



Designing User Interface Mobile Website for Beasiswa Perintis-Rumah Amal Salman

Winanda Taqiyyah Imran¹ and Achmad Syarif²

¹ Institut Teknologi Bandung, Bandung, Indonesia

² Institut Teknologi Bandung, Bandung, Indonesia
winandaimran@gmail.com

Abstract. Beasiswa Perintis is a scholarship scheme managed by Lembaga Amil Zakat (LAZ) Rumah Amal Salman. It provides pre-university guidance for Indonesian universities' entrance examinations, tuition fees, and other living allowances for underprivileged high school students.

To extend access and reach potential participants from various regions of Indonesia, the Beasiswa Perintis website was designed. The purpose is to ease potential participants in accessing information and registration. To support this development, a mixed-method approach was conducted, starting with the qualitative phase using Design Thinking.

The researcher collects and analyzes interviews of those in management and sample participants and then designs the prototype website based on the interview results. 5 participants were purposely sampled, and each was asked to access the prototype design using a mobile device. Afterward, in the quantitative phase, the participant asked to complete a questionnaire about their experience interacting with the website using the System Usability Scale.

The results show that the Usability Score of the Beasiswa Perintis website is 73.5 points, with the Acceptable Range being Acceptable, the Grade Scale being B, and the Adjective Rating being Good.

Keywords: User Interface Design, Mobile Web Design, System Usability Scale, Design Thinking

1 INTRODUCTION

Beasiswa Perintis is a scholarship scheme managed by Lembaga Amil Zakat (LAZ) Rumah Amal Salman. It provides pre-university guidance for Indonesian Universities' entrance examinations as well as tuition fees and other living allowances for underprivileged high school students.

From 2018 to 2020, Beasiswa Perintis was opened specifically only for participants in West Java Province. In 2018, there were 150 mentored students, 80 participants passed

into ITB, and more than 40 participants were accepted at other universities. Then, in 2020 there were 150 mentored students, and 116 participants passed to 21 universities in Indonesia. Seeing the number of enthusiasts continue to increase, then in 2021 the Beasiswa Perintis was opened nationally for the first time. Therefore, In 2021 there were 276 mentored students, 105 participants passed into ITB, and 128 students were accepted at other universities in Indonesia. Due to the increasing region to the national scale, Beasiswa Perintis requires a platform to support information systems and registration for participants. At this time, Beasiswa Perintis has used social media to present various information there. However, Beasiswa Perintis still requires a website to build branding and credibility within the company. To achieve this, it is necessary to design a user interface based on Beasiswa Perintis's branding.

Previous research, such as that carried out by [5] only reached the qualitative stage using the design thinking method. There is also research that uses mixed methods, like [8] that combines design thinking and SUS. However, this research focuses on the development of websites and uses an explanatory sequential approach that starts with a quantitative stage and then follows with a qualitative stage. Meanwhile, there is no research about designing a user interface specifically designed to facilitate registration and information for the scholarship website which is a Zakat Institution. Therefore, based on previous research, this research tries a new method by designing a website using a mixed method with an exploratory sequential approach, starting with qualitative and then following up with quantitative data.

Therefore, this research aims to design the user interface of the Beasiswa Perintis website on mobile devices according to the needs of target users who are High School/equivalent students in twelfth grade, and the website prototype trial was carried out on five students who live in the city of Bandung.

2 LITERATURE REVIEW

2.1 Figma

Figma is a web-based design application that can basically be used for various design needs. However, in particular, Figma has the primary function of creating user interface designs and prototypes for mobile or desktop, whether in websites or applications.

2.2 User Interface Design on Mobile Screen

User Interface (UI) Design is the process of designing interfaces in computerized software or devices that focus on appearance. The User Interface design process aims to make the interface easy to use and user-friendly [7]. When interacting with websites, especially on mobile screens, the User Interface display must be simple but still efficient because it is able to bring up the perception of reliability, convenience, and security on the website [1].

2.3 Design Thinking

David Kelly, Co-Founder of Ideo and founder of Stanford Design School, brings empathy with the scientific method to create Design Thinking [3]. Design Thinking is a design method that uses a solution-focused approach and the user in solving a problem. The design thinking ideology asserts that a hands-on, user-centric approach to problem-solving can lead to innovation, and innovation can lead to differentiation and a competitive advantage [8]. This method is a non-linear, iterative process that consists of 5 phases:

1. Empathize

Empathy is very important for human-centered design processes such as Design Thinking. The Empathize mode is the designers' way of understanding people, including understanding the way they do things, their problems, and their needs through research.

2. Define

In the Define phase, the designer then collects the information obtained during the Empathy phase. At this stage, analysis and observation are carried out to determine the core problems that have been identified.

3. Ideate

After the designer has researched and clearly understands who the product is made for and how users perceive and care about the product, at this phase, the designer starts imagining to find ways and solutions that can be designed to achieve all goals. These ideas will evolve into prototypes and become the final product

4. Prototype

Prototype Phase is iterative blueprint creation which can be anything a user can interact with. Examples like a sticky notes wall, gadgets you create, role-play activities, or even storyboards. The prototyping phase aims to identify the best possible solution to each of the problems identified in the previous three stages.

5. Test

In the Testing Phase, you ask for feedback on the prototype you are building for users. In this phase, the designer has another opportunity to gain user empathy. However, slightly different from the previous empathy phase, you may now have done more problem detailing and created a prototype to test

2.4 System Usability Scale

The System Usability Scale (SUS) is a measurement tool used to measure the usability level of various design products. It consists of ten questions and five answer choices: strongly disagree to agree. The system Usability Scale has a minimum score of 0 and a maximum score of 100. Participants are asked the following questions [10] :

1. I thought I would use this website again.
2. I found this website complicated to use.
3. I found this website to be easy to use.
4. I need someone else’s help in using this website.
5. I feel that the features of this website were integrated well.
6. I found many things on this website are inconsistent.
7. I thought others would figure out how to use this system quickly.
8. I thought this website was confusing.
9. I feel there are no obstacles to using this website.
10. I need to get used to it first before using this website.

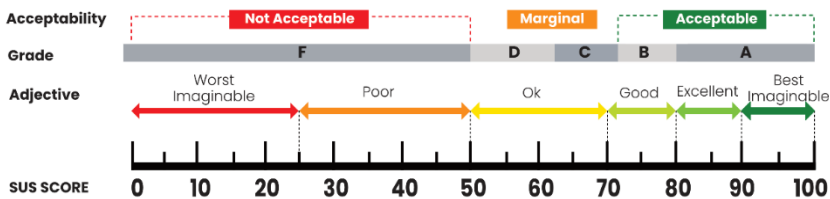


Fig. 1. System Usability Scale Scoring

3 RESEARCH METHOD

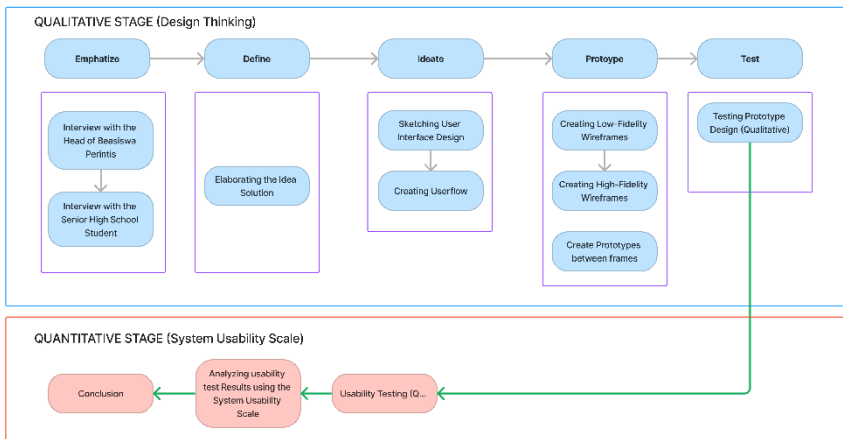


Fig. 2. Research Method

This research uses a mixed approach (mixed method) with a sequential exploratory type. The exploratory sequential approach is a research that begins with a qualitative approach first, then continues with a quantitative approach.

Qualitative data was obtained through interviews with the Head of Beasiswa Perintis. The reason behind this the Head of Beasiswa Perintis had comprehensive and valid information regarding the methods and conditions for applying for the Scholarship. Besides, the researcher interviewed the Head of Beasiswa Perintis to discover the purpose of designing the website, what information the Beasiswa Perintis Team wanted to display, and who their target users were.

The interview results then became the basis for researchers to design a Website User Interface. Quantitative data were obtained using a Usability Testing questionnaire for respondents.

4 RESULTS

4.1 Empathize Phase

A. Interview With the Head of Beasiswa Perintis

From that interview, it was found that the aim is to create a website display for scholarship information, profiles, scheduling & registration, and learning materials features for exam preparation. The target users are twelfth high school/equivalent students, and gap year max. two years. The reason behind the question of why the design should use the mobile device is because the targeted students are underprivileged Senior High School students. So, most of them use mobile devices to access information and lessons.

B. Interview with the Target User (Senior High School Student)

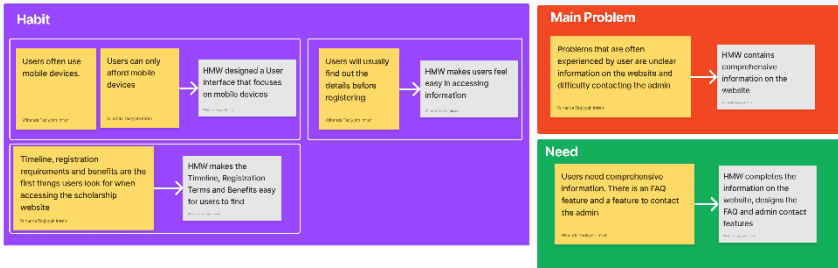
For Targeted Users, the researcher breaks down the questions by dividing them into three groups of questions. Habit, Problem, and Need. The Habit is a list of questions to determine the target users' habits when accessing the scholarship registration website. The Problem is a list of questions that aims to find out what problems or obstacles the target user has previously experienced when accessing the website to register for a scholarship. Furthermore, The Need. The Need is a list of questions to determine what information the user needs to display and suggestions for designing the Beasiswa Perintis website.

From the results of interviews with two Senior High School students, the results obtained were that for The Habit question, target users often access information via mobile devices because they only have these devices for online learning activities. When they access the Scholarship registration website, they first search for the organizers, registration requirements and benefits, and a list of campuses. For The Problem questions, target users find it difficult to contact the scholarship organizer admin if they have questions regarding the website and registration information. For The Need questions, target users need schedule information that is always updated.

4.2 Define Phase

At the Define stage, the qualitative data obtained from the results of the empathize phase is then synthesized. The elaboration of ideas and solutions in this phase uses a brainstorming technique called How-Might-We. How Might We (HMW) is a way to turn a problem into a question. By changing the problem into a question, the researcher can change the mindset that the problems encountered during the interview can definitely be resolved.

HOW-MIGHT-WE (HMW)



HOW-MIGHT-WE (HMW)

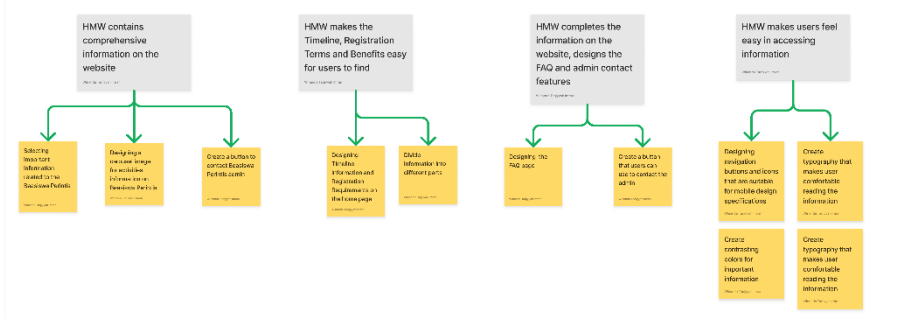


Fig. 3. Define Phase Result

4.3 Ideate Phase

The results of breaking down the ideas and solutions in the Define Phase then became the basis for creating a sketch of the user interface design for the Beasiswa Perintis website. Sketches were made manually with pencils and HVS paper. The image consists of 8 pages of the main frame of the website consisting of Homepage, Profile, Newspaper, FAQ, Learning Materials page, Register and Login pages for participants.

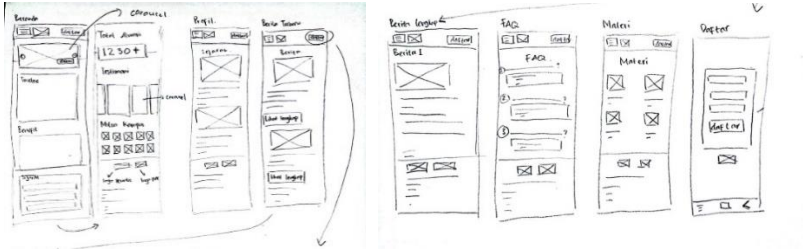


Fig. 4. Ideate Phase Result

4.4 Prototype Phase

A. Low Fidelity Prototype

Low-fidelity prototyping is an efficient way to translate high-level design concepts into tangible, testable artifacts is to load low-fidelity prototyping. The main thing in Lo-fi prototyping is ensuring and testing the functionality and then the visual appearance of a product [6]. At this phase, there are 6 main pages based on the user research. Including Homepage, Profile, Latest News, FAQ, and Learning Materials.

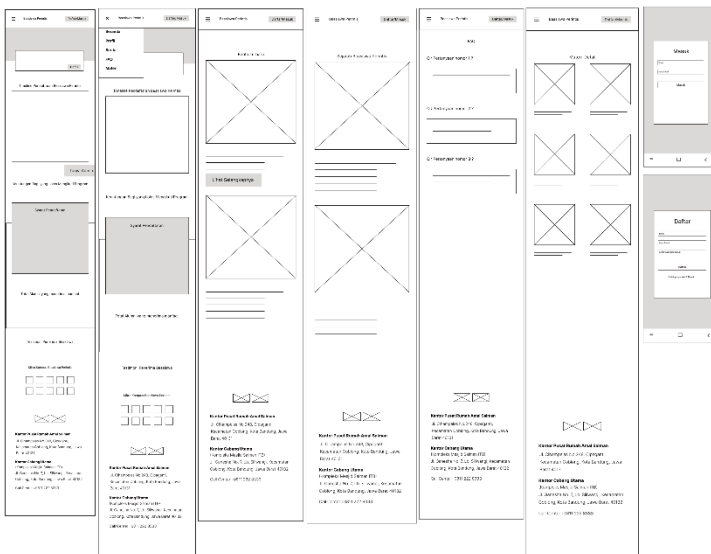


Fig. 5. Low-Fidelity Prototype of Basiswa Perintis Website

B. High-Fidelity Prototype

High-fidelity (hi-fi) prototypes appear and function as similar as possible to the actual product that will be launched. High-fidelity design is recreated using a web-based application, Figma. In High-Fidelity Prototype, system colors, and icons have been defined according to user requirements.

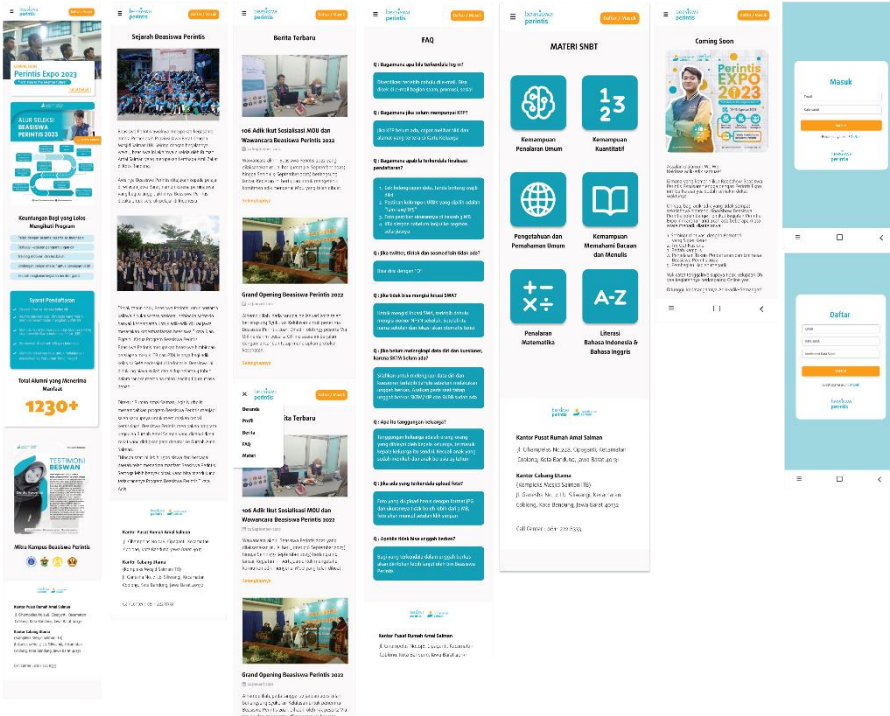


Fig. 6. High-Fidelity Prototype of Basiswa Perintis Website

C. Create Interaction Between Frames

User Interface design obtained from high-fidelity design results then added interaction and navigation between frames. The process of designing interactions between frames (prototyping) has an essential role in website design. This stage allows researchers to create direct simulations of user interactions in more detail and precision. The results are as follows :

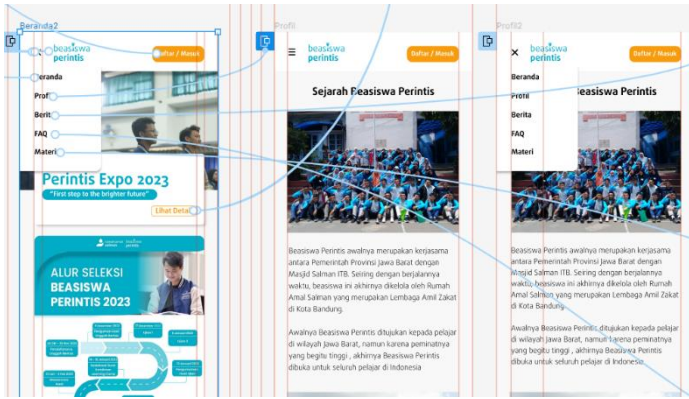


Fig. 7. Interaction between Frame on Beasiswa Perintis Website

4.5 Testing Phase

Testing for Design Thinking was carried out by asking the Senior High School Student to access all the features in the website. Five participants were able to complete the task well although some participants still needed help accessing the features offered. After they access the website page prototype, the target user is then asked to fill out the System Usability Scale (SUS) questionnaire, and the results can be seen as follows :

Table 1. Usability Testing Result

| User ID | Name | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 | Odd Question (Qn-1) | Even Question (5-Qn) | Total | X 2.5 |
|------------------|------|----|----|----|----|----|----|----|----|----|-----|---------------------|----------------------|-------------|-------|
| 01 | MS | 4 | 1 | 5 | 2 | 4 | 2 | 5 | 1 | 5 | 2 | 18 | 17 | 35 | 87.5 |
| 02 | MN | 4 | 1 | 4 | 2 | 4 | 3 | 4 | 2 | 5 | 2 | 16 | 15 | 31 | 77.5 |
| 03 | AS | 4 | 2 | 4 | 4 | 4 | 2 | 3 | 2 | 4 | 4 | 14 | 11 | 25 | 62.5 |
| 04 | AF | 4 | 1 | 5 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 16 | 16 | 32 | 80 |
| 05 | A | 4 | 2 | 4 | 4 | 4 | 2 | 4 | 3 | 3 | 4 | 14 | 10 | 24 | 60 |
| SUS SCORE | | | | | | | | | | | | | | 73.5 | |

Based on the score obtained through the calculation of the SUS Score, it is concluded that the user experience when using the Beasiswa Perintis website is 73.5 points, with the Acceptable Range is Acceptable, the Grade Scale is B, and the Adjective Rating is Good.

5 CONCLUSION & DISCUSSION

Usability testing results show that the designed website has 73.5 points. Therefore, the website design is in accordance with the needs of the target users, which in this case are twelfth-grade Senior High School students. These results are confirmed by previous similar research related to the development of user interface design on websites, that usability scores in the range of 60-80 points fall into the "Acceptable" category. However, further research is still needed to uncover the needs of target users in more detail regarding appropriate website design. These results provide valuable insights for discussions of human interactive experiences and their relationship to technology and visual information.

References

1. Achmad Syarief, N. S. (2021). Understanding the Role of Visuals in Commercial Website Interaction on Smartphone Display. *Productum : Jurnal Desain Produk (Pengetahuan dan Perancangan Produk)* Vol.4 No.2.
2. An Introduction to Design Thinking Process Guide. (n.d.). Institute of Design at Stanford.
3. Camacho, M. (2016). David Kelley: From Design to Design Thinking at Stanford and IDEO. *She Ji The Journal of Design Economics and Innovations*
4. Creswell, J. (2014). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches* (4th edition). SAGE Publications.
5. Dedi Haryanto, A. W. (2021). Pengembangan User Interface pada Website Geopark Belitong. *Jurnal Ilmiah Informatika Global* Vol 12 No.1.
6. Faisal Adly Aditya Pradana, M. K. (2022). User Interface Design Improvement and Usability Evaluation for Evolution Web Application of Telkom Indonesia Using User-Centered Design. *Journal of Computer System and Informatics (JoSYC)*.
7. Foundation, I. D. (2022). User Interface (UI) Design. Retrieved from Interaction Design Foundation: <https://www.interaction-design.org/literature/topics/ui-design>
8. Gibbons, S. (2016, July 31). Articles: Design Thinking. Retrieved from Nielsen Norman Group: www.nngroup.com/articles/design-thinking/
9. Ida Bagus Indra Dewangkara, M. N. (2021). Perancangan Ulang UI/UX Website BUMDAS BATURITI Menggunakan Metode SUS dan Design Thinking. *Jurnal Informatika Progres*.
10. Zahra Shafrina, H. B. (2017). An Indonesian Adaptation of the System Usability Scale (SUS). *International Conference on Advanced Computer Science and Information Systems (ICACISIS)*. Malang: IEEE.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

