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Development of an Islamic Religious Mentoring System (SIMA'I) based on a Mobile Application System Using the ADDIE Model

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Keywords:
PAI Tutor; Mobile App; SIMA'I; ADDIE Model; PAI Learning.

Abstract

This research aims to develop a mobile application to make tutors and students in Jambi University easier to fulfill Islamic religious tutorial assignments. Research and Development with the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model is used as the basis for the method with the main focus of this applied research on Application Design and the Effectiveness of its Implementation in the Islamic Education tutorial program. The result of this research is the development of a mobile application called SIMA'I (Islamic Religious Mentoring Information System) that is a new idea for Islamic Religious Learning innovation based on the Mobile Application System which is designed for tutors and students to fulfill Islamic religious tutoring tasks which up to now are still manual. The results of the questionnaire showed that on a scale of 1 to 5, SIMA'I obtained an average performance of 4.17 on the effectiveness of tutorial implementation and an average of 4.88 on the efficiency of the tutorial program, thus showing a positive effect on the Islamic tutorial program at Jambi University. SIMA'I scored high on the components of "interface and satisfaction", "ease of use" and "usability".

Kata Kunci:
Tutor PAI; Aplikasi seluler; SIMA'I; Model ADDIE; Perkuliahan PAI.

Abstrak:

Penelitian ini bertujuan untuk mengembangkan aplikasi seluler dalam memudahkan tutor dan mahasiswa dalam memenuhi tugas tutorial agama Islam di Universitas Jambi. Research and Development dengan model pengembangan ADDIE (Analysis, Design, Development, Implementation dan Evaluation) digunakan sebagai landasan metode dengan fokus utama penelitian terapan ini pada Desain Aplikasi dan Efektivitas Penerapannya dalam program tutorial Pendidikan Agama Islam. Hasil dari penelitian ini adalah dikembangkannya aplikasi seluler bernama SIMA'I (Sistem Informasi Mentoring Agama Islam) merupakan gagasan baru inovasi pembelajaran PAI berbasis Mobile Application System yang dirancang untuk tutor dan mahasiswa dalam

memenuhi tugas tutoring agama islam yang selama ini masih manual. Hasil kuesioner menunjukkan bahwa pada skala 1 sampai 5, SIMA'I memperoleh rata-rata kinerja sebesar 4,17 pada efektivitas pelaksanaan tutorial dan rata-rata 4,88 pada efisiensi program tutorial, sehingga hal tersebut menunjukkan efek positif pada program tutorial agama Islam di Universitas Jambi. SIMA'I mendapat nilai tinggi pada komponen "antarmuka dan kepuasan", "kemudahan penggunaan" dan "kegunaan".

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1. Introduction

Islamic Religious Education (PAI) is one of the important courses at Public Universities (PTU) as a national compulsory course (MKWN) that must be taken by all Muslim students. Based on Jambi University Chancellor's Regulation Number: 02 of 2017 Article 15, Jambi University implements Islamic Religious Education (PAI) courses in all faculties with a total of 4 (four) credits.[1]

The PAI learning process at Jambi University integrates regular learning with the Religion tutorial program as collaborative learning between Religion lecturers and PAI tutors. The Coaching Model, namely making tutors religious study partners for new students at Jambi University, is carried out at several meetings every semester. Learning activities are carried out in two main activities, the first is a face-to-face activity with PAI lecturers including 12 meetings (70%) and the second is a tutorial activity with 4 meetings (30%) as assistance for the PAI course.

The PAI tutorial program uses a teaching system in the form of peer training and an independent assessment system in the form of a Religious Skills Portfolio.[2] The large role of tutors as religious guides for new students, includes teaching, memorizing, and practicing basic religious knowledge such as prayer and reciting the Koran, fasting and daily practices. On the other hand, tutors also still have obligations as students who must attend lectures, making the program This tutorial is a bit hampered by the difficulty of managing time between students and tutors. Apart from that, assessments are still paper-based and require face-to-face meetings, making this program less effective and efficient in its implementation.

Developing an Android-based application is a solution to simplify the PAI tutorial program.[3] With this application, it is hoped that students and tutors will no longer encounter difficulties in arranging tutorial times and places. The application development in question is a learning innovation with new and qualitative changes.[4] The effectiveness and flexibility of the application are intended to facilitate PAI learning by collaborating lecturers, tutors, and students. Learning

[1] Rachmad Sobri, "Politik Dan Kebijakan: Pendidikan Agama Dan Keagamaan Di Indonesia (Analisis Kebijakan PP No 55 Tahun 2007)," *Edukasi Islami: Jurnal Pendidikan Islam* 8, no. 01 (2019), doi:10.30868/ei.v8i01.322.

[2] Dkk Supian, "Pendidikan Agama Islam Berbasis Karakter Dan Moderasi Islam," 2019.

[3] Sein, L. (2021). The Future of Islamic Studies. Journal of Islamic and Muslim Studies 6(1), 140-145. https://www.muse.jhu.edu/article/846250.

[4] AM Rosyad - al-Afkar, Journal for Islamic Studies, and undefined 2019, "The Urgency of Learning Innovation on Islamic Religious Study (Urgensi Inovasi Pembelajaran Dalam Pendidikan Agama Islam): Learning Innovation, Islamic Religious," *Al-Afkar.Com* 2, no. 1 (2019).

innovation is a strategy that is structured in such a way as to answer various kinds of learning problems by utilizing technology and digitalization based on information systems.

The effectiveness and flexibility of the application are intended to facilitate PAI learning by collaborating with lecturers, tutors, and students.[5] Learning innovation is a strategy that is structured in such a way as to answer various kinds of learning problems by utilizing technology and digitalization based on information systems.

The Islamic Religious Mentoring Information System *(SIMA'I)* is a new idea in the *Mobile Application System-based PAI learning innovation* which was developed to make it easier for students and tutors to carry out Islamic religious tutorial tasks and is a continuation of previous research on coaching models in the Jambi University Islamic religious tutorial program.[6] The SIMA'I application was initiated to replace the manual rote assessment and checklist system carried out by tutors in PAI learning which has been running so far. Previous research provides an illustration that the use and development of *mobile-based learning models* can increase student activity[7] as well as increasing effectiveness in learning.[89] By making this application accessible via student *smartphones*, it is hoped that efficiency and flexibility in implementing the PAI Tutorial program at Jambi University can be achieved.

There has been a lot of research on developing Android applications for PAI learning, including research by Purwanto A. *Titled: Development of an Android-Based Mobile Learning Application as a Learning Media for Islamic Religious Education and Character on Faith in Allah Material for Class* The results of this research are that the learning media application developed is suitable for use.[10] Next Azizah, NA. *Development of an Android-Based "Smart Tajwid" Application to Increase Students' Motivation to Learn Tajweed in Islamic Religious Education Subjects*.[11] With the overall research results, the Smart Tajwid application developed is highly suitable for use as a Tajwid learning medium. Apart from that, research by Nadawiyyah, H., & Anggraeni, D. entitled *Development of recitation learning media based on Android applications,* with research results showing the use of recitation learning media based on Android applications is very suitable to

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[5] Muid, A., & Mustofa, A. M. Z. "Religious Education as a Basic Component in the Formation of Quality Human Beings: Pendidikan Agama sebagai Komponen Dasar dalam Pembinaan Manusia Berkualitas." Indonesian Journal of Islamic Education and Local Culture, 1(1). (2023).

[6] Sobri et al., "Coaching Model : Metode Mitra Belajar Agama Kolaboratif Pada Program Tutorial PAI Pembelajaran Agama Islam Universitas Jambi."

[7] Sutarto Sutarto and Intan Dwi Hastuti, "Pengembangan Mobile Learning Berbasis Mobile Application Pada Materi Metode Simpleks Untuk Membantu Mahasiswa Slow Learner," *ALFAmath: Jurnal Pendidikan Matematika* 1, no. 1 (2020).

[8] Riana Rahayu, Mustaji Mustaji, and Bachtiar Sjaiful Bachri, "Media Pembelajaran Berbasis Aplikasi Android Dalam Meningkatkan Keaksaraan," *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini* 6, no. 4 (2022), doi:10.31004/obsesi.v6i4.2409.

[9]Mukhid, A. Meningkatkan kualitas pendidikan melalui sistem pembelajaran yang tepat. TADRIS: Jurnal Pendidikan Islam, 2(1). (2007).

[10] Purwanto, A. (2019). Pengembangan Aplikasi Mobile Learning Berbasis Android Sebagai Media Pembelajaran Pendidikan Agama Islam dan Budi Pekerti Pada Materi Iman Kepada Allah Untuk Peserta Didik Kelas X MIPA 3 SMA Negeri 1 Gemolong Tahun Pelajaran 2018/2019. Jurnal Pendidikan, 28(2), 195-204.

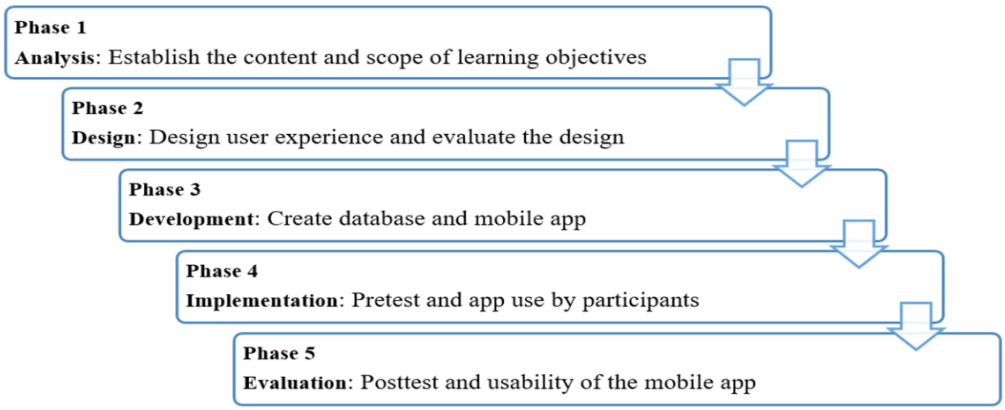
[11] Azizah, N. A. (2019).Pengembangan Aplikasi "Smart Tajwid" Berbasis Android untuk Meningkatkan Motivasi Belajar Tajwid Siswa pada Mata Pelajaran Pendidikan Agama Islam. EDULAB: Majalah Ilmiah Laboratorium Pendidikan, 4(1), 47-70.

be used as supporting media for learning PAI Tajwid material.[12] and Abdurrochim, PL, et al.[13], *Development of the BEAT (Fun Learning About) Islamic Religious Education application to improve Islamic religious education learning outcomes for elementary school students,* with research results on the use of the Android-based BEAT PAI application which has been developed by researchers suitable for use in the PAI learning activity process in elementary schools.

Based on the development research that has been carried out, there has been no research that has led to the development of an Android-based application for monitoring the implementation of Islamic religious tutorials in universities. Therefore, the development *research* aims to develop *the SIMA'I* (Islamic Religious Mentoring Information System) *Mobile Application System* so that it can be used by lecturers, tutors, and student tutors in Jambi University's PAI tutor activity program.

2. Methods

This research uses the ADDIE design model to develop a mobile application with the aim of supporting the implementation of the Islamic Religion tutorial program at Jambi University. ADDIE provides education professionals and designers with the ability to lay the foundation for principled and effective training.[14] This model can be used for both traditional and electronic learning.[15] ADDIE consists of 5 phases which form the basis of the acronym: *Analysis, Design, Development, Implementation and Evaluation* (Figure 1).



Fg 1.
ADDIE app development tutorial with phases model.

Analysis Phase

The analysis stage functions to identify and classify problems that occur in the Jambi University PAI tutorial program that require improvements and

[12] Nadawiyyah, H., & Anggraeni, D. (2021). Pengembangan media pembelajaran tajwid berbasis aplikasi Android. Jurnal Inovasi Teknologi Pendidikan, 8(1), 26-40
[13] Abdurrochim, P. L., Khairunnisa, Y., Nurani, M., & Aeni, A. N. (2022). Pengembangan aplikasi BEAT (Belajar Asyik Tentang) Pendidikan Agama Islam untuk meningkatkan hasil belajar pendidikan agama islam siswa Sekolah Dasar. Jurnal Basicedu Vol, 6(3).
[14] Barbara Seels and Rita Richey, *Instructional Technology: The Definition and Domains of the Field* , *Instructional Technology: The Definitions and Domains of the Field* , 1994.
[15] Serhat Kurt, "'ADDIE Model: Instructional Design,' in Educational Technology," in *Educational Technology*, 2018.

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solutions. Apart from that, this section also analyzes needs, where researchers determine what students and tutors need in order to effectively implement the PAI tutorial program at Jambi University.

Design Phase

From the results of the analysis carried out in the previous stage, in this phase the researchers focused on optimizing the mobile application user experience. Researchers held discussions with experts, who included educational technology experts, application design experts, and also mobile application developers, who of course have the capacity in their fields to be able to obtain complete information regarding mobile-based application development which can be used as a learning innovation in the PAI tutorial program in Jambi University.

In this phase, researchers used Balsamiq Mockup software (Balsamiq Studio, LLC) to describe the user experience flow, and Figma (Figma, Inc) to prototype the user experience. After the experts receive the alpha version of the application prototype to be developed, we carry out an evaluation using a heuristic method to determine the elements in the application or things that need to be improved before entering the development stage.

Researchers asked application design and learning technology experts to get input regarding this development. These experts will later rate a prototype using Jacob Nielsen's 10 principles for the seriousness of interactive design evaluation using a 5-point scale: 1 (Very Poor), 2 (Poor), 3 (Fair), 4 (Good) and 5 (Very Good).[16]

Development Phase

The results of the analysis and design phase provide knowledge that will be used in the development phase. In this step, we develop a database using *My Structured Query Language* (MySQL) and develop a mobile application that we call “SIMA'I” using CodeIgniter and Flutter. The development phase runs from August 16 to September 12, 2023.

Implementation Phase

At the implementation stage, the research team conducted trials in two stages, namely the limited trial stage and the field trial stage. Limited testing was carried out on as many as 10% of the Jambi University PAI tutorial group. Next, field testing was carried out in 10 PAI tutorial classes at Jambi University. This process is carried out with selected group of tutors who can carry out field trial activities.

Evaluation Phase

The final stage is evaluation. In this step, researchers see whether the developed SIMA’I application meets the initial expectations or not. The evaluation here aims to provide a value for ease of use, interface, and satisfaction, as well as the usability of the SIMA'I application

[16] Jakob Nielsen, “Human Factors Computing Systems: Enhancing the Explanatory Power of Usability Heuristics,” *Human Factors in Computing Systems*, 1994.

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3. Results and Discussion

3.1 Performance and Needs Analysis

At the performance analysis stage, the function is to identify and classify problems that occur in the field that require improvement and a solution in the form of a product that can solve the problem. Of course, the results of this analysis stage are based on the researcher's observations regarding the lack of optimal implementation of PAI tutorials using books/manual work papers and carried out during hours outside of lecture classes.

The next stage of analysis is need-analysis. In this stage, researchers determine what students and tutors need in order to effectively implement the PAI tutorial program at Jambi University. Needs analysis is a basic step in conducting research and development. This aims to determine the existing needs of potential product users, so that a product development that meets user needs can be achieved. This needs analysis was carried out using observations and interviews with lecturers, tutors, and students in Islamic Religion courses at Jambi University.

According to several lecturers, implementing the coaching model in PAI learning using the tutorial method is very good if it can be integrated with a system that can accommodate all PAI learning achievements. So the need for an information technology-based system in the future may become a necessity in meeting learning achievements between lecturers, tutors, and students. The many complaints submitted by students and tutors about the complexity of arranging meeting schedules between tutors and students who have to be face-to-face and with manual assessments is also a consideration for researchers to develop a system that can solve this problem.

3.2 Design and Evaluation

At the analysis stage, meetings with students, tutors, lecturers, and also application development experts helped researchers find optimal content for the SIMA'I application, including the main menu. The participants agreed that SIMA'I should cover 4 main things, namely: statistical data, assessments, student data, and accounts. First, the statistical data menu, contains a summary of the number of students who have completed and those who have not in each class. This will make it easier for tutors to monitor the students they are responsible for, what percentage have completed and what percentage have not. With this statistical data, it is hoped that the process of monitoring student completion can be made more effective.

Second, the assessment menu, in this section each student can input the results of their work in the form of a link, which can later be opened by each tutor and given an assessment of the results of the work. From the tutor's account, it can be seen whether the student has input the link or not, so the tutor can easily assess whether the student has input the link into the application. From the results of discussions with the person in charge of the tutorial program, students will be considered complete if they get a score of 75 or above. If it is less than that, the student will be considered incomplete and will have to repeat their work.

Third, the student data menu, contains detailed student data from each class for which the tutor is responsible. Then in the student data menu there is a sub menu, namely completed and incomplete. In the completed sub-menu, a list

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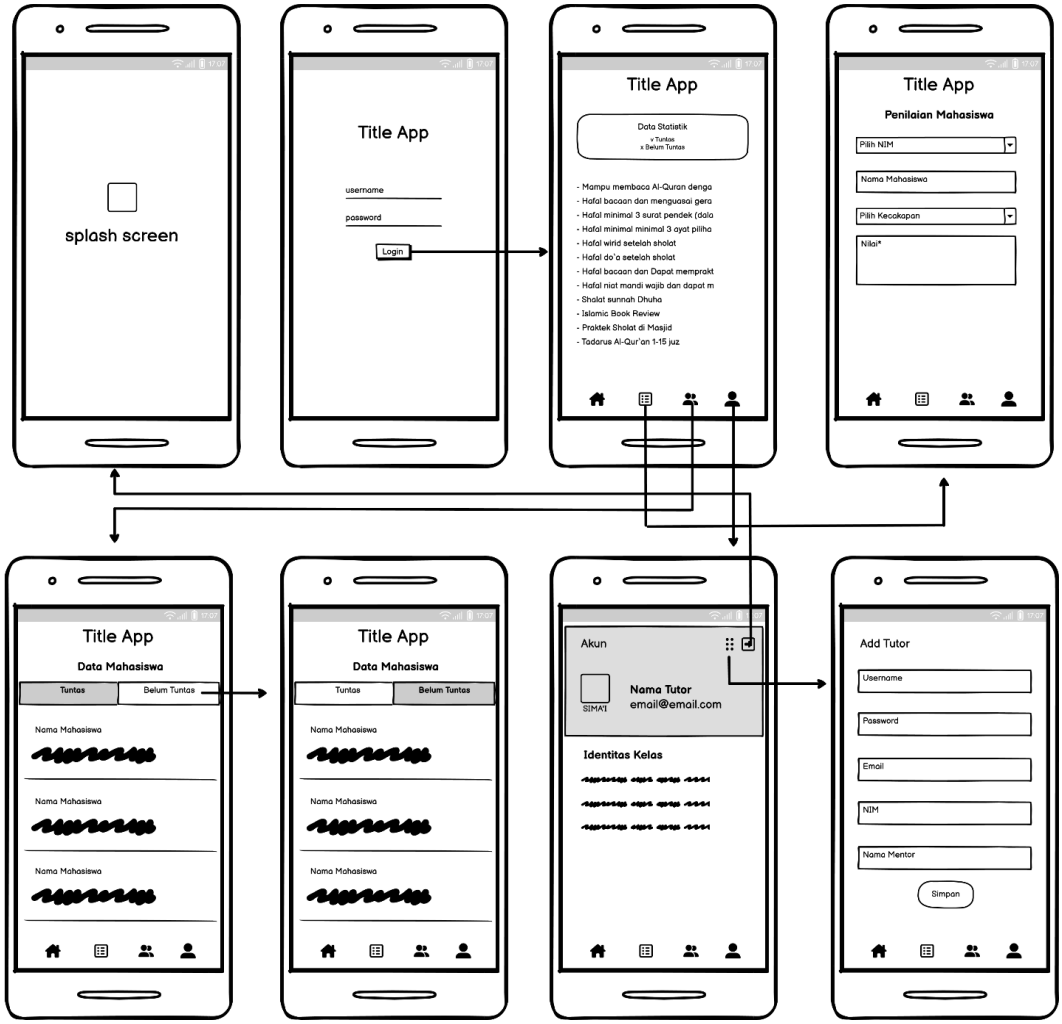
of student names will be displayed which, when clicked, will display skills that have been completed, as well as the incomplete sub-menu.

Fourth, the account menu, contains the tutor's identity and class identity, starting from faculty, study program, class, semester, and total students. In this menu, tutors can add classes and students according to their needs.

The results of discussions conducted by researchers with experts and users during this design stage helped researchers determine the practical design of SIMA'I, which is as follows. The application starts with an initial splash screen. Next, the Login page appears, on this page the user enters *the username* and *password* that were previously input by the tutor. An introductory slide will appear on the initial launch of the application.

After that, users can see the main menu, which is at the bottom of the page, containing the home, assessment, student, and account buttons. Figure 2 shows the user experience flow. For example, tapping the “Login” button will open the main page screen. So, the existing image is a user experience flow and a wireframe, which is an illustrated guide that shows the general scheme and framework of the SIMA'I application. For more detail, researchers illustrate it in Figure 2.



Fg 2.
SIMA'I mobile application user experience flow

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During the heuristic evaluation of the app prototype, these features earned 4 to 5 points each, which means that the prototype is excellent and very highly developable. Table 1 presents the validation results carried out by several experts by referring to the heuristic evaluation principles of prototype assessment by Jacob Nielsen.

Table 1. SIMA'I prototype assessment based on heuristic evaluation based on Jacob Nielsen's 10 general principles.

Heuristic Principles	Percentage	Criteria
Visibility of system status	92%	Very good
Match between the system and the real world	94%	Very good
User control and freedom	94%	Very good
Consistency and standards	98%	Very good
Error prevention	92%	Very good
Acknowledgment, not retraction	92%	Very good
Flexibility and efficiency of use	94%	Very good
Aesthetic and minimalist design	94%	Very good
Fault identification, diagnosis, and recovery	92%	Very good
Help and documentation	92%	Very good
Average	**93%**	**Very good**

Table 1 shows that the expert validator recapitulation obtained an average percentage of 93%, which is categorized as very feasible. This consists of a consistency score and a standard of 98% which states the product is very worthy. This is also based on the value of compatibility between the system and the real world, user control and freedom, flexibility and efficiency of use, and aesthetic and minimalist design of 94% which states that the product is very feasible. Apart from that, it is also based on Visibility of system status, Prevention of errors, Recognition, not recall and Identification of errors, diagnosis and recovery, as well as Assistance and documentation of 92% which states the product is very feasible.

In the development phase, functional requirements, user interface screens, and software database designs are created. Interface design is a process that involves installing special software on a smartphone and connecting it to the internet, so that users can register their accounts on the app. Thus, users are registered on the server and their registration ID is stored on the application server. MySQL was used to design and develop the database, and then CodeIgniter and Flutter were used to develop the application. Finally, after thorough consultation with Islamic learning experts, a beta version of SIMA'I was developed and released (Figure 3).

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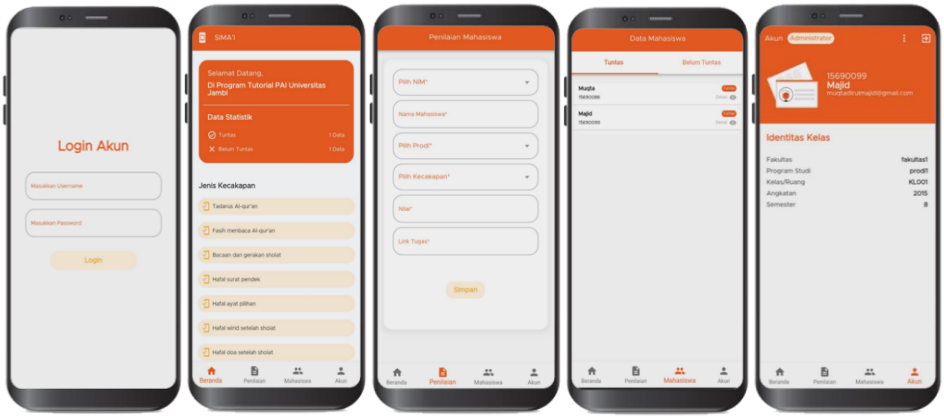

Fg 3.
Example of a page from the SIMA'I mobile application

The application was then tested on tutor classes and Jambi University students after the feature is ready to use as can be seen in Figure 3. This implementation stage was carried out in limited classes and field classes which were tested twice and the implementation of the application can be seen in Figure 4.

Fg 4.
Application trial on tutor

Figure 4 is an activity where the researcher carried out tests on the teaching module which was carried out twice, namely limited trials and field trials. A limited trial was carried out in one tutor class of 30 students or two randomly selected study groups. Furthermore, field trials were carried out in 10 tutor classes with a total of 300 students or ten study groups. The results of the analysis of students are based on the responses to the questionnaire, data for limited trials is performed in Table 2.

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Table 2. Scores of limited trials using the SIMA'I application.

Appraised items	Total Score	Percentage Score	Criteria
Ease of use			
1. This application is easy to use.	133	89%	Strongly agree
2. It was easy for me to learn to use the app.	137	91%	Strongly agree
3. The application interface allows me to use all the functions offered by the application.	120	80%	Strongly agree
4. Navigation is consistent when moving between screens.	125	83 %	Strongly agree
5. Whenever I made a mistake using the app, I was able to recover easily and quickly.	126	84 %	Strongly agree
Interface (*interface*) and satisfaction			
1. I like the app interface.	123	82%	Strongly agree
2. The information in the app is well organized, so I can easily find the information I need.	106	71 %	Agree
3. Overall, I am satisfied with this application.	120	80%	Strongly agree
4. I will use this app again.	131	87 %	Strongly agree
5. I feel comfortable using this application.	106	71%	Agree
Utility			
1. This application will be useful for my tutorial process.	137	91 %	Strongly agree
2. This application further increases my access to tutorial programs (compared to face-to-face tutorials).	120	80%	Strongly agree
3. This application helps me manage the tutorial program effectively.	137	91 %	Strongly agree
4. This application is useful for carrying out tutorial programs flexibly.	131	87%	Strongly agree
5. This app has all the functions and capabilities I expected.	106	71%	Agree
AVERAGE	122	82%	Strongly agree

It can be seen in Table 2 that the statement got responses ranging from 1 (strongly disagree) to 5 (strongly agree). The result of the limited trial, based on Table 2, tells that the products can be used for further trial. They, respondents, argued 82% are strongly agree. Additionally, researchers also performed the result of field trial in Table 3.

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Table 3. Field trial scores for using the SIMA'I application.

Appraised item	Total Score	Percentage Score	Criteria
Ease of use			
1. This application is easy to use.	1380	92%	Strongly agree
2. It was easy for me to learn to use the app.	1299	86%	Strongly agree
3. The application interface allows me to use all the functions offered by the application.	1332	89%	Strongly agree
4. Navigation is consistent when moving between screens.	1345	89%	Strongly agree
5. Whenever I made a mistake using the app, I was able to recover easily and quickly.	1337	89%	Strongly agree
Interface (*interface*) and satisfaction			
1. I like the app interface.	1344	89%	Strongly agree
2. The information in the app is well organized, so I can easily find the information I need.	1376	91%	Strongly agree
3. Overall, I am satisfied with this application.	1339	89%	Strongly agree
4. I will use this app again.	1333	89%	Strongly agree
5. I feel comfortable using this application.	1372	91%	Strongly agree
Utility			
1. This application will be useful for my tutorial process.	1406	93%	Strongly agree
2. This application further increases my access to tutorial programs (compared to face-to-face tutorials).	1344	89%	Strongly agree
3. This application helps me manage the tutorial program effectively.	1391	93%	Strongly agree
4. This application is useful for carrying out tutorial programs flexibly.	1361	91%	Strongly agree
5. This app has all the functions and capabilities I expected.	1383	92%	Strongly agree
AVERAGE	1356	90%	Strongly agree

Similar to Table 2, Table 3 shows that researchers got responses ranging from 1 (strongly disagree) to 5 (strongly agree). In the field trial, respondents strongly agree with the product as 90% of them said so.

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3.3 SIMA'I Usability and Satisfaction

Learning media is a tool that determines the success of the teaching and learning process. Because his direct presence can offer a special dynamic for students. Modern developments have made teachers active and careful in creating e-learning environments. Learning assistance is important where the flow of technology and digitalization of learning is a necessity in 21st-century learning and is one of the learning media that is widely used with the help of mobile learning application systems. Mobile learning is a term used to describe a learning media model that involves the development of mobile technology for learning through the presentation of images, audio, and text.

Recently, mobile technology has introduced a new environment that can be leveraged to further strengthen the teaching and learning process in the classroom. Recognizing this promising situation, a study was conducted to investigate the environmental impact enabled by the Android platform on the learning process among undergraduate students at Jambi University.

The implementation of the PAI tutorial uses a guidance or coaching system with a manual portfolio assessment system with a Various Skills Portfolio (FKB) assessment (Working Paper). With the help of mobile learning, it will facilitate the role and responsibilities of tutors in carrying out Islamic religious tutorial activities. The use of mobile learning with the adaptation of peer tutoring learning between students makes it easier to realize the goals of the program with the help of Android-based mobile technology replacing the manual activities that have been carried out until now.

3.4 Ease of Use

SIMA'I (Islamic Religious Mentoring Information System) is a new innovative idea for PAI learning based on *a Mobile Application System* that is designed to make it easier for tutors and students to fulfill Islamic religious tutorial tasks related to teaching and memorizing basic Islamic knowledge that is integrated with the assessment of religious skills portfolios. The integrative skills in question include cognitive, affective, and psychomotor which can be measured in this Android application-based learning media.

Systems can be used as cheap but powerful learning tools that complement the learning and lecture process in class.[17] Mobile apps have a preference over web-based solutions as they are more transformative than the web growing at a much faster pace. The mobile application development space is dominated by smartphones and other smartphones, 84.7% consisting of Android-based devices. We have seen a massive proliferation in the use of mobile applications, especially in developing countries. As a result, developers are increasingly interested in developing Android applications due to the increasing use of Android phones and users' need for supporting applications[18]

[17] Hafizul Fahri and Khairulanuar Samsudin, "Mobile Learning Environment System (MLES): The Case of Android-Based Learning Application on Undergraduates' Learning," *International Journal of Advanced Computer Science and Applications* 3, no. 3 (2012), doi:10.14569/ijacsa.2012.030311.

[18] Hazem Awni Al Rekhawi, "Android Applications Development Intelligent Tutoring System," *International Journal of Academic Information Systems Research* 4, no. 5 (2020).

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Flexibility and effectiveness can certainly facilitate PAI learning by collaborating with lecturers, tutors, and students, becoming a common hope for the realization of PAI learning goals in higher education. Based on expert opinion about applications designed with prototypes that have been prepared to facilitate communication and collaboration in PAI learning. So the assessment was given with a percentage score of 93% with a very good category in Flexibility and efficiency of use. User control and freedom as well as compatibility between the system and the portfolio which has been used manually by religious tutors in PAI learning.

3.5 Interface and Satisfaction

The interface is an important thing to pay attention to in an application, which is part of the interaction design discussion about Human-Computer Interaction (HCI). The research results show that 90% of users like the interface of the SIMA'I application. This is supported by the information in the application being very well organized so that users can find the information they need. An attractive [19]interface will provide benefits in the form of increased ease of work and increased productivity.[20]

Apart from that, users also feel satisfied with the SIMA'I application. This is shown by a score of 91% in the interface and satisfaction sections. Apart from being comfortable to use, the SIMA'I application also gives the impression to users that they want to use the application continuously. In general, the perception of the success of an information system (IS) is determined by user satisfaction [21]which grows along with technological developments. One approach that must be taken in application development is to be more user-oriented. Users need to be placed at the center of service development and provision. At the same time, it is important to investigate the impact of new services on customers. User satisfaction may have a determining influence on the adoption and use of the service in question. [22]User satisfaction is considered an important aspect of the success of information systems.[23]

3.6 Application Usability

Usability is of course the main consideration in application development, whether the application we are developing will be able to be used and utilized optimally by users. This certainly requires measuring the usability of the

[19] R Firmansyah, *HEURISTIC EVALUATION OF MY INDIHOME APPLICATION INTERFACE DESIGN* (National Seminar on Computer Science and Technology, 2020).
[20] Azainil Ramadiani, Usfandi Haryaka, and Fahrul Agus, "Awang Harsa Kridalaksana, User Satisfaction Model for e-Learning Using Smartphone," *Procedia Computer Science* 116 (n.d.): 373–80, doi:10.1016/j.procs.2017.10.070.
[21] Xu Hui Marinette Bahtilla, "The Principal as a Curriculum-Instructional Leader: A Strategy for Curriculum Implementation in Cameroon Secondary Schools," *International Journal of Education and Research* 6, no. 1 (2020).
[22] Pieter Verdegem and Gino Verleye, "User-Centered E-Government in Practice: A Comprehensive Model for Measuring User Satisfaction," *Government Information Quarterly* 26, no. 3 (2009), doi:10.1016/j.giq.2009.03.005.
[23] Maria Antonopoulou and Theodore Kotsilieris, "A Literature Review of User Satisfaction Models towards Information System Success," *International Journal of E-Services and Mobile Applications* 11, no. 2 (2019), doi:10.4018/IJESMA.2019040105.

application.[24] The research results show that there is significant use of the SIMA'I application in the PAI tutorial process, this can be seen from the score obtained, namely 91%.

Users assess that the SIMA'I application is very helpful in managing the implementation of the tutorial program. Compared to implementing the tutorial program manually, using the SIMA'I application is considered very effective and flexible to use. Apart from that, the SIMA'I application also has functions and capabilities in accordance with user expectations.

The SIMA'I application is very useful for PAI tutorial students. Using the application is very easy because it has a high level of usability, and this application can be accessed easily by downloading the APK so every student can have it. Due to the ease of use of this application and to make it easier to implement the PAI Tutorial, it is recommended that it be used and developed in stages.

4. Conclusion

This learning assistance application research was developed through the ADDIE stages. The lack of optimal collaboration between lecturers, students, and tutors has inspired research in developing this mobile-based learning application. Based on research data and analysis results as well as products that have been validated, it can be concluded that the results of product quality evaluation based on expert assessments from professionals including ease of use, interface, and urgency conclude that learning assistance based on the SIMA'I mobile learning application is very comfortable and easy to use. The results of student responses to the SIMA'I application can help make the learning process meaningful, fun, and interesting, thereby increasing student flexibility and accessibility. This condition can be seen in the results of student questionnaires after using the SIMA'I mobile learning-based learning application which can have a positive impact on students' ease of learning by showing a percentage of 86% in the very good category for use in PAI learning at Jambi University.

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[24] Masyura Ahmad Faudzi et al., "Evaluating Learning Management System Based on PACMAD Usability Model: Brighten Mobile Application," *International Journal of Advanced Computer Science and Applications* 13, no. 5 (2022), doi:10.14569/IJACSA.2022.0130573.

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