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UI/UX Design of Ruang Kajian Application Using the Design Thinking Method

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Abstract

Islamic Studies, or Dirasah Islamiyah, explores various aspects of Islamic teachings. In Indonesia, where Islam is the majority religion, many organizations actively promote da'wah through study sessions, sholawat, and dhikr. However, the Better Youth Foundation lacks a dedicated platform to support its Better Youth Academy programs, which involve structured Islamic studies. This highlights the need for an efficient and accessible platform to facilitate learning and positive activities. This study develops the Ruang Kajian mobile application using the Design Thinking method, which consists of five stages: Empathize, Define, Ideate, Prototype, and Testing. The approach ensures a user-centered design, focusing on usability testing based on ISO 9241-11 standards and evaluating Effectiveness, Efficiency, and Satisfaction. The proposed design allows users to register and participate in Better Youth Academy sessions efficiently while accessing various structured study materials. Testing results from five users showed Effectiveness at 90%, Efficiency at 92.33%, and Satisfaction at 83.40%, indicating the design's high usability. This research demonstrates that Design Thinking can produce user-friendly and efficient UI/UX designs that meet user needs and preferences. It offers practical guidance for developers in creating intuitive interfaces while enhancing the user experience when accessing Ruang Kajian.

Keywords: *UI/UX Design, Design Thinking, Mobile Application, Ruang Kajian, Better Youth Foundation.*

1. Introduction

In the etymological or language aspect, the term Islamic Studies or Islamic Studies is the equivalent of the term Dirasah Islamiyah in Arabic. In the context of Islamic studies in Europe, this term is known as Islamic Studies. Thus, Islamic Studies can be explained as "The study of all matters related to the Islamic religion," or it can be interpreted as "The effort to understand all aspects related to the teachings of Islam" [1]. In Indonesia, where the majority of the population adheres to Islam, many Islamic institutions, organizations, and communities are active in da'wah activities. One example is the existence of the Islamic community, a social group consisting of Muslim individuals with diverse backgrounds. Generally, members of this community have similar interests and goals, namely, to spread the teachings of Islam [2]. Islamic teachings can be spread in various ways, such as general, pre-marital, and fiqh studies. Not only studies, sholawat, and dhikr together are also a means of spreading Islamic teachings.

Based on interviews conducted with the Better Youth Foundation, a foundation that is active in youth development and empowerment, they complain that there is no unique platform related to the Better Youth Academy program. Better Youth Academy is a series of mentoring sessions for youth through several structured study discussions. There is a platform that presents study information, namely darisini.com. There is a lot of study information, but there is still no speciality for classes and learning. Therefore, an initiative is needed to develop a platform that can present study and learning classes that are easy and efficient when accessed by users.

Several previous studies discuss the design of UI/UX applications using the Design Thinking method. The first research was the Application of Design Thinking Method in UI/UX Design of Al-Qur'an Memorization Application"* explored the use of Design Thinking to assist Gen Z in memorizing the Al-Qur'an. The process involved empathy, problem definition, ideation, prototyping, and testing. The leading solutions include memorization materials, gamification, counselling, and community support. Testing with the User Experience Questionnaire (UEQ) highlighted areas for improvement, and subsequent iterations showed significant improvements in user

experience. This study concludes that the app meets user needs but suggests exploring alternative design methods in the future [3]. The second study focused on the UNIMMA New Student Admission application, with high SUS results that fall into the excellent category, indicating that the application is responsive and provides comfort for users [4]. Furthermore, research on the UI/UX of the Only One Cloth application in Purwakarta also used Design Thinking, which resulted in an interface with an average SEQ of 6.4, indicating that the design was easy to use and effective for improving user experience [5].

UI/UX Design refers to a design discipline that focuses on creating an optimal user experience through an intuitive and attractive interface [6]. In platform development, it is essential to have an optimal user interface and user experience to make it easier to use the application and create an attractive user experience. Interface design or User Interface (UI) can be said to be successful if the design can result in increased user satisfaction or positive User Experience (UX) [7] [8] [9]. One method of UI/UX is design thinking. Design thinking is an iterative process of understanding users, challenging assumptions, and redefining problems to find alternative strategies and solutions that may not be immediately apparent at the initial level of understanding. Design thinking is a framework seen from the designer's perspective, which views problem-solving with a focus on a human-oriented approach. At the same time, design thinking provides a solution-based approach to solving problems. It is a way of thinking and working with simple methods. There are five stages in Design thinking, namely: Empathize (gain an empathic understanding of the problem that is trying to be solved), Define (gather great ideas to build features, functions, and elements), Ideate (identify new solutions to the problem statement created, and can start looking for solutions to the problem), Prototype (implement ideas that have been obtained in the previous stage into an application/test product), and testing [10]. Usability Testing with ISO 9241-11 standards with Effectiveness, Efficiency, Satisfaction attributes and Heuristic Evaluation. Mobile applications can be reached through a smartphone, providing various benefits for users with the flexibility of access that allows them to use it multiple times and in different locations. That is why mobile-based applications are the leading choice in the current smartphone era, especially in situations like now, where many mobile applications are utilized in various fields.

Based on the previous explanation, a UI/UX design for Mobile-based Ruang Kajian is proposed. The primary function of this design is to allow users to register and attend Better Youth Academy class sessions quickly. In addition, this Ruang Kajian design is feasible for users to get a lot of positive activity information. This design aims to create a product with a high usage rate and can also be easily adapted by its users. Thus, the benefits of this research are that it provides practical guidance for developers in designing an efficient and satisfying interface and increases the Effectiveness and efficiency of users in utilizing the Ruang Kajian.

2. Methods

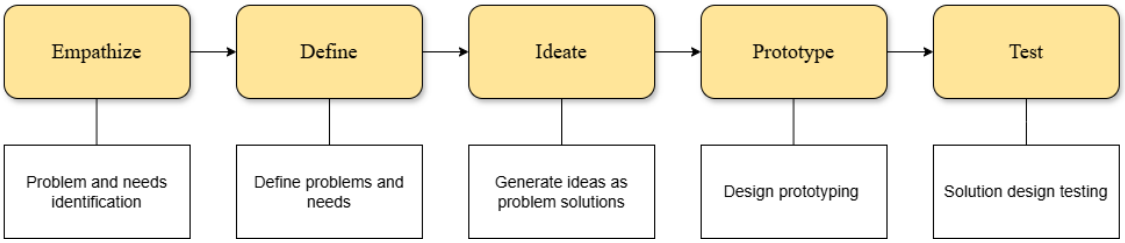

Fig 1. Design Thinking Method

Design thinking is a framework seen from the designer's perspective, which views problem-solving with a focus on a human-oriented approach [11]. Design thinking is a method that involves a series of iterative steps to understand user needs, confront and question assumptions, and reformulate problems to find various strategies and alternative solutions that may not be apparent at the beginning of the understanding process [12]. There are 5 (five) stages in the Design thinking approach to developing applications: empathize, define, ideation, prototype, and test [4].

3. Result and Discussions

3.1. Empathize

Empathy Map facilitates the process by depicting the findings or information obtained about the user in key aspects. This helps understand the user's viewpoint, difficulties, and behaviour [13]. Empathy Map is compiled based on the analysis results conducted after interviews with five respondents related to says, does, thinks, and feels. The results of the Empathy Map mapping are shown below.

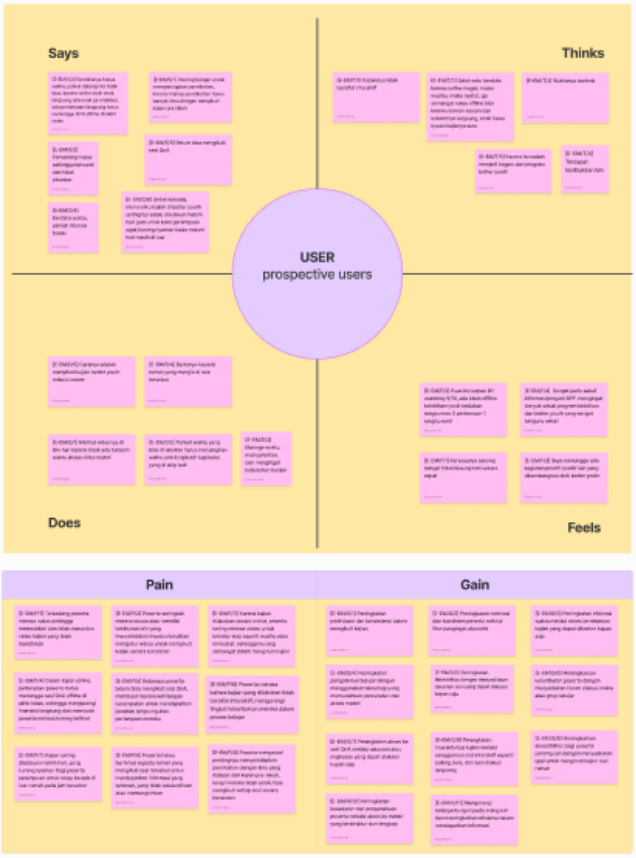

Fig 2. Empathy Map

Table 1. Detail Empathy Map

#	ID	Description
Says	[E-EM/S/1]	It is essential to prepare for marriage because, in marriage, there must be a lot of knowledge by participating in pre-marriage studies.
Says	[E-EM/S/2]	Sometimes, we are lazy, so we miss it and don't watch it
Says	[E-EM/S/3]	The only obstacle is time; we can't come to the schedule because online is better directly; there are good and bad things, there are direct questions, and you have to wait for offline Q&A at the end of class.
Says	[E-EM/S/4]	Time constraints once felt bored
Says	[E-EM/S/5]	Not yet able to participate in the QnA session
Says	[E-EM/S/6]	I think studies at Better Youth are always held at night for obstacles. So, for us women, it's uncomfortable if it's still outside at night.
Thinks	[E-EM/T/1]	The study is not interactive
Thinks	[E-EM/T/2]	One of the obstacles is that online is lazy, lazy to do ablution, lazy to take notes, and not enthusiastic if offline, you can meet friends and ustadz directly; it's good if you take notes. The study is fun.
Thinks	[E-EM/T/3]	The time clashes
Thinks	[E-EM/T/4]	There are other preoccupations
Thinks	[E-EM/T/5]	Because it has become part of the better youth program
Does	[E-EM/D/1]	Viewing the video on another day because there is no time limit for accessing the video material
Does	[E-EM/D/2]	Regarding the time that can be done, you have to take the time to follow the skipped class again.
Does	[E-EM/D/3]	Manage time, prioritize, and remember learning needs
Does	[E-EM/D/4]	Asked a friend who attended the session
Does	[E-EM/D/5]	The trick is to follow the study of better youth through zoom
Pain	[E-EM/P/1]	Sometimes, participants feel lazy, so they skip and do not watch the study videos that have been provided
Pain	[E-EM/P/2]	Participants often feel bored or have other activities that make it difficult to consistently organize time to attend the study.
Pain	[E-EM/P/3]	Because the study is conducted online, participants often feel too lazy to get ready, such as when ablution or taking notes, so they lack enthusiasm to participate.
Pain	[E-EM/P/4]	In online studies, participants' questions must wait for the offline Q&A session at the end of the class, which reduces direct interaction and makes participants feel less involved.
Pain	[E-EM/P/5]	Some participants have not been able to join the Q&A session, which has prevented them from getting direct answers to their questions.
Pain	[E-EM/P/6]	Participants felt that the study was not interactive, reducing their level of engagement in the

#	ID	Description
		learning process.
Pain	[E-EM/P/7]	The studies are often held in the evening, which is inconvenient for female participants to stay out of the house at this time of day.
Pain	[E-EM/P/8]	Participants must ask a friend who attended the session to catch up on missed information, which is not always efficient or possible.
Pain	[E-EM/P/9]	Participants realized the importance of preparing for marriage with the knowledge gained from pre-marital studies, but they could not always attend each session consistently.
Gain	[E-EM/G/1]	Increased participation and consistency in attending the study
Gain	[E-EM/G/2]	Increased motivation and commitment of participants through the automatic reminder feature
Gain	[E-EM/G/3]	Increased time efficiency through access to study recordings that can be watched at any time
Gain	[E-EM/G/4]	Improved learning experience by using technology that facilitates note-taking and access to materials
Gain	[E-EM/G/5]	Increased flexibility by providing recorded sessions that can be accessed at any time
Gain	[E-EM/G/6]	Increased participant engagement by providing online discussion forums or study groups
Gain	[E-EM/G/7]	Improved access to QnA sessions through recordings or summaries that can be accessed at any time
Gain	[E-EM/G/8]	Increased study interactivity through the use of interactive tools such as polls, quizzes, and live discussion sessions
Gain	[E-EM/G/9]	Improved accessibility for female participants by providing the option to join the study from home
Gain	[E-EM/G/10]	Increased awareness and knowledge of participants through access to structured and complete materials
Gain	[E-EM/G/11]	Reduced dependency on others and increased efficiency in obtaining information

3.2. Define

3.2.1. Point Of View (POV)

POV turns the problem into a question/problem statement that can generate solution ideas for the following process. POV contains the user (what is known about the user), need (what they need), and insight (obtained from the empathy process) [14]. In the first stage of the Define phase, we will determine the point of view of the information that has been grouped on the Empathy Map. The preparation of this POV will be based on the following three elements, namely User, Needs, and Insight as follows.

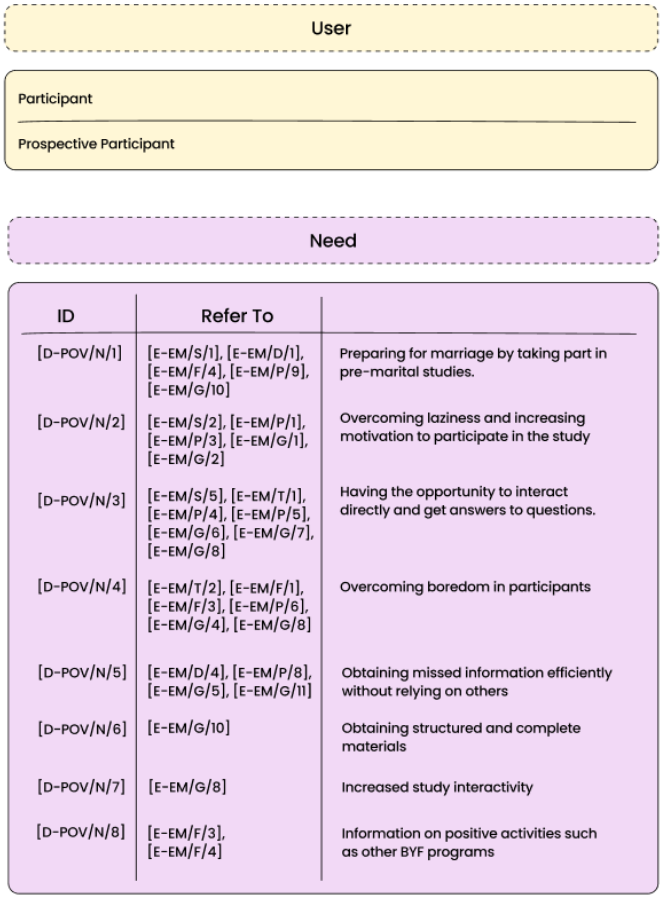

Fig 3. POV (User & Need)

Insight

ID	Refer To	
[D-POV/I/1]	[E-EM/S/2], [E-EM/S/4], [E-EM/T/2], [E-EM/P/1], [E-EM/P/2], [E-EM/P/3]	Participants sometimes feel lazy or bored so they skip and do not watch the study videos that have been provided
[D-POV/I/2]	[E-EM/S/3], [E-EM/P/4]	Participants' questions have to wait for the offline QnA session at the end of the class, which reduces direct interaction and makes participants feel less involved
[D-POV/I/3]	[E-EM/S/6], [E-EM/P/7]	The offline QnA session was held in the evening, which was inconvenient for female participants to stay out of the house at that hour
[D-POV/I/4]	[E-EM/F/3], [E-EM/F/4]	Participants need other positive activities

Fig 4. POV (Insight)

3.2.2. User Persona

User Persona helps identify the target audience or users who are the focus of creating the application. Persona can be used to analyze the types of users with important significance for the business or product being developed [15]. The next stage is to create a fictional profile based on the data obtained from the POV stage. The following persona represents each respondent of the Ruang Kajian.

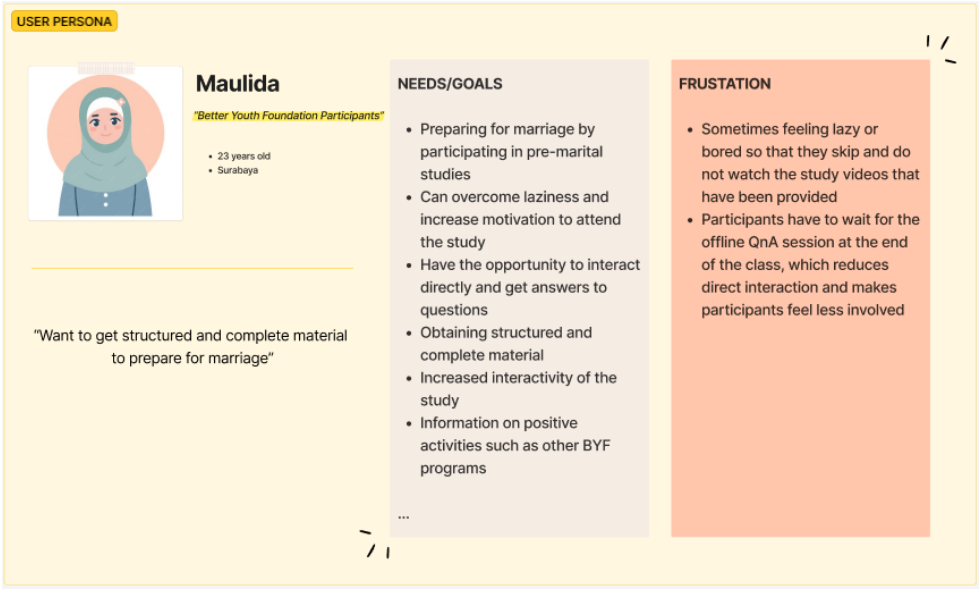

Fig 5. User Persona

3.3. Ideate

3.3.1. How Might We

How-Might-We (HMW) is a series of short questions used to obtain ideas and solutions through brainstorming sessions. The HMW process aims to explore various aspects of a problem to identify problems that can be the focus in finding ideas and solutions in the next stage [16]. The How Might We (HMW) stage focuses on generating as many creative ideas or effective solutions as possible to address user problems or needs. This stage is structured in three steps: understanding insights, formulating How Might We questions, and finding solutions.

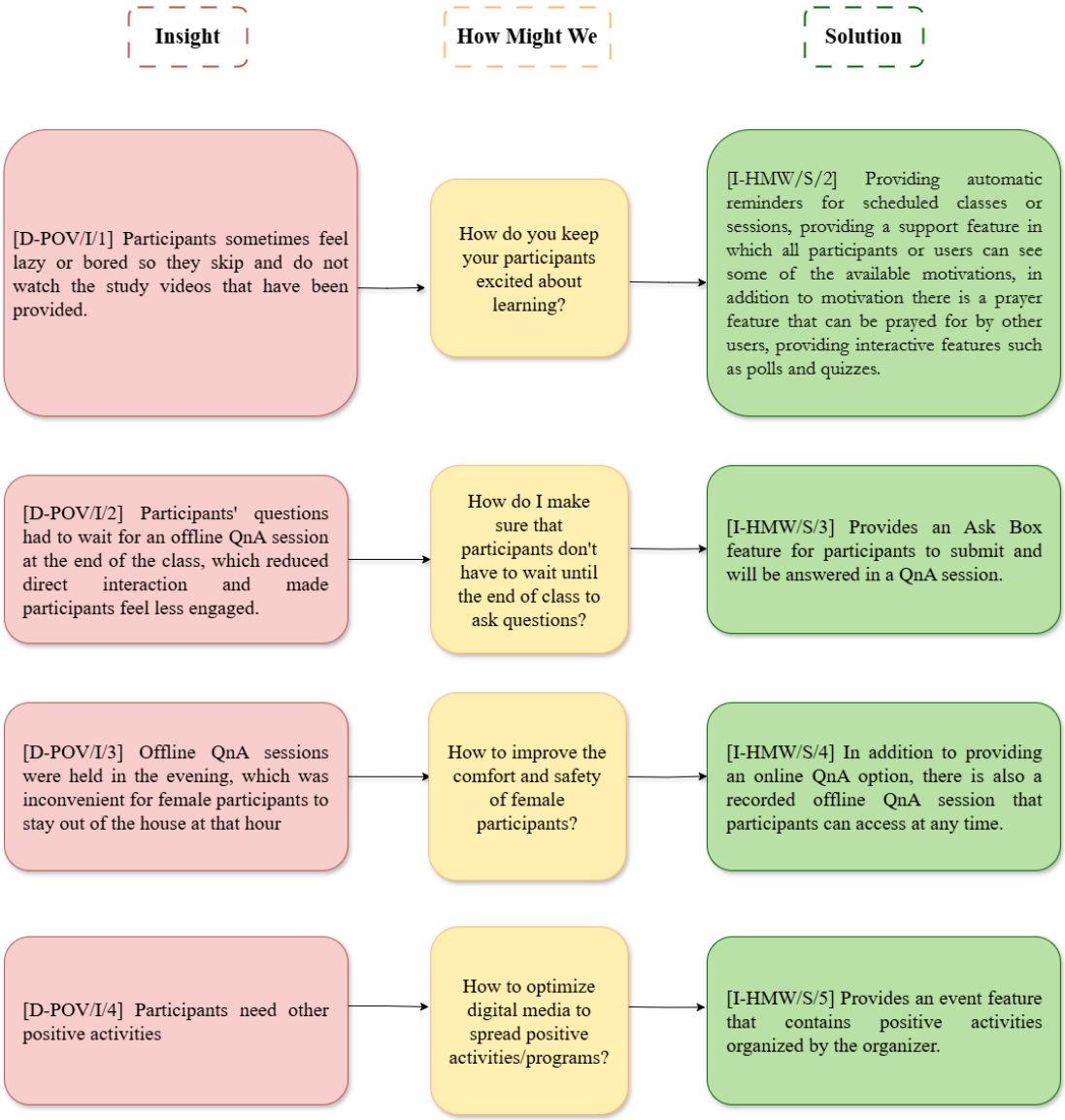

Fig 6. How Might We

3.3.2. Information Architecture

Information architecture reflects the entire data path, including data entering and leaving the information system, to show the relationships between it and other systems. This model addresses the strategic plan, controls, and products generated into business processes. In the second stage of the Ideate phase, the solution's results are compiled into a menu structure, used as a reference in making application designs.

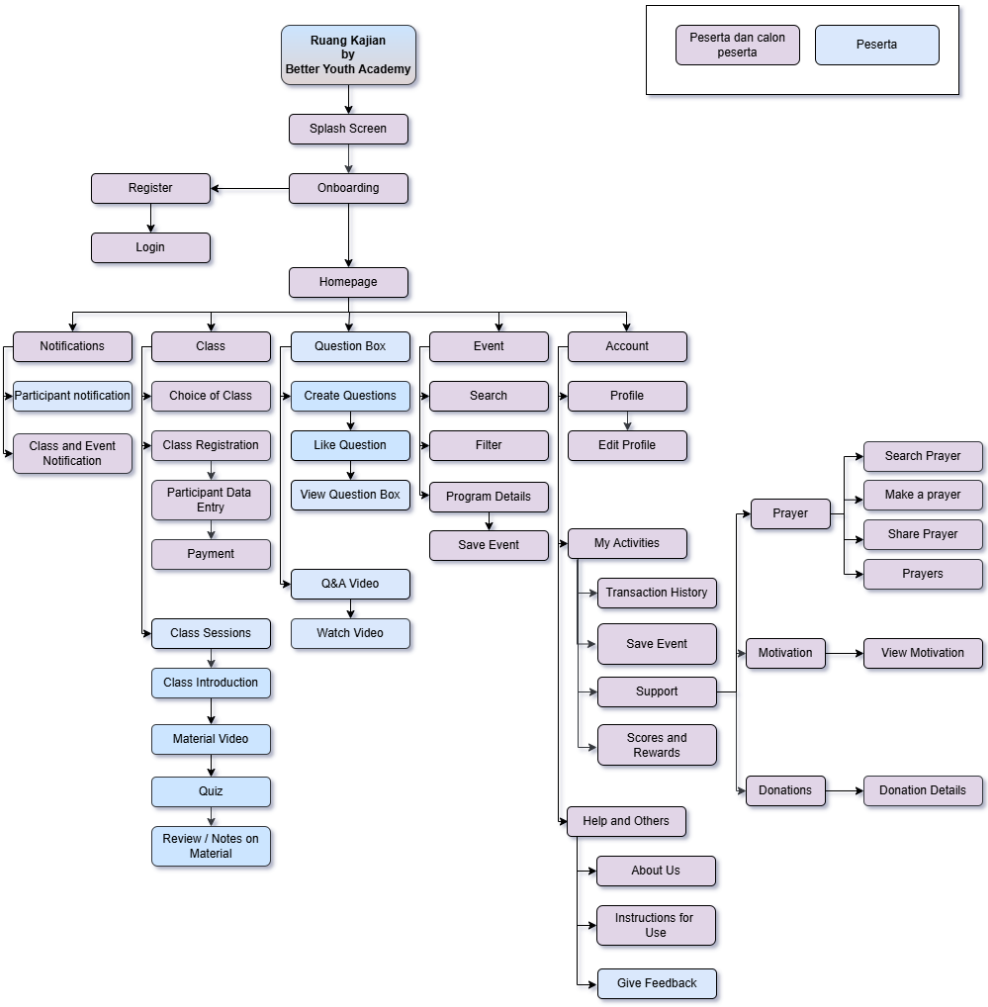

Fig 7. Information Architecture

3.4. Prototype

3.4.1. Design System

Design system merupakan seperangkat standar yang digunakan untuk mengelola desain secara luas dengan mengurangi duplikasi dan menciptakan bahasa bersama serta konsistensi visual di berbagai halaman dan saluran. Selain itu, sistem ini bertujuan untuk mempercepat dan menyederhanakan proses desain dan pengembangan [17]. In the early stages of the prototyping phase, the first step is to design a design system that aims to make the design follow several design principles, such as consistency, uniformity, and others. In addition, this creation process also utilizes the latest features from Figma, namely variables. Here are the results of the Design System that has been created.

Fig 8. Fonts

Fig 9. Color Palette

Fig 10. Ruang Kajian App Logo

Ruang Kajian app design logo, which has the following meanings:

1. Open Book: The book symbol symbolizes science, education, and learning, which is relevant to the mission of the "Ruang Kajian" app. An open book indicates openness to helpful knowledge that is ready to be learned by users.
2. Orange Color in the Book: Using orange in the logo, especially in the book, reflects passion, enthusiasm, and positive energy. This colour is often associated with creativity and happiness, aligning with the spirit of learning this app wants to build for the younger generation.
3. Islamic Ornamental Elements: An Islamic geometric ornament is on top of the book. This symbolizes Islam's spiritual and religious aspects at the core of the app's content and purpose. It also depicts the beauty of Islamic architecture, giving a substantial feel to faith-based education.
4. Crescent and Star: The crescent moon and star symbol is an icon often associated with Islam. The crescent moon symbolizes divine guidance and light in the darkness, while the star can represent hope and clear direction in the pursuit of knowledge.

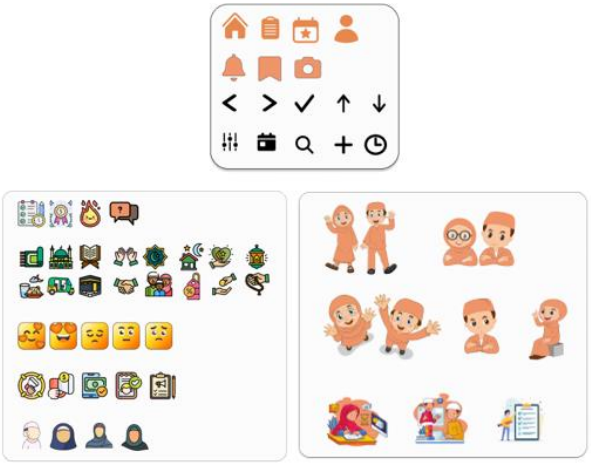

Fig 11. Ruang Kajian Design Icons, Vectors and Illustrations

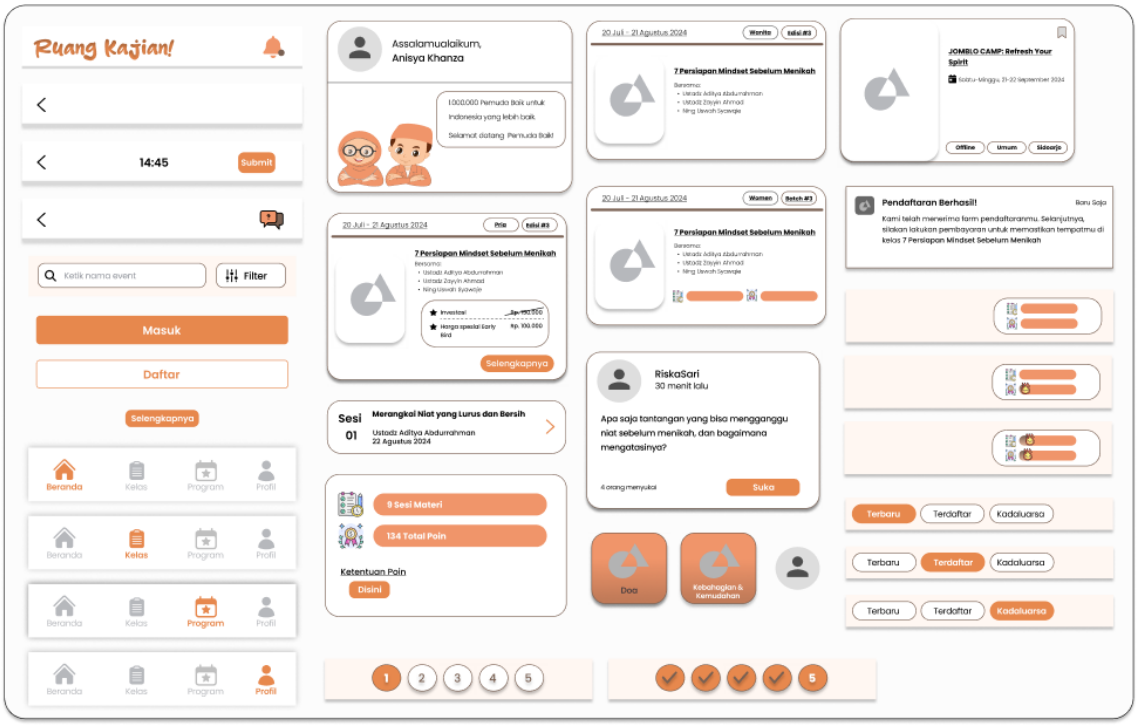

Fig 12. Interface Components

3.4.2. Mockup

Mockups are used as a prototype representation of information system architecture that provides an overview of the programming interface[18]. In this stage, a mockup is created using the Figma tool, where a high-fidelity visual representation is made. An example of a mockup of the Ruang Kajian app

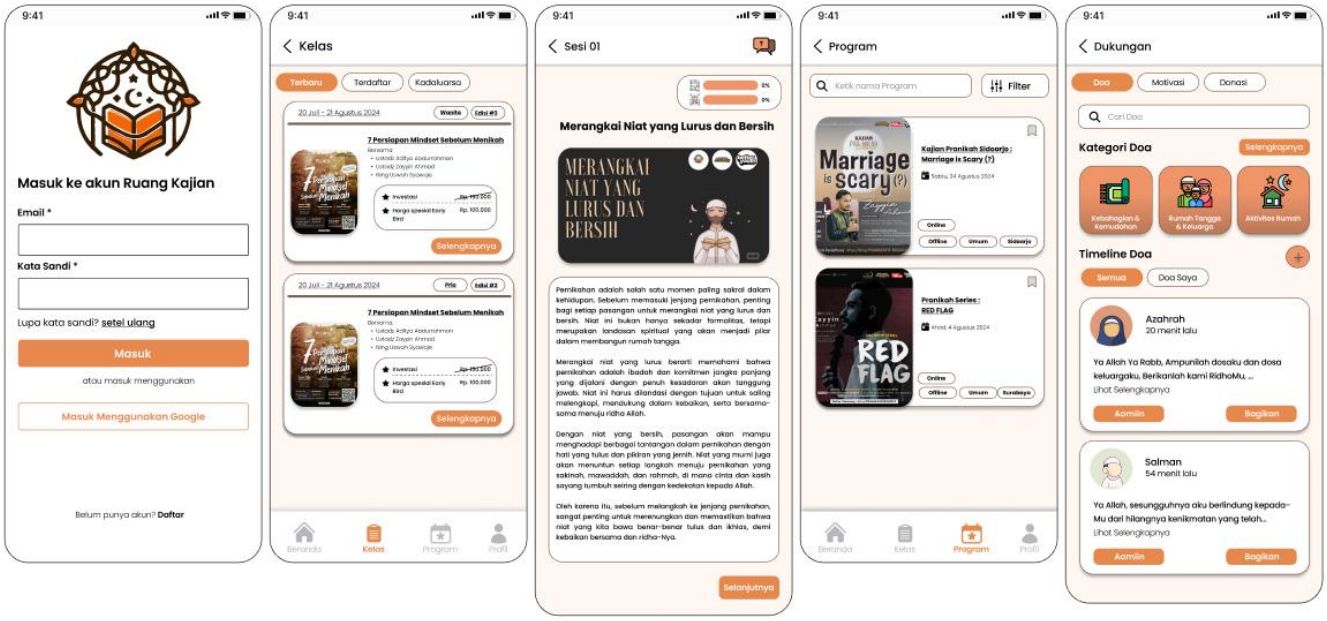

Fig 13. Mockup

3.5. Test

Usability is the quality of a software's ability to help users accomplish a task. Usability testing helps observe test results, makes it easy to obtain a concrete understanding of usability, and is very cheap because it only requires testing a small number of users [19]. According to ISO 9241-11, three metrics are used in testing a system: Effectiveness, efficiency, and Satisfaction [20]. Five respondents were tested on aspects of Effectiveness, Efficiency, and Satisfaction in the test stage. In testing effectiveness and efficiency, respondents will be given a scenario that they must complete. The number of scenarios that respondents must complete totals ten scenarios. Meanwhile, satisfaction is an aspect that assesses the level of ease of users in using the system and their level of satisfaction with the system. In this aspect, users are asked questions. The question asked directly to the target users after they have evaluated is, "How satisfied are you with the design of the Ruang Kajian?" [21].

3.5.1. Effectiveness

Table 2. Success Taks User

Respondents	R1	R2	R3	R4	R5
SP1	Indirect	Direct	Direct	Direct	Direct
SP2	Direct	Unfinished	Direct	Direct	Direct
SP3	Direct	Direct	Indirect	Indirect	Direct
SP4	Direct	Direct	Direct	Direct	Unfinished
SP5	Direct	Direct	Direct	Direct	Direct
SP6	Direct	Direct	Direct	Direct	Direct
SP7	Direct	Direct	Direct	Direct	Indirect
SP8	Direct	Direct	Direct	Direct	Direct
SP9	Direct	Direct	Indirect	Indirect	Direct
SP10	Direct	Direct	Direct	Direct	Direct

$$Success\ rate = \frac{(B + (SB \times 0{,}5))}{\text{number of tasks} \times \text{number of responses}} \times 100\%$$

$$= \frac{42 + (6 \times 0{,}5)}{10 \times 5} \times 100\%$$

$$= 90\%$$

The success rate for the effectiveness aspect of the user-side Ruang Kajian application reached 90%. Out of 50 tasks that were successfully done, it amounted to 42. At the same time, six tasks were declared partially successful.

3.5.2. Efficiency

Table 3. Processing Time User

Respondent	R1	R2	R3	R4	R5	Total
SP1	107.46	52.51	34.47	24.59	21.21	240.24
SP2	741.6	17.45	103.12	90.25	56.52	1008.94
SP3	125.2	406.4	109.52	74.94	36.94	753
SP4	41.05	56.84	44.98	35.43	46.99	225.29
SP5	29.25	25.18	31.14	17.89	23.35	126.81
SP6	30.29	18.38	100.5	12.16	12.83	174.16
SP7	64.66	39.46	24.11	58.7	39.2	226.13
SP8	235.06	37.16	41.89	140.34	56.21	510.66
SP9	27.21	37.22	76.17	16.05	31.37	188.02
SP10	18.09	27.88	58.32	20.48	24.5	149.27
Total						3602.52

Table 4. Success Rate User

Respondent	R1	R2	R3	R4	R5	Total
SP1	53.73	52.51	34.47	24.59	21.21	186.51
SP2	741.6	0	103.12	90.25	56.52	991.49
SP3	125.2	406.4	54.76	37.47	36.94	660.77
SP4	41.05	56.84	44.98	35.43	0	178.3
SP5	29.25	25.18	31.14	17.89	23.35	126.81
SP6	30.29	18.38	100.5	12.16	12.83	174.16
SP7	64.66	39.46	24.11	58.7	19.6	206.53
SP8	235.06	37.16	41.89	140.34	56.21	510.66
SP9	27.21	37.22	38.08	8.02	31.37	141.9
SP10	18.09	27.88	58.32	20.48	24.5	149.27
Total						3326.4

Overall relative $efficiency$ = $\frac{\text{Time x Succes Rate}}{\text{Total Processing Time}} x\ 100\%$

$= \frac{3326.4}{3602.52} x\ 100\%$

= 92,33%

The total processing time of all tasks for all user respondents amounted to 3326.4 (seconds), and the total time required by all respondents to do all tasks successfully was 3602.52 (seconds). So, the efficiency aspect of the calculation using the overall relative efficiency formula produces a figure of 92.33%.

3.5.3. Satisfaction

Table 5. Satisfaction User Test Results

User Respondents	User Satisfaction Rate
User 1	82%
User 2	87%
User 3	83%
User 4	85%
User 5	80%
Average User Satisfaction	83.40%

The results of the satisfaction assessment for users are 83.40%. Based on the Usability testing measurement scale for satisfaction, this value is 65-84%. This value is in the category of suitable qualification and successful results.

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4. Conclusion

Based on the research results, it can be concluded that designing the UI/UX design of the Ruang Kajian application using the Design Thinking method can produce a good Usability design. Through a research process involving interviews with participants and applying Design Thinking principles, this research resulted in a UI/UX design that meets user needs and preferences. The results of the three-aspect testing resulted in final scores from five users with Effectiveness 90%, Efficiency 92.33%, and Satisfaction 83.40%, indicating that the usability results were categorized as very good.

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