Development of Digital Al-Qur'ran Application for Vocational School Entrepreneur Tahfidz Tiles Through a Design Thinking Approach

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ABSTRACT

Keywords: digital Qur'an, design thinking, SMK entrepreneur tahfidz tiles.

This research develops a digital Qur'an application centered on the needs of its users in the world of education. The purpose of this study is to find out user needs, design a prototype of the digital Qur'an application, and find out the newness of the application based on user needs. This research uses the Design Thinking method in each stage, namely the stage of problem analysis (empathize), problem framing (define), determination of ideas and solutions (ideate), product design (prototype), and product testing (test). Based on the response of users in the empathize stage with a sample of 43 people selected by random sampling and then analyzed at the define stage, it was found that users need an application that has good security features, users need learning features related to Islam, users need a feature that can review reading and memorization progress, users need a word-by-word and per-verse translation feature for free, and users need an application that does not take up much space on the phone's memory. Based on the results of the research on the development of the digital Qur'an application, it was found that 2 new features of the digital Qur'an application suit the needs of users. These features are features to review the progress of reading and memorization as well as features that contain Islamic teachings such as the teachings of aqidah, morals, hadith, Do-a collections, and shalawat collections.

Introduction

Along with the development of information technology, the Qur'an is currently not only available in physical book form but has also been made in digital form. The digitization of the Qur'an is developed in the form of applications and websites that can be accessed through smartphones and computers. (Shameera, Nadhira, & Shibly, 2017). The digital Qur'an application is distributed to the public without the need for payment. The facilities in the Al-Qur'an application generally include features for reading, searching for verses, and translation. (Mulyana, Zidane, Hidayat, & Rochman, 2024).

The rise of the use of the digital Qur'an is encouraging progress for Muslims and the general public who want to study and learn about the Qur'an. However, on the other hand, the rampant use of the digital Qur'an also raises problems related to standardization in the writing of the Qur'an, which is very diverse. (Hendratmi, Ryandono, & Sukmaningrum, 2020). This happens because some of the digital Qur'an applications circulating in the community, especially applications in the form of smartphone applications, come from foreign products whose writing sometimes does not follow the standards for writing Qur'an verses by the habits of the Indonesian people. (Mustafida, Fauziah, & Kurnia, 2021).

The strategy of using the digital Qur'an can increase the efficiency of learning the Qur'an by presenting features based on user needs so that readers can achieve a denser presentation of vocabulary, guide readers to more quickly identify and understand the content of the Qur'an, and build stronger connections in studying and studying the Qur'an. This is in line with research conducted by (Hidayat, 2016) Which discusses the digital Qur'an in terms of its diversity, problems, and future.

Researchers developed a digital Qur'an application to make it easier for users to learn. As we know humans read through patterns that are often seen or heard. Through the digital Qur'an application developed by researchers, the researcher hopes that users who use the application can quickly understand the meaning of the word verse and be correct in reading or reciting the Qur'an wherever they are and whenever they want to learn it. (Yuliadi, 2024).

Through this study, researchers try to dig deeper into the user experience with the Design Thinking approach. This research process will go through 5 (five) stages of the Design Thinking process, namely empathize, define, ideate, prototype, and test in its design. Successful design thinking must have several qualities, including creativity and visualization, that have been recognized in the literature. (Razzouk & Shute, 2012). In addition, Design Thinking was chosen because it is a user-centered framework, Design Thinking is a reference so that the research carried out can focus directly on user needs so that the results are really according to user needs. This research is expected to provide convenience for users to increase effectiveness and efficiency in studying the Qur'an properly and correctly.

The objectives of this study are as follows:

1. To find out the needs of users in the development of digital Qur'an applications at SMK Entrepreneur Tahfidz Genteng.
2. To find out the prototype design in the development of the digital Qur'an application at SMK Entrepreneur Tahfidz Genteng.
3. To find out the newness of the application in the development of the digital Qur'an application at SMK Entrepreneur Tahfidz Genteng.

Method
Research Stages

In the process of developing a digital Qur'an application, the researcher develops a digital Qur'an application through the Design Thinking stage as a method used to determine the application design needed by users as a basis in the process of making a digital Qur'an application as the final product in this study. (Sugiyono, 2017).

Location and Subject of Research

This research was conducted at SMK Entrepreneur Tahfidz Genteng. The researcher chose SMK Entrepreneur Tahfidz Genteng because the location of the school can be reached by researchers, and the school is a school that combines technology with Islamic religious teachings so the school is suitable to be used as a location for research on the development of digital Qur'an applications. The main target of the study is students in grades X, XI, and XII at SMK Entrepreneur Tahfidz Genteng, using random sampling techniques.

Research Instruments

The research instruments used in this study include:

1. Observation (shadowing) is a data collection technique by making observations at the research location based on the need for information that the researcher wants to get. This technique is used by researchers to collect preliminary data. So that the researcher already has an overview and goals before conducting interviews with users.

2. Interview, the interview technique used in this study is a direct interview technique. In general, interviews are used to complete the information obtained from the questionnaire filled out by the respondents. Interviews are possible to be conducted with students as users and principals as clients at SMK Entrepreneur Tahfidz Genteng regarding the use of digital Qur'an applications at the SMK.

3. Questionnaire (Questionnaire), used to capture or collect data on the effectiveness of the use of interactive media based on the digital Qur'an application developed by looking at aspects of flow and content based on user needs, in this case, grade XII students majoring in Visual Communication Design at SMK Entrepreneur Tahfidz Genteng to assess the effectiveness and efficiency of the developed products that are by the actual user needs.

Each research instrument used in this study can help in solving research problems, so the researcher chose to use these instruments in the research process of developing digital Qur'an applications at SMK Entrepreneur Tahfidz Genteng.

Results and Discussion

User Journey Map

After determining user personas based on categories, namely the active user category as many as 26%, passive users as many as 70%, and novice users as many as 4% of the 43 respondents. Then at this stage, the researcher will explore the user experience based on the category from the results of interviews at the empathize stage. The following are the results of the user journey map based on the user category.

Active user journey map

Based on the results of the Point of view with the active user category, it was found that active users consisted of respondents 1, 3 respondents, 6 respondents, 14 respondents, 17 respondents, 19 respondents, 30 respondents, 32 respondents, 35 respondents, and 40 respondents with their respective needs and reasons based on their respective experiences based on the experience of using the digital Qur'an application. Figure 4.7 below is the user journey map in the active user category.
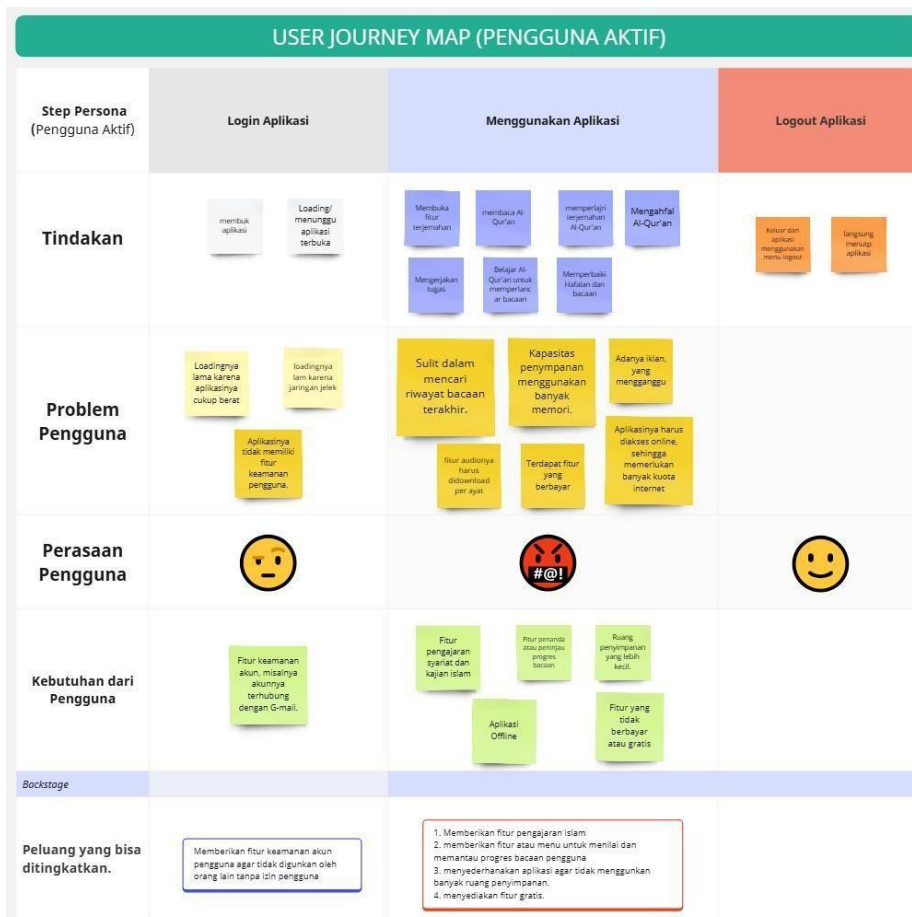

Figure 1 User journey map of active user categories

Based on Figure 1 of the active user journey map, it was found that there were several obstacles in the use of the application and there was one obstacle in the account login section, from these obstacles then the user provided several solution suggestions, namely the sharia teaching and Islamic studies feature, the marking or review of reading progress, smaller application storage space, free features, offline applications. In the login section, users give suggestions to use g-mail account verification.

Based on solution suggestions from active users, the opportunity that can be improved by researchers, in this case, is to provide a user account security feature so that it cannot be used by others without the user's permission, then provide an Islamic religious learning feature, provide a feature to assess and review the user's reading and

memorization progress, and simplify the application so that it does not take up much space on the cellphone (HP) memory storage.

Testing Stage

After going through the stages of empathizing, defining, ideating, and prototyping, the testing stage is then carried out. At this stage, the researcher provides access to users to use or operate the digital Qur'an application developed by the researcher for a time frame of one hour, so that users can give an assessment of the application.

After an hour of trial use of the digital Qur'an application by users. The researcher then provided a questionnaire in the form of questions related to the digital Qur'an application resulting from the development. The technique used at this stage is the usability testing technique as a tool to see user ratings of the product being developed. The users in this case are students of SMK Entrepreneur Tahfidz Genteng Classes X, XI, and XII of the Visual Communication Design Department who are selected by random sampling which totals 43 people.

Testing Results

The questions asked by the researcher in this testing stage consist of 4 aspects, namely related to programming aspects, content aspects, display or design aspects, and user satisfaction aspects to the developed regulations. The following are the test results obtained by the researcher from user feedback selected by random sampling using a Likert scale assessment from the value range of 1 to 5, as follows:

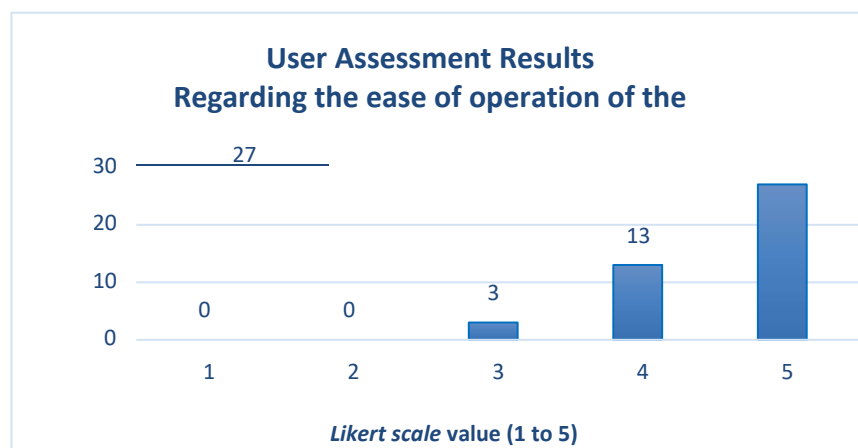1. How easy is it for you to use or operate the digital Qur'an application resulting from the development?

Figure 2 Results of user ratings related to product operation

In Figure 2 above, it is known that as many as 27 users rated the operation of the product with a value of 5 which means it is easy to use, then 13 users gave a value of 4 which means it is quite easy to use, and as many as 3 users gave a value of 3 which means neutral or not easy and not difficult to use.

2. In your opinion, what is the value of the accuracy of the reaction of the buttons or menus in the developed digital Qur'an application?
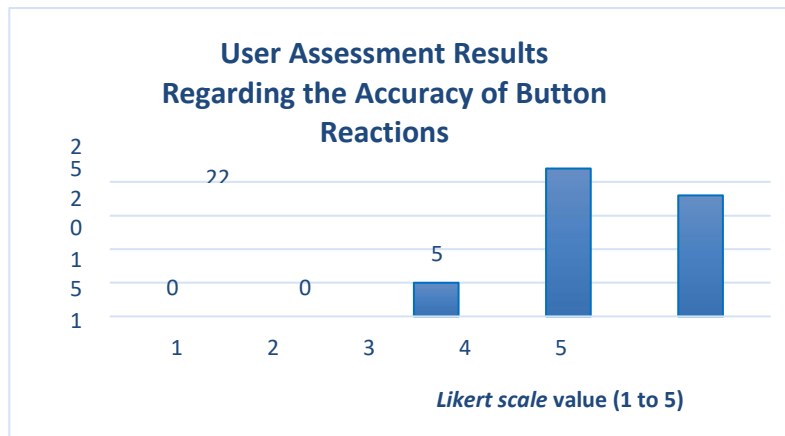
User Assessment Results Regarding the Accuracy of Button Reactions

22

0   0   5

1   2   3   4   5

Likert scale value (1 to 5)

Figure 3
Results of user ratings regarding the accuracy of button reactions

In Figure 3 above, it is known that as many as 18 users rated the accuracy of the button reaction with a value of 5 which means good, then as many as 22 users gave a value of 4 which means quite good, and as many as 5 users gave a value of 3 which means neutral or between less and good enough.

3. In your opinion, what is the value related to the appearance or design of the digital Qur'an application that is developed?
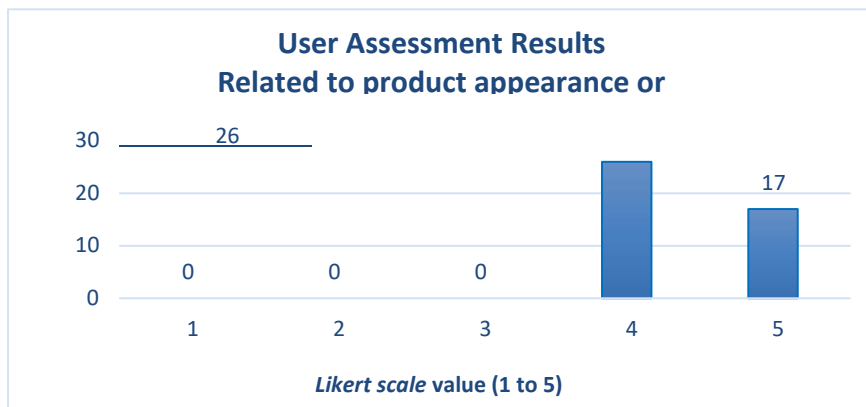
User Assessment Results Related to product appearance or

30   26

20   17

10

0   0   0

0
1   2   3   4   5

Likert scale value (1 to 5)

Figure 4
User ratings related to product appearance or design

In Figure 4 above, it is known that as many as 17 users rated the appearance or design of the developed digital Qur'an application at a value of 5 which means good or good, then as many as 26 users gave a value of 4 which means the display is quite good or quite good.

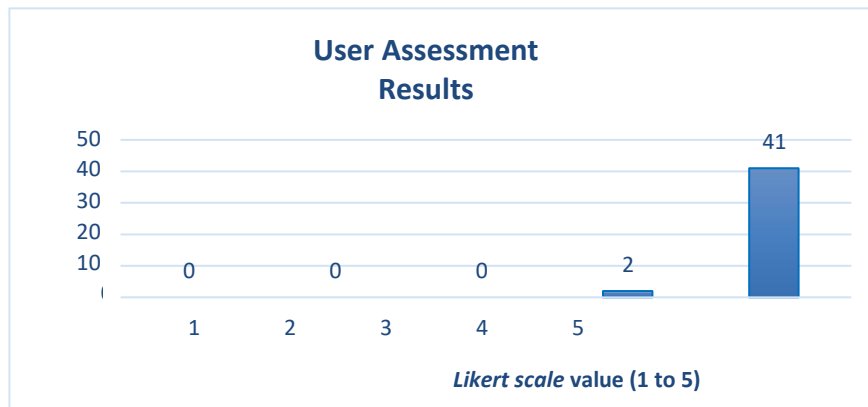4. In your opinion, what is the value related to the Khazanah feature that contains Islamic lessons?

Figure 5
User ratings related to Khazanah features

In Figure 5 above, it is known that as many as 41 users gave a score of 5 to the Khazanah feature which contains Islamic lessons which means the feature is good or good, then as many as 2 users gave a score of 4 to the Khazanah feature which means the feature is quite good. (Arifin, 2018).

5. In your opinion, what is the value related to the reading and memorization review feature in the developed digital Qur'an application?
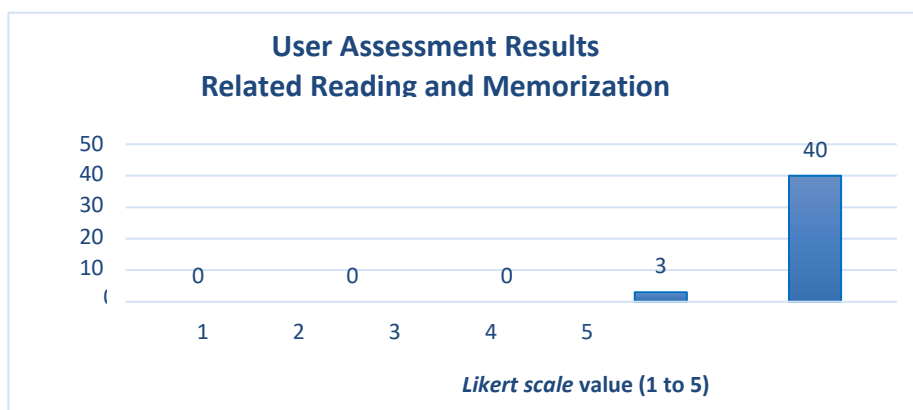

Figure 6
User ratings related to the reading and memorization review feature

In Figure 6 above, it is known that as many as 40 users gave a score of 5 related to the reading and memorization review feature which means the feature is in a good category, then as many as 3 users gave a score of 4 which means the feature is quite good.

The digital Qur'an application has been widely developed by many students and the general public, but the research on the development of the digital Qur'an application focuses on the development of the Qur'an application in particular in the educational

environment to be used by students and teachers who can make it easier for them to learn to read and memorize the Qur'an, as well as in general

can be used by the community to utilize the application developed to help the user community in learning the Qur'an, this is in line with the opinion of Rianto (Sadiman Arif, 2010) who said that in addition to accelerating the learning process, the help of audio-visual media the digital Qur'an can quickly increase the level of intelligence, change passive and static attitudes to active and dynamic.

This research aims to develop a digital Qur'an application that is centered on the needs of the target or its users, in this case, especially students in the educational environment and society in general. To be able to achieve the expected goals in this research, the researcher uses the Design Thinking research method, where the Design Thinking method is a research method that focuses on the stages of research based on the user's response from the initial stage to the final stage, as stated by Kelley and Brown in (Lazurdy & Sukoco, 2019) said that the Design Thinking approach is a human-centered approach to innovation that taken to integrate the needs of people as users. Design Thinking includes the stages of analysis (emphasize), framing problems (define), making ideas (ideate), designing prototypes (prototypes), and testing (test). Meanwhile, (Plattner, 2015) revealed that the most important thing in design thinking is to build innovators who can use the Design Thinking paradigm to turn ideas into reality, transform organizations, and change all aspects of life.

Based on these expert opinions, it can be concluded that the Design Thinking method is the most suitable method for use in research and development of a product, business development, and others. This is because Design Thinking prioritizes and involves users or customers in determining services on products, or features on products that suit the needs of users or customers.

The development of digital Qur'an applications in the educational environment generally contains several simple features that can complement the usefulness of the Qur'an application as an effective learning medium in learning the Qur'an. Several studies on the digital Qur'an are references in this study, namely in his journal Efenddy (2018) raised topics related to the law on the use of the digital Qur'an, stating that it is permissible although some argue that the law of reading the Qur'an in the form of a physical book and reading the digital Qur'an are different laws and practices.

Along with the advancement of information and communication technology, currently, learning in all fields has become very easy, especially the Qur'an which also gets ease in learning it, for example in the past before the existence of sophisticated technology such as the internet, if someone wanted to learn the Qur'an must come to a scholar, teacher or ustad and others, but in this era, the sophistication of information and communication technology can create conveniences in learning the Qur'an, such as the existence of a digital Qur'an application that can be used on smartphones and laptops with the availability of features that make it easier to study the Qur'an. This is evidenced by research conducted by (Alwi, Anas, Ibrahim, Dahan, & Yaacob, 2014) which found that 19 digital Qur'an applications are still active and can be downloaded for personal

computers and laptops and there are 245 digital Qur'an applications for smartphones with their advantages and disadvantages.

The results of the development of the reading and memorization progress review feature are expected to help and facilitate students and the general public in reading and memorizing the Qur'an, as well as Islamic learning features that are expected to help students and the general public understand Islamic teachings, in this case, the teachings of aqidah, morals, hadith, a collection of Prayers and a collection of prayers available in the application that has been developed.

The advantages and disadvantages contained in this research depend on how we look at it and what the obstacles are in conducting research. Regarding the development and use of the digital Qur'an as a learning medium, it is very good to continue to be developed to make it easier for users to learn and recognize the Qur'an. With the existence of a digital Qur'an application, it is hoped that it will not reduce the value of the Qur'an itself, but can make users more active in reading and studying the Qur'an.

Conclusion

Based on the formulation of the problem and the purpose of the research in this study, it is to find out the level of user needs, how to design the prototype of the digital Qur'an application as a result of the analysis, and to find out the newness of the application needed by users in the world of education at SMK Entrepreneur Tahfidz Genteng. The results of the analysis of user needs at the empathize stage through user interviews, in this case, students in grades X, XII, and XII at SMK Entrepreneur Tahfidz Genteng with a sample of 43 students selected by random sampling. Then the results of the interview were analyzed at the define stage, the results of the analysis of user needs at the define stage found that there are 5 types of user needs based on user experience in utilizing the digital Qur'an application, namely users need sharia teaching features and Islamic studies that contain material on moral teachings, aqidah, hadith, Do'a-doa and a collection of shalawat. The results of the development of the digital Qur'an application in this study found that there were 2 new features based on the results of user needs interviews. These features are features to review the progress of reading and memorization of users, as well as features that contain Islamic teachings such as the teachings of aqidah, morals, hadith, a collection of Prayers, and a collection of shalawat.

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Bibliography

Alwi, Engku Ahmad Zaki Engku, Anas, Norazmi, Ibrahim, Mohd Syahril, Dahan, Ahmad Fadhir Mat, & Yaacob, Zuriani. (2014). Digital Quran applications on smartphones and tablets: A study of the foundation program students. *Asian Social Science*, *10*(15), 212.

Arifin, S. R. (2018). Crowdfunding new paradigm for financing: Operational pattern of crowdfunding in Indonesia. In *Increasing Management Relevance and Competitiveness* (pp. 365–368). CRC Press.

Hendratmi, Achsania, Ryandono, Muhamad Nafik Hadi, & Sukmaningrum, Puji Sucia. (2020). Developing an Islamic crowdfunding website platform for startup companies in Indonesia. *Journal of Islamic Marketing*, *11*(5), 1041–1053.

Hidayat, Syarif. (2016). Strategi Pengembangan Ekowisata di Desa Kinarum Kabupaten Tabalong. *Jurnal Hutan Tropis*, *4*(3), 282–292.

Mulyana, Dadang Iskandar, Zidane, Ahmad Syahran, Hidayat, Riza, & Rochman, Fatchur. (2024). Implementation of Academic Information System at Al-Inayah Pamulang Quran House, South Tangerang. *International Journal Software Engineering and Computer Science (IJSECS)*, *4*(1), 121–132.

Mustafida, Rifka, Fauziah, Najim Nur, & Kurnia, Zahra Nabila. (2021). The development of Islamic crowdfunding in Indonesia and its impact on SMEs. *Hasanuddin Economics and Business Review*, *4*(3), 20–29.

Razzouk, Rim, & Shute, Valerie. (2012). What is design thinking and why is it important? *Review of Educational Research*, *82*(3), 330–348.

Shameera, Abdul Wahid Fathima, Nadhira, Abdul Kuddoos Fathima, & Shibly, F. H. A. (2017). *Digitalization of holy Quran (Quranic applications): challenges and concerns. Special reference with 4th-year students of South Eastern University of Sri Lanka*.

Sugiyono, S. (2017). *Qualitative Quantitative Research Methods and R&D. Bandung: Alfabeta. Procrastination And Task Avoidance: Theory, Research, and Treatment*. New York: Plenum Press, Yudistira P, Chandra.

Yuliadi, Musfi. (2024). *Pengembangan Layanan E-Groceries Berbasis WhatsApp Dengan Pendekatan Design Thinking*. Institut Teknologi Sepuluh Nopember.