang telah dirancang. Terdapat beberapa fitur yang disediakan dalam rancangan aplikasi ini di antaranya fitur poin, hadiah, level, lencana, daily challenge, quest, dan leaderboard. Semua fitur yang tersedia di atas penulis rancang agar pembaca mempunyai komunikasi langsung dengan aplikasi sehingga menjadi lebih menarik, bahkan dapat meningkatkan minat membaca bagi

para pengguna aplikasi ini. Setelah diadakan penilaian kepada beberapa orang pengguna, secara keseluruhan menyatakan bahwa metode gamifikasi dengan aplikasi smartphone sangat efektif, menarik dan juga bermanfaat sebagai sarana dalam meningkatkan minat membaca dan literasi umat Islam. Desain aplikasi ini merupakan temuan kreatifitas teknologi digital yang telah berhasil penulis rancang dan bahkan dapat digunakan, namun aplikasi ini masih perlu dikembangkan lagi sehingga lebih efektif dan inovatif.

Kata Kunci: *Gamifikasi, aplikasi smartphone, minat membaca, literatur Islam*

Introduction

The development of technology in this increasingly advanced age requires the public to be able to obtain information easily and quickly. One of the technologies that is widely used by the public is smartphones, which are almost owned by everyone from children, teenagers to adults. But the widespread use of smartphones is certainly not separated from the positive impact and negative impact on users, especially for students. Information and communication technology in the form of smartphones also has a big part in terms of learning facilities. The Programme for International Student Assessment (PISA) is a survey to assess education levels in 72 countries around the world. PISA evaluates education levels by conducting tests on science, maths, reading, problem solving and financial literacy lessons. Based on PISA results in 2013, students in Indonesia ranked 71st. In 2016, Indonesia's ranking increased to 62 (OECD, 2018). Despite the increase, Indonesian students still have low levels of science, especially in the fields of science, mathematics and literature (Pellini, 2016).

One way to improve Indonesia's ranking in the eyes of the world is to increase students reading interest. However, reading interest in Indonesia is still relatively low, judging by its position, Indonesia is ranked 60th out of 61 countries observed in a study conducted by Central Connecticut State University in 2016 (Gewati, 2016). According to Daniel (2017), achievements and ability to understand student information are directly proportional to the frequency of reading. Such comprehension skills are commonly known as literacy. Amich (2018) stated that literacy can have broad effects such as improving individual quality, achievement, welfare and potentially eradicating poverty.

With advances in technology, smartphones are one of the electronic devices that are able to take time in Indonesian society, especially children and teenagers. The percentage of smartphone usage time in Indonesia reaches 91%. About 82% of that time is used to use mobile apps (Nguyen, 2017).

Gamification is a method that applies the design element of a game to non-gaming applications (Deterding et al., 2011; Zafirah et al., 2018). In its application, gamification is proven to increase user interest and motivation when doing an activity (Zichermann & Cunningham, 2011). Utilizing the high use of mobile applications, this scientific paper proposes the design of an application that applies gamification methods so as to make reading activities about Islamic literature more interesting. As a country with the largest Muslim population in the world, of course Islamic literacy programs are important to be applied so that knowledge about Islam can be understood by the community, especially the younger generation (Kasmar et al., 2019; Putra et al., 2020). Given that today, the Islamic literacy movement is still very minimal, of course it semantics the younger generation to try to present solutions through literacy programs that carry the concept of gamification. With this program, it is expected to motivate students and make reading Islamic literature as a productive habit so that it will create a generational civilization that understands the importance of Islamic literature.

Literature Review

Reading in Islam

Reading is the process of communication between the reader and the author using written language. In another sense, reading is a process done by readers to get a message that will be conveyed from the author through the media of words or written language (Hodgson, 2010; Engkizar et al., 2018). Islam is a religion that values science, while the key to science is reading and writing. As said by Allah SWT to the Prophet Muhammad SAW with the command to read. Namely Q.S. Al-Alaq 1-5.

Translation: "Recite in the name of your Lord who created, and created man from a clinging clot. Recite, and your Lord is the most generous. Who taught by the pen. Taught humanity what they knew not." (QS Al-Alaq: 1-5).

Muhammad Abduh gave a response about the interpretation of Q.S. Al-Alaq 1-5 as follows: *"Indeed, there is no better explanation and a more definitive proof of the virtues of reading, writing and knowledge than the fact that God has started his scriptures with these brilliant verses".* The verses read in Q.S. Al-Alaq 1-5 are sufficient evidence of how much attention Islam has in the fight against illiterates. The verse commands to read, because reading it is a ladder to science, knowledge and the path of glory. He is the all-knowing, the all-wise. This is intended so that people feel how important and noble reading is. Then he reminded him of the favors of knowledge. Thus, it can be equated between the favors of creation and the favors of science (Syaltut, 2006).

Literacy

Literacy is the ability to read and write. But in depth, the meaning of literacy is the ability to read, write, process information, and interpret information that a person receives both written and oral information (Wahyuningsih & Mustadi, 2018). According to Trelease (2013), it is necessary to instill the concept to the child that reading is a fun activity. In learning literacy, instruction and training are needed and time to develop literacy skills.

According to Lee (2014), there are six literacy indicators to measure a reader's ability. The six literacy indicators are described as follows:

First: decoding is the ability to voice a word that has never been read, but has never been heard. This ability has a vital role in the reading process because it is the basis of other reading abilities, Fluency of reading is the ability to recognize words quickly. A reader who is able to read quickly without making mistakes that are too much to say as a fluent or fluent reader.

Second: vocabulary, is an indicator to assess the ability to understand words that have been read. This ability can be developed through everyday conversation as well as reading. *Third*: sentence construction and cohesion, is the ability to

understand the context of a sentence. This indicator also measures the ability to understand the overall idea of a manuscript.

Fourth: reasoning and background knowledge, is an indicator to measure the ability to read implied meanings. This indicator also assesses the ability to connect general knowledge with the background of a read story to capture additional information referred to by the author. *Five*: working Memory is the ability to extract readable information. This ability allows the reader to build the science and knowledge of what has been read and *Six*: attention measures attraction and motivation in reading a text. Attention can be improved by choosing a reading with a theme that fits the theme that a reader is interested in.

Maryanne Maryanne Wolf (2008) states that a person's literacy rate develops gradually and discretely. Here are the five stages of student literacy:

First: pre-reader, this level is the initial level of literacy level development. Usually the pre-reader script level is intended for readers with an age range of six months to six years. Readers at this level improve literacy by listening to others read. *Second:* novice, readers at the novice level are learning the relationship of the written word by reading it. At this rate readers are usually aged six and seven years. *Third*: decoder, at the decoder level, readers are able to read independently as well as have a more developed vocabulary count (about 3000 different words). Readers at this level are 7-9 years old. *Fourth*: fluent, readers at this level have started using reading as a science enhancer technique. The age of readers who fall into this category is 9-15 years and *Five*: expert, the highest level of readership is expert where the reader is usually aged 16 years and over. At this stage, readers can understand more complex reading materials and can write detailed and coherent information.

Gamification

Understanding gamification according to Kapp (2012) is a method by using the basic mechanisms of gaming, aesthetics, and game thinking to invite users, motivate actions, improve learning and solve problems. The use of gamification

elements can provide a pleasant experience and change user behavior (Huotari & Hamari, 2012).

The gamification element used in the design of this application can be used as a free variable. These elements include: Points, used to take measurements and serve as a medium that measures the user's success rate. Rewards, every human being can be motivated to do an activity if they get a certain reward. Levels, be a benchmark for the level of user progress. Badges, emblem that the user has successfully reached a certain stage. Daily challenges, to complete it requires effort by the user. Described as a list of goals that users must meet or achieve. Quest, this element is determined by a clear, understandable and concise purpose. Virtual goods, an asset that is considered valuable to the user and leaderboard displays a comparison of user progress with other users. In the form of rank or list that shows the highest value of all users (Kim, 2015; Beck, Chitalia & Rai, 2019).

Based on the free variables mentioned, research-bound variables can be determined in the form of the level of user interest in using this application. In Marczewski's framework there are points that focused on individual intrinsic motivations. When a person performs activities with intrinsic motivation, the activity will be done with pleasure and carried out because it has a meaningful purpose (Marczewski, 2014). To foster intrinsic motivation is not an easy thing. However, it can be slowly grown by adding an element of fun in the form of rewards and achievements in the form of badges (Ritcher, 2015).

In the research conducted by Denny (2013) it was stated that the use of achievement elements in the form of badges in gamification can increase student involvement and active participation. Therefore, in the design of this application are added elements such as points, badges and rewards.

Methods

This section describes the stages of the method that researchers implement to design mobile applications. The stages of this research method consist of problem

and needs analysis, data collection, design app system, data analysis and conclusion drawing.

First: *problem and needs analysis*: the first step to do is to analyze the problems and needs in the scope of research. The lack of interest in reading Islamic literature is the main problem in this study. While the needs analysis in question is the analysis of the use of software and hardware, the type of reading and the age range as the scope of research. The software used is Corel Draw as an application designing application and Microsoft Word as a documentation tool, while the hardware used to implement the application will be a smartphone. The type of reading used in accordance with the scope of research is Muslim students with an age range of 7 to 18 years.

Second: *data collection techniques*: data collection techniques are carried out through the study of libraries. References used come from books, scientific journals and the internet with trusted sites. Data collection is carried out to review gamification methods and find quality reading sources. **Third:** *design system*: at this stage the gamification framework is used according to Andrzej Marczewski (A Simple Gamification Framework/Cheat Sheet, 2014) which can be seen in figure **1**.
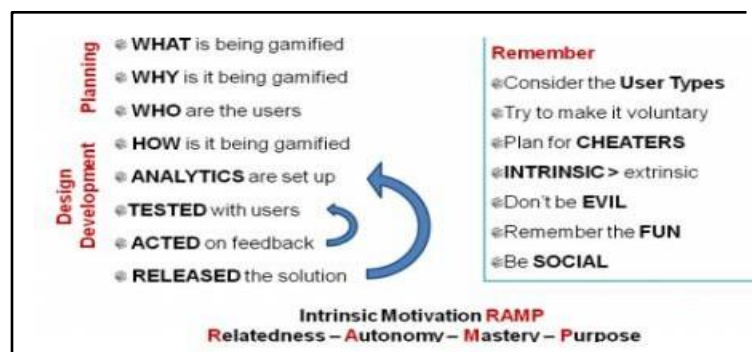

Fig 1. Gamification framework

This stage refers to the first 4 steps in **figure 1**. These steps aim to discuss conceptual solutions that are a key part of research. From the discussion of the solution, the gamification element to be used in the application prototype can be determined. **Fourth:** *data analysis techniques*: data analysis is a stage of browsing,

sorting data, editing activities until the data correctness checking stage. Stages carried out in analyzing data, namely, display data and then interpretation of data. The data obtained is reduced according to the problem that the author raised to facilitate the grouping of data and then carried out verification and drawing conclusions (Julia, 2008).

Findings and Discussion

In the process of implementation, the author designed the application system based on important elements of gamification. Here are the gamification elements used according to Marczewski (2014).

Points

In this mobile app design, users will earn points by completing a segment of the story along with the quiz provided. The amount of points earned depends on the speed with which the user reads the story and the level of understanding measured through the quiz. In addition, points are also earned through daily challenges and user achievements in earning badges. Points earning information can be found on the profile page in figure 2.
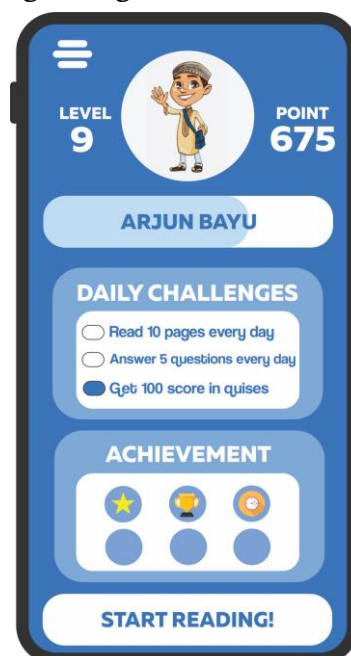

Fig 2. User profile view

Rewards

App users will get rewarded with coins if they successfully answer quizzes correctly, do daily challenges, earn badges and level up. This coin acts as a currency for buying certain items in the app. The number of coins a user has can be viewed on the market page.

Levels

In this application, the user level increase can be measured based on the total points successfully collected. Every time a user levels up, there will be a new story that can be read by the user. Information about the user level can be found on the profile page in figure 2.

Badges

In the design of this application, if the user manages to get certain badges, then the user will get points or coins. Badges that users have acquired are marked with a lighter color as shown in figure 3. There is also a progress bar that shows the user's progress based on the badges that have been earned. With this badge menu, the process of growing interest in reading users will also increase. This is supported by research conducted Slameto (2013) stated that interest is a sense of prefer and a sense of interest in a thing or activity without anyone telling. To attract more users, this research appreciates the user's achievements by rewarding and increasing the level.
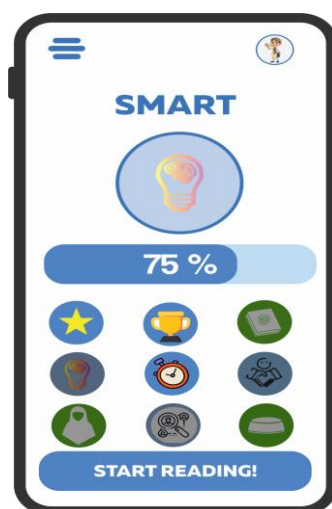
Fig 3. View of all badges

Daily Challenges

Every day users will get a different challenges. If they successfully complete the challenge, users will get rewards and points. In figure 3, the daily challenge section shows a list of challenges that must be completed by the user on the day. In this daily challenge section is applied to motivate readers as well as increase emotions in reading, as research conducted by Shaleh (2012), high interest in reading can be measured by pleasure, concentration of attention, use of time in reading, motivating to read and have an effort in reading.

Quest

In this section, the quest is presented in the form of an interactive quiz given after the user completes a reading. The user must complete the quiz within the specified time. Awards are given in the form of coins and points. The sooner the user completes the reading and answers the question, then they will get the bigger the coins and points.
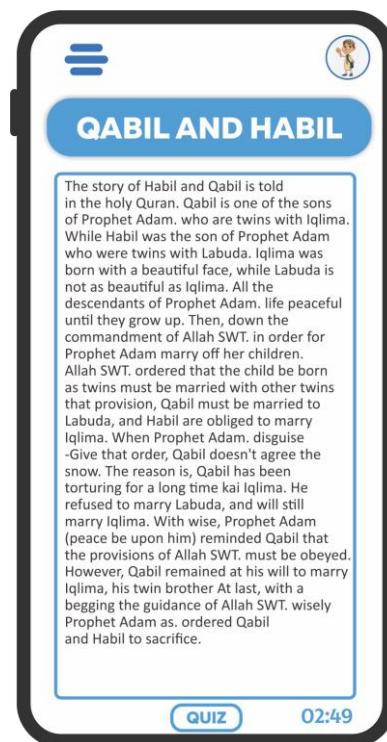

Fig 4. Reading view

Figure 4 shows the view as the user reads. After reading, the user is directed to the quiz page which can be seen in figure 5. The display on this menu is designed to help the user to be able to recall the knowledge that has been obtained. This is in line with research conducted by Soemadyo (2011) which stated that effective reading is an interactive activity to be able to pluck and understand the meaning or meaning contained in the writing material. The display in this quest menu is expected that users can understand and learn the lessons contained in the story.
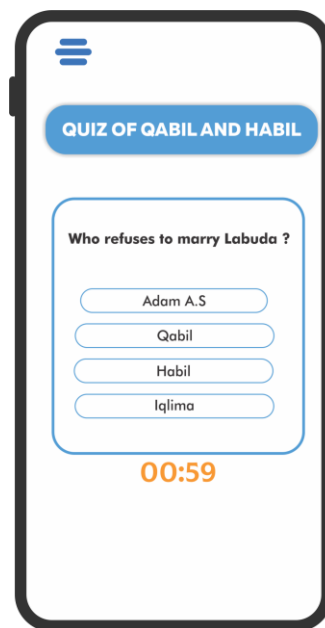
Fig 5. Quiz view

Virtual Goods

In this design, virtual goods are represented by virtual stores that sell accessories and avatar clothes. Users can change their coins to modify their avatars as they see fit. The user's avatar can be seen on the profile page on figure 2 while figure 6 shows the market page.

Fig 6. **Market page***: virtual store*

Leaderboard

The leaderboard measurement in this app design is based on the comparison of the number of user points earned with other users. In the design of the application display created, the leaderboard view can be seen in figure 7.

Fig 7. Leaderboard view

In the process of implementation, there is a relationship between the reading frequency and understanding of information and user achievements. The more reading frequency will certainly improve the understanding of information and achievements of users.
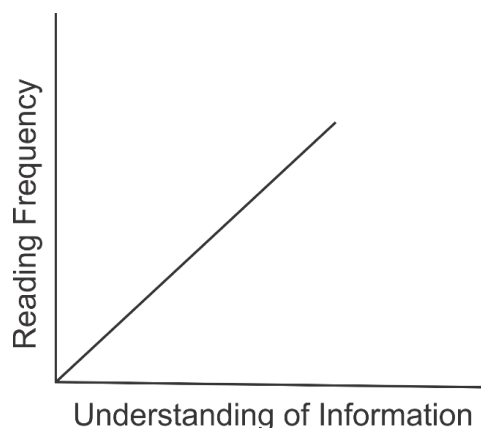

Fig 8. Relationship between reading frequency & understanding of information

Based on research that has been done Kapp (2012) & Agusti *et al.* (2018) stated that the use of gamification in education can increase student involvement with the prerequisite of interest and association in the form of a strong motivational drive, so that it allows the emergence of reading behavior and furthermore if reading activities are carried out continuously will grow a habit of reading. Seixas and Filho (2016), Yusnita *et al* (2018), Syafril *et al* (2020) stated that collaboration between students and intrinsic motivation is needed. Students are not only a "player" who will receive prizes, but must be responsible in developing knowledge using a more enjoyable and challenging process. In this case Takdir (2017) has also applied gamification method in mathematics learning application "KePoMath Go" and succeeded in increasing student motivation. However, in this study focused on increasing the frequency of reading Islamic literature through the concept of gamification.

Conclusion

The addition of fun and challenging elements of gamification methods can foster intrinsic motivation and active engagement of users. In this study used

framework and the use of elements in the form of points, rewards, levels, badges, daily challenges, quests, virtual goods and leaderboards. This gamification method is applied to increase student reading involvement where in the process of application, the level of understanding and processing of information on a reading can be further developed if reading activities are carried out with a high enough frequency. The development of this application is expected to increase participation in reading activities and understand the role of reading as a source of knowledge and advancement of civilization science.

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