

Designing User Interface & User Experience of Digital Islamic Ecosystem Mobile Application with User Centered Design Method

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Abstract — The globalization era has now entered Industry 4.0 where technology has developed tremendously. In addition to the globalization, the Covid-19 pandemic has forced the entirety of the world to change their whole way of living. In response to these conditions, Muslims must be able to cope with the challenges they face in order to adapt. Digital ecosystem is a solution to the increased numbers of people utilizing their smart phone in their daily activities in this globalization era. Based on the problems stated, the development of an Islamic digital ecosystem application is needed. The UCD is the go-to method for this research because it complies with the objective of the research. The method that will be used for the testing and evaluation of this research is the SEQ and the SUS method. The end result of this research has come up with the solution with the IHYA Digital Ecosystem mobile application, that obtained the result of SEQ testing of average 5, 6, and 7 score and the SUS testing score of 84.2. And it is concluded that the IHYA Digital Ecosystem mobile application design can be easily used and accepted by the users.

Keyword — digital ecosystem, muslim, user centered design, system usability scale, single ease question

I. PRELIMINARY

The globalization era has now entered Industry 4.0 where technology has developed tremendously, to the point where people rely on technology on even doing their daily activities such as buying food & necessities, learning, working, and many more. Responding to these conditions, Muslims must be able to answer the challenges they are facing so they can adapt and come up with alternative choices for the community. Most Muslims now have applications regarding their daily Islamic activities, the application that they have on their phone also varies depending on what they need. The role of the Islamic-based digital ecosystem clearly is important, so that it can support various needs for Muslims, ranging from learning, social media, information sources, etc. In order to develop the UI and UX for the Islamic-based digital ecosystem application, it needs a method that involves users to further understand what the users want in terms of the UI/UX of the application. The suitable method for developing the UI/UX of the application based on the case

above is User Centered Design (UCD). User Centered Design (UCD) is design philosophy that locates the user as the centre of a systems development process. In UCD, it involves users throughout the design process via a variety of research and design techniques, to create highly usable and accessible products for them.

The UCD approach has been supported by various techniques, methods, tools, procedures and processes that help design a more user centered interactive system [6]. The method is also proven to increase the usability of web/application. In [5], they described that the web they redesigned using the UCD method had an increase in usability compared to the previous design.

Based on the explanation above, it is decided that the user centered design method is the right method for the design development of UI/UX for IHYA Digital Ecosystem Application. Since the UCD method involves users in the development it assures that the needs of the users will be fulfilled and it could increase the productivity of the development since this research only develops features and needs that only the users want, and there is less need to spend time on unnecessary features that the users will unlikely use.

II. THEORETICAL REVIEW

A. Digital Ecosystem

A digital ecosystem is a group of interconnected information technology resources that can function as a unit. The goal of a digital ecosystem is to improve the efficiency of the communication between internal systems and to structuralize the existing business ecosystem [8]. Digital ecosystems change enterprises to drive business processes a lot of with efficiency in an exceedingly absolutely manageable manner. There are 3 main benefits that digital ecosystem can drive value for the adopters (Hughes, 2019), the benefits are as follow:

1. Create new sources of revenue Digital systems drive new revenue streams through consolidated ecosystem integration, with that organizations will track and analyse comprehensive information flowing through the business and use it to form new product and services. Such integration not solely strengthens current revenue-generating processes it

additionally creates added services for brand new revenue channels.

2. Lower costs through improved business process Adopters that have embraced digital changes and scheme integration platforms are finding measurable price savings. Besides rising advancement efficiency, end-to-end integration improves your operating relationships with customers and partners, and reduces operational prices.

3. Increase speed of technology adoption A system integration strategy allows enterprises to totally embrace new technology in ways in which were antecedently cumbersome.

B. User Interface & User Experience

UI (user interface) / UX (user experience) describes a collection of concepts, guidelines, and workflows for critically thinking about the planning of the design and the use of an interactive product [7]. User interface (UI) refers to a system and a user interacting with each other through commands or techniques to operate the system, input data, and use the contents. User interfaces range from systems such as computers, mobile devices, games, etc. to application programs and content usage [3]. User interface plays a vital role in an application. In terms of visibility, the design and precision hold the main importance for reflecting the exact amount of information intended for the user of the application [2]. User Experience (UX) refers to the overall experience related to the perception, reaction, and behaviour that a user feels and thinks through the direct or indirect use of a system, product, content, or service [3].

C. Persona

Persona is usually defined as a representative of a group users who share in common about their needs and wants about technology. Creating roles can help you understand user needs, experience, behaviour, and goals. Creating roles can help you get out of trouble. It can help you recognize that different people have different needs and expectations, and it can also help you determine which users to design.

D. Usability Testing

Usability testing is a way to ensure that an interactive system is suitable for users, their tasks, and that its use has no negative consequences. Usability evaluation is a basic step in the user-centered design process of any interactive system. The purpose of usability evaluation is to evaluate the effectiveness of the system, the degree of effectiveness, and support Positive attitude and response of target users.

E. User Centered Design

UCD is an iterative process with a goal to develop usable systems, which is achieved with the involvement of potential users of a system in system design [4]. There are 5 steps to UCD, below are the steps of the user centered design:

1. Plan the human centered process in this step, discussion between the people who will participate in the project will be held, in order to obtain the commitment that the development process of the project will be aimed at the user. The project will have time and tasks to involve users in both the beginning and end of the processes.

2. Specify the context of use This step will identify the type of users that will use the application.

3. Specify user requirement This step will identify the needs of the user.

4. Produce design solution This step is where the designs will be developed according to the users needs as a solution.

5. Evaluate design against user requirement This step is where the design will be evaluated against the requirement that has been identified, to see if the designs have met the requirements.

F. System Usability Scale (SUS)

System Usability Scale (SUS) is one such survey method developed to assess the usefulness of various products or services. The SUS is a questionnaire method that has 10 sets of items with 5 scale steps each. The number from 3-5 have a positive score, whilst the number 1-2 have a negative score [9].

The System Usability Scale Standard Version		Strongly disagree					Strongly agree						
		1	2	3	4	5							
1	I think that I would like to use this system.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	I found the system unnecessarily complex.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	I thought the system was easy to use.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	I think that I would need the support of a technical person to be able to use this system.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	I found the various functions in the system were well integrated.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	I thought there was too much inconsistency in this system.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	I would imagine that most people would learn to use this system very quickly.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	I found the system very cumbersome to use.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	I felt very confident using the system.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	I needed to learn a lot of things before I could get going with this system.		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 1 SUS Questionnaire Model

E. Single Ease Question (SEQ)

Single Ease Questions (SEQ) is the sets of questions given after completing all scenarios or tasks in the testing given by the researchers. SEQ requires the participants to assess the overall difficulty of completing a task. There are 2 versions of this SEQ scale, there are the 5 points scale and the 7 points scale, but according to experts it is recommended to use the 7 points scale version, since it offers more reliability in terms of the data and users prefer it more since it has more answer, hence more detailed valuation of the answers[9].

Overall, how difficult or easy did you find this task?

Very Difficult	1	2	3	4	5	6	Very Easy
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 2 7 Points SEQ Scale

III. METHOD

A. Conceptual Method

The idea of the design science analysis methodology is to approach goal-based solutions, establish issues and motivations, focus determination of research, style and development of solutions, simulation making, testing, discussion, conclusion. The flow of the method is shown in the figure below

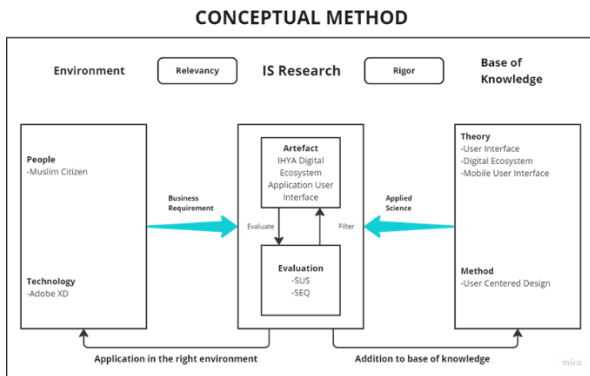


Figure 3 Conceptual Method

This research uses user experience, user interface, and digital ecosystem theory, also the use of the user centered design method as the design method and usability testing to evaluate the design. The applied knowledge could be applied in this research to produce an artefact that is the UI/UX of IHYA Digital Ecosystem Application. The main target of this research is Muslim citizens that uses smartphone in their daily activities.

B. Research Systematic

The method used in this research is User Centered Design (UCD). The research has preliminary stage, final stage, and design stage that includes 5 stages of User Centered Design Method, the stages of the User Centered Design are as follows: 1. Plan the human centered process 2. Specify the context of use, 3. Specify the user and organizational requirement 4. Produce the design solution 5. Evaluate the design against user requirement.

C. Data Collection

In this research, the collected data are primary data. The data are collected by utilizing questionnaire Google form is chosen to be the media for the questionnaire, because it eases the process of sharing the questionnaire online to people from different regions. The data collection are summed up on the table below.

Table 1 Data Collection Table

Participant	101 participants
Background	- Any background - Uses smartphones / any digital device - Muslim
Age	16-60 years of age
Job desk	Participants are asked to respond to the questions about Islamic application and digital ecosystem. The questionnaire has both open-ended and close ended questions.

D. Development of Product

According to the result analysis of the participant's answer in the google form questionnaire, we conclude that the majority of the participants uses / have used applications to

help fulfil their daily needs (transportation, foods, religion, information, etc.), and 91.9% of them agrees that a digital Islamic ecosystem application is needed in their life to help fulfil their daily needs in terms of both basic needs (food, transportation, etc.) and religious needs (prayer, Quran, etc.) in one application.

E. Evaluation Method

This research utilizes the SUS (System Usability Scale) & SEQ (Single Ease Question) evaluation method.

IV. DESIGN AND ANALYSIS

A. Plan the Human Centered Design

In this step of the research, 2 interviews were conducted in order to further understand the possible wants and needs of the targeted user. The first interview was about the digital ecosystem analysis, where the result shows that the majority of the interview participants have a digital ecosystem application in their smart phones that they use almost daily, and when they were asked about how much they need an application with the digital ecosystem implementation, 84.3 % of the participants agree that digital ecosystem is a concept that needs to be implemented in more application.

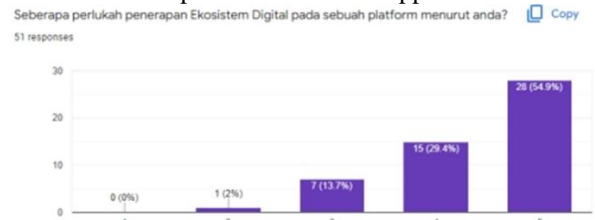


Figure 4 Graphics of response of how digital ecosystem is needed in an application

Based on the digital ecosystem interview analysis, it is decided that this research will implement the concept of digital ecosystem to the IHYA mobile application.

The second interview conducted was about the reference application that has implemented the digital ecosystem concept to their application. There are 4 main platform type that served as the basis for the interview, the platforms are shown on the table below.

Table 2 Reference Platform

Platform	Reference Platform
Islamic Application	MuslimPro, Umma, Maqmur, Al-Quran Indonesia, Muslim Pocket
E-Commerce	Tokopedia, Shopeee, Blibli, BukaLapak
Online Sadaqat / Charity	KitaBisa, WeCare, IndoKasih, Dompot Dhuafa, Rumah Zakat
Online Investment	Ajaib, Pluang, Bibit, Santara, TanamDuit, Bareksa

The questions asked about the reference platform in this interview was mainly about 5 things, which are Icons, Navigation buttons, Text implementation, and Figures. The

conclusions about the reference platforms are shown on the table below.

Table 3 Interview Conclusion

Aspects of Application	Conclusion
Icons	The icons have to be well placed, has the right size and colour and informative. So that the icon could be well understood by the user.
Navigation Button	The buttons have to be easily identifiable to enable the user to know the use of the button straight away. The button also has to look and placed accordingly.
Text Implementation	The texts have to be concise and easily understandable.
Figures	The figures must be the right size and it has to attract the user.

B. Specify the Context of Use

The next step in the user-centered design technique is to specify the context of use after completing questionnaire surveys, interviews, and profiling participants of digital ecosystem application users. In the user research process, a persona is a fictional figure created to represent the needs of various users.

Table 4 Persona

Name	Ahmad
Demographic	Age: 22
	Occupations: Student
	Characteristics: <ul style="list-style-type: none"> • Uses mobile application on his smartphone at anywhere • Uses Wi-Fi at home and mobile data while outside.
Biography and Behaviour	Ahmad is a student in a respected university in Bandung, Ahmad is a very religious and obedient person. Ahmad often utilizes the features in the Islamic application that he uses to keep up to date about what's happen in the Islamic world, he also uses it to read Quran in case he is somewhere without his Quran. So, Ahmad never misses a day without using the Islamic application in his phone, to assists in his religious needs and obligations.
Hobby	Study, exercise, cooks
Problems	The applications that he uses often has advertisements that takes up the whole screen that annoys him. The applications also have dull interface, so that Ahmad sometimes gets bored of it.
Needs	Application with clean interface, less advertisements.
Motivations	Ahmad uses the Islamic Application because: <ul style="list-style-type: none"> • Helps with his religious obligations • Fulfil his free time • Gets up to date information

C. Specify User Requirements

Based on the outcomes of persona identification and the results of interviews done in the preceding process, this process aims to understand user demands. User requirements based on previous personas and questionnaire findings. The user's requirements are addressed in the Needs part of the persona, as shown in the table below.

Table 5 Persona's Needs

Category	Needs	Solution
Colour	Pleasant colour	<ul style="list-style-type: none"> • The colour must be simple, not too many. • Use suitable colour rule
Figures/Buttons/Icons	More figures, to attract user's attention	<ul style="list-style-type: none"> • Find / Design figures that are suitable to the application design
	More attractive icons & buttons, to increase the interaction	<ul style="list-style-type: none"> • Design simple, coloured, and interactive design for the buttons and icons.
Text	Easy to understand texts	<ul style="list-style-type: none"> • Texts with proper font, size, and colour to increase readability.
Flow	Easy to understand	<ul style="list-style-type: none"> • Set up simple flows of features to make more user-friendly application flow.

After the persona's needs have been identified in the table above, the next step into specifying the user requirements is to create scenarios that are according to the needs of the persona. There are 6 scenarios, each for the different feature for the application. The context scenarios are shown below.

Table 6 Context Scenario

Context Scenario	Stages
Online Store Scenario	4
Invest Feature Scenario	5
Online Course Scenario	7
Online Charity Scenario	3
Online Tutor Scenario	3
Online Seller Scenario	3

D. Produce Design Solution

Wireframe Design

This step of the design is to create the sketch of the user interface that shows the details of the elements of the user interface.

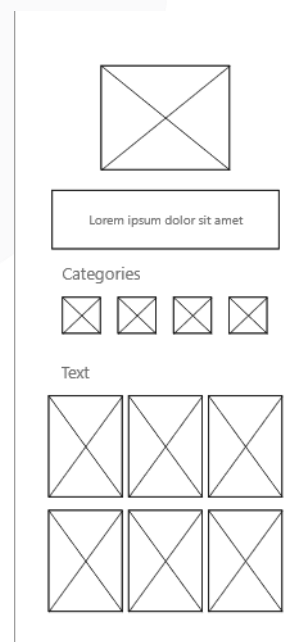



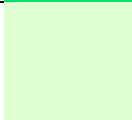
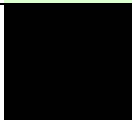
Figure 5 Wireframe Design

Design Guideline

The process of user interface design requires a guideline to ensure that the final design will meet the requirements. There are 3 design guidelines in this research, it includes elements, colours, and topography.

There are a few colours used in the design of the interface, these colours are used for the main elements and components of the interface (background, header, texts, icons, elements). The colours are shown in the table 6 below.

Table 7 Colour Table

No.	Colour	Hex Colour Code	Description
1.		#02E16A	This color is used as the main color of buttons, icons, progress bar.
2.		#DDFFD1	This color is used as the header, and background color of pages, cards.
3.		#010101	This color is used for texts and return icons.

In the process of user interface design, topography also becomes an important aspect to the overall looks and impression of the design. If the topographies are well suited and easily readable, it enables the user to find what they want faster. Table 7 below, shows the topography used in the design process.















Table 8 Topography Table

No.	Picture	Name	Description
1.	HEADLINE 1	Headline 1	Lemon Milk (Bold) 25 sp
2.	HEADLINE 2	Headline 2	Lemon Milk (Bold) 20 sp
3.	BODY	Body	Lemon Milk (Regular) 14 sp
4.	CAPTION	Caption	Lemon Milk (Regular) 10 sp

Lastly, the guideline of the applications has tremendous amounts of impact to how the design looks is the elements of the application. The elements attract the eyes of the user, and if implemented accordingly, could increase the experience of the user. Table 8 below, shows the elements used in the design.

Table 9 Elements of the Application

No	Element	Type	Description
.			

1.		Logo	This element is the main logo of the IHYA application.
2.		Store Icon	This element is the icon for the store feature.
3.		Learning Icon	This element is the icon for the learning feature.
4.		Invest Icon	This element is the icon for the invest feature.
5.		Charity Icon	This element is the icon for the charity feature.
6.		Qibla Icon	This element is the icon for the Qibla feature.
7.		Prayer Schedule Icon	This element is the icon for the prayers schedule feature.
8.		Back Icon	This element is used as the return to previous page icon.
9.		Avatar	This element is used as the avatar icon.
10.		Home Icon	This element is used as the home button icon.
11.		Notification Icon	This element is used as the notification button icon.
12.		Chat/Discussion Icon	This element is used as the chat/discussion button icon.
13.		Credit/Debit Card Icon	This element is used as the card option icon on the payment page.
14.		E-Wallet Icon	This element is used as the e-wallet option icon on the payment page.

User Interface Design

This step of the research is where the actual design of the interface is created. It is developed from the wireframe with the help of the design guideline. Below is one of the actual designs of the interface

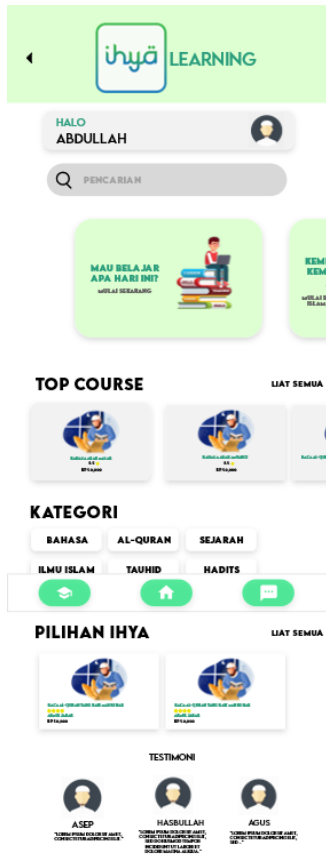


Figure 6 User Interface Design

E. Evaluate Design Against User Requirements

This research conduct testing with 17 respondents, in order to obtain the desired testing result. There are 2 tests that will be conducted, the first being the SEQ method, where the respondents will undergo tasks according to the scenario in the application. After that, the respondents will fill 10 questions questionnaires of the SUS method. The table below lists the respondents of the evaluation.

Table 10 Testing Respondents

No.	Name	Age	Occupation
1.	Respondent 1	54	Housewife
2.	Respondent 2	59	Accountant
3.	Respondent 3	22	Student
4.	Respondent 4	53	Housewife
5.	Respondent 5	52	Housewife
6.	Respondent 6	25	Business Owner

7.	Respondent 7	25	Legal Consultant Intern
8.	Respondent 8	28	Business Owner
9.	Respondent 9	28	Business Owner
10.	Respondent 10	25	Bank Administration
11.	Respondent 11	27	Business Owner
12.	Respondent 12	24	Business Owner
13.	Respondent 13	25	Barista
14.	Respondent 14	25	Interior Design Consultant
15.	Respondent 15	25	Media
16.	Respondent 16	25	Interior Design Consultant
17.	Respondent 17	25	Freelancer

ITERATION 1

The table below shows the result of the first iteration measured using the SEQ and SUS method.

SEQ Method

Table 11 SEQ Iteration 1

Participan no.	Function No.																	
	F01	F02	F03	F04	F05	F06	F07	F08	F09	F10	F11	F12	F13	F14	F15	F16	F17	F18
P01	7	7	7	6	7	7	7	6	6	7	5	7	6	6	7	6	6	7
P02	7	7	7	6	7	7	6	6	7	6	6	6	7	6	7	7	7	7
P03	7	7	7	5	6	7	7	6	6	7	5	7	7	7	7	7	7	6
P04	7	7	7	6	6	7	7	7	6	6	5	7	7	7	7	7	6	6
P05	7	7	6	6	7	7	6	6	7	6	6	6	7	7	6	6	7	6
P06	6	7	7	7	6	6	6	7	7	6	5	7	7	6	7	7	7	6
P07	6	6	7	5	6	6	5	7	6	6	4	7	6	7	6	6	7	7
P08	7	7	7	6	7	7	7	6	7	6	5	7	7	7	6	6	6	7
P09	7	7	6	6	7	7	6	6	7	7	5	7	6	7	6	7	7	6
P10	7	7	6	7	7	6	5	6	6	6	5	6	6	6	6	7	6	6
P11	6	6	7	6	6	7	7	6	6	6	5	6	7	6	7	6	7	6
P12	7	7	7	7	6	6	6	5	6	6	7	7	7	6	7	6	7	7
P13	7	7	7	7	6	7	7	6	7	6	5	7	6	6	6	7	7	6
P14	7	7	7	6	6	6	6	6	7	6	5	7	7	7	6	7	7	7
P15	7	7	6	6	7	7	7	7	6	6	6	6	6	6	7	7	6	6
P16	7	7	7	6	7	7	7	6	6	6	6	7	7	6	6	7	6	6
P17	6	7	7	6	7	7	6	6	7	6	5	7	7	6	6	6	7	7

The table above is the result of first SEQ iteration 1 from all 17 participants who have went through the scenarios of the application. The score given by the participants ranges from 5 (quite easy), 6 (easy), 7 (very easy).

SUS Method

Table 12 SUS Iteration 1

Participant No.	Functional No.										Result
	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q08	Q09	Q10	
R01	3	2	3	4	4	3	4	3	4	2	75
R02	4	2	4	3	3	3	3	3	4	3	80
R03	3	2	3	4	4	3	3	4	3	4	90
R04	4	3	4	3	3	3	3	2	4	2	77.5
R05	4	4	4	2	3	2	2	2	4	3	75
R06	3	4	4	4	4	3	3	4	4	3	90
R07	4	4	3	3	3	2	4	3	4	3	82.5
R08	3	4	3	3	4	3	3	3	3	2	77.5
R09	4	3	3	3	3	2	3	2	3	3	72.5
R10	4	4	4	4	4	4	2	2	4	3	87.5
R11	4	4	3	3	3	3	3	2	3	2	75
R12	3	3	4	3	3	3	3	3	4	3	87.5
R13	4	2	3	2	4	4	3	3	3	3	77.5
R14	3	3	4	3	3	3	2	3	4	3	77.5
R15	3	2	3	4	3	3	3	2	3	2	70
R16	3	3	3	4	3	4	2	3	2	4	77.5
R17	3	2	3	3	3	3	3	2	4	2	70
SUS Score											78.97

The SUS testing in this first iteration got the acceptable result from the participants, based on previous table above the overall SUS score for the first iteration is 78.97. This result shows that the participants can accept the design of the application.

ITERATION 2

SEQ Method

Table 13 SEQ Iteration 2

Participant no.	Function No.																				
	F01	F02	F03	F04	F05	F06	F07	F08	F09	F10	F11	F12	F13	F14	F15	F16	F17	F18	F19	F20	
P01	7	7	6	6	7	7	7	7	6	7	6	6	6	7	6	7	6	6	7	6	7
P02	7	7	7	6	7	7	6	7	7	6	6	6	7	6	7	7	6	6	7	6	7
P03	7	7	7	5	6	7	7	7	6	7	6	6	7	7	7	7	6	7	6	7	6
P04	7	6	7	6	6	7	7	7	6	6	6	5	7	7	7	7	6	7	7	6	7
P05	7	7	6	6	7	7	6	7	7	6	6	6	7	7	6	6	7	6	6	6	6
P06	7	7	7	7	6	6	6	7	7	6	6	5	7	6	7	7	7	7	7	7	6
P07	7	7	7	5	6	6	5	7	6	6	6	6	6	7	6	6	6	7	7	7	7
P08	7	6	7	6	7	7	7	7	7	6	6	5	7	7	6	6	6	7	6	7	7
P09	7	7	6	6	7	7	6	7	7	7	6	6	6	7	6	6	7	7	7	7	6
P10	7	7	6	7	7	6	5	6	6	6	5	6	6	6	6	7	6	6	6	6	7
P11	7	6	7	6	6	7	7	7	6	6	6	6	7	6	7	6	7	7	7	7	6
P12	7	7	7	7	7	6	6	6	5	6	6	5	7	7	6	6	6	6	6	7	7
P13	7	7	7	7	6	7	7	7	7	6	5	5	6	6	6	6	7	7	6	6	7
P14	7	7	6	6	6	6	6	7	7	6	6	6	7	7	6	7	7	6	7	7	7
P15	7	7	6	6	7	7	7	6	7	6	6	6	6	6	7	7	6	7	7	7	6
P16	7	7	7	6	7	6	7	7	6	6	6	5	7	6	6	7	7	7	7	7	6
P17	6	7	7	6	7	7	6	7	7	6	6	6	7	6	6	6	7	7	7	7	7

The table above is the result of first SEQ iteration 1 from all 17 participants who have went through the scenarios of the application. The new feature got good results from the participant, and he score given by the participants ranges from 5 (quite easy), 6 (easy), 7 (very easy), which is pretty consistent, but has improved based on the previous iteration.

SUS Method

Table 14 SUS Iteration 2

Participant No.	Functional No.										Result
	Q01	Q02	Q03	Q04	Q05	Q06	Q07	Q08	Q09	Q10	
R01	4	4	3	3	4	3	4	3	3	3	85
R02	4	4	4	3	4	3	4	4	4	4	92.5
R03	4	3	3	4	4	4	4	3	3	4	90.5
R04	4	3	4	4	3	3	4	3	4	3	87.5
R05	4	4	4	3	3	3	4	2	4	3	85
R06	4	4	4	4	4	3	3	4	4	3	92.5
R07	4	4	3	3	3	2	4	4	4	3	85
R08	3	4	3	3	4	2	3	3	3	3	77.5
R09	4	3	4	3	4	2	3	2	3	3	77.5
R10	4	4	4	4	4	4	3	2	4	4	92.5
R11	4	4	4	3	4	3	3	2	4	3	85
R12	4	3	4	3	4	3	3	3	4	4	87.5
R13	4	3	3	2	4	4	4	3	3	3	82.5
R14	4	3	4	3	3	3	2	3	4	3	80
R15	4	2	3	4	3	3	3	3	3	3	77.5
R16	3	3	3	4	3	4	2	3	2	4	77.5
R17	3	3	3	3	3	3	4	3	4	2	77.5
SUS Score											84.2

The SUS testing in the second iteration got the acceptable result from the participants with improved score of 84.2 from the previous 78.97. This result shows that the participants can accept the design of the application.

V. CONCLUSION

Based on the research of design process of user interface and user experience of the IHYA application, it can be concluded that:

1. There are 5 main steps in the design of the UI/UX of IHYA mobile application. First being the planning of the human centered process (Interviews), the second being specifying the context of use (Persona), the third is to specify the user requirements (Persona's Needs), the fourth is to produce the design solution based on the requirements (Create the UI/UX), and the last step is to evaluate the design against the user requirement (SEQ & SUS).
2. The testing and evaluation of this research was done using the Single Ease Question (SEQ) and System Usability Scale (SUS) method. The testing done in 2 iterations have provided the final score of the IHYA mobile application with the score of 84.2 adjective ratings **Excellent** and acceptability ranges of **Acceptable** for the SUS iteration and overall, 3 SEQ score of 5 (quite easy), 6 (easy), 7 (very easy) which concludes that the design is acceptable and recommended by the users.

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