ORIGINAL CONTRIBUTION The Analysis of the UI/UX of Mobile Devices on the LAZNAS AL IRSYAD Website Using the User-Centered Design Method

Muhammad Ikhfil Khusen¹, Achmad Fauzan^{2*}, Ridho Muktiadi³, Mukhlis PrasetyoAji⁴

^{1,2,3,4} Faculty of Engineering and Science, Muhammadiyah University of Purwokerto Jl., Purwokerto, Indonesia

Abstract — The research aims to analyze the User Interface (UI) and User Experience (UX) aspects of the LAZNAS (National Amil Zakat Institution) AL IRSYAD website, specifically when accessed via mobile devices. Employing a User-Centered Design (UCD) approach, the study places users at the core of the design process to identify their needs and the primary issues they encounter. The evaluation was carried out using the System Usability Scale (SUS) method to measure usability and user satisfaction. The findings revealed several shortcomings in the website's initial design, such as non-functional menu buttons, inconsistent icons, and poorly structured page layouts. The initial SUS score was 73.49, categorized as "good," but interviews revealed that several usability issues remained unresolved. Following the analysis, a redesign was conducted based on the findings, resulting in a new prototype created using Figma with a screen size 360x800. The prototype was re-evaluated, yielding an improved SUS score of 83.62, categorized as "excellent." This study is expected to provide design recommendations that address technical issues and enhance the overall user experience. Furthermore, the findings can serve as a reference for LAZNAS AL IRSYAD to optimize their website services.

Index Terms-UI/UX, LAZNAS AL IRSYAD, User centered design

Received: 25 July 2024; Accepted: 27 September 2024; Published: 26 December 2024



© 2024 JITDETS. All rights reserved.

I. INTRODUCTION

Zakat, as one of Islam's pillars, plays an important role in supporting the welfare of the people through structured and transparent fund management. The letter At-Taubah, verse 60, states that zakat is given to eight groups entitled to receive it: the poor, the needy, and zakat administrators. The practical implementation of zakat is oriented towards collecting and managing funds to provide the community with the greatest possible benefits [1, 2].

In digital transformation, modern philanthropic practices, including zakat, have entered the digital realm through online platforms. This digital transformation aligns with contemporary zakat, emphasizing transparency, efficiency, and ease of access to zakat payments [3, 4]. One of the institutions that has implemented zakat digitalization in Indonesia is the Al Irsyad National Zakat Collection Institution (LAZNAS AL IRSYAD), headquartered in Purwokerto, Central Java.

This institution collects, manages, distributes, and reports zakat, infaq, and alms funds through education, health, da'wah, economic, and social humanitarian programs [5, 6].

As part of its digitalization strategy, LAZNAS AL IRSYAD developed the website www.laznasalirsyad.org, which allows users to make donation transactions online. The use of this website is expected to increase operational efficiency and expand the reach of zakat services [7, 8].

The growth of donations managed by LAZNAS AL IRSYAD in the last five years has shown a positive trend. In 2019, the amount of donations was recorded at IDR 2.94 billion and increased to IDR 7.10 billion in 2023. This indicates the initial success of digitalization, although optimization is still needed to achieve maximum potential [9, 10, 11].

The success of digitalization is greatly influenced by the quality of the user interface (UI) and user experience (UX) of the digital platform [12, 13, 14]. Based on observations, several problems were found in the UI/UX display of the LAZNAS AL IRSYAD site, such as unresponsive menu buttons, inconsistent icons, less uniform layouts, and less-than-optimal search features. This has the potential to reduce user satisfaction and cause them to abandon the donation process before it is finished [15, 16].

Interviews with managers showed that from July to September 2024, there were 1,260 online donation transactions. Although this figure is considered good, there is still significant opportunity for improvement, especially through UI/UX improvements. Unfortunately, this website has never been formally evaluated for usability.

Therefore, this study uses the User-Centered Design (UCD) approach, which places users at the center of the digital product design and evaluation process [17, 18]. The UCD approach allows developers to deeply understand user needs and preferences through interviews, observations, and quantitative evaluations using the System Usability Scale (SUS) instrument [19, 20]. SUS is a method that has been proven valid and efficient in measuring user perceptions of the ease of use of digital systems.

^{*}Corresponding author:Achmad Fauzan

[†]Email: achmadfauzan@ump.ac.id

II. RESEARCH METHODS

A. Types of research

This research is included in the type of research and development (R&D) with a focus on the analysis and development of UI/UX design based on the User-Centered Design (UCD) approach. This study aims to produce design prototype recommendations and test the effectiveness of the design [21, 22].

B. Time and place of research

The research was conducted at LAZNAS AL IRSYAD, located at Jl. H. Madrani No.1, Brubahan, Grendeng, Purwokerto Utara District, Banyumas Regency, Central Java. The series of research activities took place from June to November 2024.

C. Population and sample

The population in this study were all users of the LAZNAS AL IRSYAD site via mobile devices. The sample was determined based on the number of visitors via mobile devices in August 2024, which was 226 users. The sample determination used the Slovin formula with a certain error rate [23]. The minimum number of participants for a usability study also refers to

the research of [24] which states that 12–20 participants are sufficient to find the majority of usability problems.

D. Method of collecting data

This study uses several data collection methods as follows:

1) Observation

This research will be conducted by observation to find out the problems on the website by observing the activities that can be done by the research object. This observation is done by observing and studying the mechanisms that occur on the site www.laznasalirsyad.org, such as information search behavior, transaction processes, and calculations.

2) Questionnaire

This study will use a questionnaire with a system usability scale measurement technique to measure the current usability of the LAZNAS AL IRSYAD website and the recommended design results.

Usability performance is measured using a system usability scale (SUS) consisting of 10 questions on a scale of 1 to 5. Odd-numbered questions are positive questions, and even-numbered questions are negative questions. [20]. Table 1 is the question [19].

TABLE I QUESTIONS ON THE SYSTEM USABILITY SCALE

No	Questions
1.	I will often use/visit the Al-Irsyad Laznas website.
2.	I find the Al-Irsyad Laznas website complicated
3.	I find the Al-Irsyad Laznas website easy to use
4.	I feel I need help from a technician to use the Laznas Al-Irsyad website.
5.	I feel that the various functions on the Laznas Al-Irsyad website are working well.
6.	I feel like there are a lot of inconsistencies on this website.
7.	I feel that many users will easily understand how to use it quickly.
8.	I feel that the Al-Irsyad Laznas website is difficult for users to understand
9.	I am very sure that the Al-Irsyad Laznas website can be used easily.
10.	I need to understand first before using the Al-Irsyad Laznas website.

Each question is given a weight of 1-5. In positive questions, the score will be calculated by subtracting the weight of each statement. The weight of each question will be reduced by one so that it can be written as Xi-1. Meanwhile, to get a negative score with a weight value of 5, it is reduced by the result of the question weight so that it can be written as 5-Xi. Then, add up all the scores for positive and negative questions. To get the SUS score, the total score is multiplied by 2.5. Based on the SUS score, the level of usability and acceptance of the appearance and performance of the website can be known. To obtain the SUS value from the average value obtained from respondents, use the following equation : Average value $=\sum_{i=1}\hat{n}\equiv xi/n$ Xi = respondent score value N = number of respondents Assessment based on categories in table 2.

TABLE II SUS SCORE PERCENTILE RANK

Adjective rating	Grade	Score SUS
Excellent	А	>80.3
Good	В	68-80,3
Okay	С	68
Poor	D	51-68
Awful	F	<51

3) Interviews

User interviews are directed interviews in which researchers ask existing or potential users questions to gain insight into their preferences, thoughts, and feelings [25]. This interview aims to obtain information and ideas in designing website recommendation designs. This study will use five respondents as informants because using five users allows finding 80% of the usability problems of a product [24].

E. Research instruments

This study uses instruments, namely, FIGMA, OPPO F11 Pro Mobile Phone, Google Form, React.JS, Express.JS, Firebase, MySQL, and Visual Studio Code.

F. Research stage

This study uses the User-Centered Design (UCD) method which consists of four stages: understanding the context of use, determining user needs, designing design solutions, and evaluation as shown in Figure 2. The evaluation was conducted using the System Usability Scale (SUS). The stages of the study are shown in Figure 1.





Fig. 2. User-Centered design stages

G. Identify the problem

The first step is to identify the problem and conduct a literature study. Problem identification is carried out to find out the problems and needs related to the user experience in using the website. This problem identification is carried out by observation, distributing questionnaires and interviews using in-depth interviews.

H. Literature study

Literature study is a step to understand the methods used in designing the design. In this study, the User Centered Design (UCD) method was chosen to support each stage of the process and to find previous studies related to UCD and the System Usability Scale (SUS) method used in testing.

I. Data Collection

Data collection at this stage uses a questionnaire using the System Usability Scale (SUS), which is used to determine the level of usability of the current website. This stage also involves interviews with several respondents to represent groups of visitors. In-depth interviews are conducted to find out information on obstacles/problems on a website.

J. User-centered design stages

The stages in user-centered design are as follows: The first is understanding the context of use to determine which parties will use the website. This process produces visitor criteria, namely, people who visit the LAZ-NAS AL IRSYAD website. Respondent characteristics were used to determine the results of the system usability scale questionnaire. Namely, 144 respondents were generated from the number of visitors in August using the Slovin formula and a margin of error of 5%, active mobile phone users. To produce user personas, interviews were conducted with 5 respondents representing visitors. Second, the specific user requirement process produces conclusions from questionnaires and interviews regarding features, namely the program information function (containing information related to news of programs being run), the zakat, infak and sedekah function (containing the types of transaction activities carried out, namely zakat, infak, or sedekah), the zakat calculation function (zakat calculation form), the contact person function (containing a link to the admin telephone number), the financial report function (containing a list of monthly financial reports), the search function (in the form of a search bar and page to search for information with the searched words), and the payment transaction function (containing payment services and available payment information).

Based on the interview results, then an analysis of user characteristics was conducted by compiling a user persona. This user persona contains demographic information from visitors, needs and goals in using the website, and paint points felt by users as in Figure 3.



Fig. 3. Visitor user persona

A sitemap is a tool used to map menus and features on a website that contains information about page descriptions, images and others as shown in Figure 5.



Fig. 4. Sitemap of visitors to the LAZNAS AL IRSYAD website

21

Based on the results of user personas, interviews, and questionnaires, the next step is to design a user journey map to describe and map the information at each stage of user interaction with the system, as in Figure 5.

	Doing	Thinking	Feeling
Perencanaan	 Menentukan tujuan dalam mengunjungi website Menentukan program donasi yang akan dikunjungi Mempersiapkan biaya donasi 	 Apakah jenis-jenis donasi yang tersedia? Apakah ada program donasi yang sesuai dengan tujuan? Berapa minimal biaya yang dibutuhkan dalam program donasi? 	 Mudah dalam zakat, infak atau sedekah sesuai dengan kebutuhan yang akan dilakukan Berharap terdapat program donasi yang dilnginkan Biaya donasi minimal yang terjangkau.
Pencarian	 Mengunjungi website LAZNAS AL IRSYAD Mencari informasi program-program yang ada di LAZNAS AL IRSYAD 	 Apa sajakah jenis program donasi yang terdapat di LAZNAS AL IRSYAD? 	 LAZNAS AL IRSYAD memfasilitasi pencarian informasi program program yang tersedia dan mudah dipahami
Pemesanan	 Memilih jenis program donasi Melakukan pembayaran program donasi 	 Apakah program donasi ini disalurkan sesuai dengan jenis program yang dilakukan? 	 Berharap LAZNAS AL IRSYAD dapat menyalurkan donasi sesuai dengan informasi yang tersedia
Pasca pemesanan	 Memberikan bukti transaksi 	 Apakah saya mendapatkan kwitansi pembayaran? 	 Bisa menghubungi admin yang tertera pada kontak person

Fig. 5. User journey map

From this stage, an interaction process can be formed that will be carried out for the next research stage, namely, design solution. This process includes designing a design that begins with making sketches for each page or section of the website in the form of a low-fidelity wireframe. The final result of this interface design is a design prototype presented as a highfidelity wireframe. The final process is an evaluation carried out to assess the extent to which the user interface design of this website is in accordance with the needs and expectations of users. The evaluation process also determines whether the design can proceed to the next stage or must return to the previous stage for improvement. This evaluation can be carried out more than once if the results of the first evaluation indicate the need for improvement in the previous stage. In the evaluation process, the system usability scale method is used, and prototype trials are conducted with several participants through in-depth interviews directly involving visitors to the LAZNAS AL IRSYAD website.

III. RESULTS AND DISCUSSION

This initial stage was carried out by identifying problems, studying literature, and distributing questionnaires to collect data on the current condition of the website. The results of the problem identification concluded that the LAZNAS AL IRSYAD website needed to be analyzed and developed for user interface and user experience on the mobile display. Based on the results of distributing questionnaires with 144 respondents, a score of 73.49 was obtained, which means that the level of usability on the LAZ-NAS AL IRSYAD website received an adjective ratings score of "good," and on the acceptability range scale, the predicate was "acceptable" so that it can be concluded that the level of usability on the website is acceptable to users.

However, based on the results of in-depth interviews with several informants from the respondents, it can be found that visitors experience problems when accessing the website, including fundraising and charity icons that are similar, making them a little confusing for users, icons, and letters are also a little unbalanced between their distance and size, several functions on the menu bar cannot be used on certain pages, there is a process that takes a long time to load the page.

In this study, researchers will provide a recommendation design and test the recommendation design as a development using the user centered design method. The stages of user centered design include analysis and design of UI/UX.

A. User-centered design results

This stage is a stage to produce design recommendations that involve users. The following are the results of each stage of the method.

B. User-centered design results

The results of this process are the findings of problems on the website based on the results of interviews conducted with respondents as shown in table 3.

		UNDERSTAND THE CONTEXT	Γ OF USE
No	Problem Findings	Information	Solution
1.	There is a function	menu bar and buttons on	A redesign has been carried out by
	that is not working	some pages	connecting the non-functioning but-
			tons with the pages to which they are
			directed.
2.	Icons and letters	The icon size is too small and	A redesign has been carried out on the
	are inconsistent	the font is too big and there	prototype.
	and unbalanced.	are icons that have almost	
		similar images.	
3.	The search feature	The results of the search on	A redesign has been carried out on the
	is not very neat.	the website are not neat	prototype
4.	Some take a long	Page to make a donation and	Development is required on the web-
	time to load pages	wait for confirmation	site server

TABLE III UNDERSTAND THE CONTEXT OF US

C. Results specify user requirements

The results of this process are the findings of problems on the website

based on the results of interviews conducted with respondents, as shown in Table 4.

No	Nama Fungi	Specific Before Evaluation	Specific After Evaluation
1	Home page	Contains navigation to the institution profile page, pro-	contains navigation to the institutional profile page, pro-
		grams, zakat, fundraising, sacrifice, financial reports, za-	grams, zakat, fundraising, sacrifice, financial reports, za-
		kat consultation, and partners.	kat consultation, and partners.
2	Calculate zakat	Contains a zakat calculator to calculate zakat maal in the	Contains a zakat calculator to calculate zakat maal in the
		form of zakat on assets that have reached one year, zakat	form of zakat on assets that have reached one year, zakat
		on income and zakat on trade assets.	on income, and zakat on trade assets.
3	Ordering alms/zakat	Contains payment methods, payment gateways and bank	Contains various types of payments such as virtual ac-
		transfer methods. The payment gateway method contains	counts and e-wallets. There are several types of payments
		various types of payments such as virtual accounts and e-	other than funds, ovo, and shoppepay such as gopay vir-
		wallets.	tual accounts.
4	Profile	Contains information about LAZNAS AL IRSYAD	Contains information about LAZNAS AL IRSYAD
5	Program	It contains a navigation to display news events from each	It contains a navigation to display news events from each
		program.	program.
6	Zakat	Contains options for making zakat payments with the	Contains options for making zakat payments with the
		available categories, namely trade zakat, fitrah zakat, gold	available categories, namely trade zakat, fitrah zakat, gold
		zakat, silver zakat, agricultural zakat, income zakat, live-	zakat, silver zakat, agricultural zakat, income zakat, live-
		stock zakat, company zakat.	stock zakat, company zakat.
7	Fundraising	Contains various fundraisers from each program.	Contains various fundraisers from each program.
8	Sacrifice	Contains various choices of sacrifice programs and can	Contains various choices of sacrifice programs and can
		make sacrifice payments online	make sacrifice payments online
9	Financial statements	Contains monthly financial reports	Contains monthly financial reports
10	Zakat consultation	Function to do direct message to admin	Function to do direct message to admin
11	Partner of Goodness	-	Contains a list of partners affiliated with LAZNAS AL
			IRSYAD

TABLE IV USER REQUIREMENT

D. Solution design results

The results of the solution design in this study are in the form of wireframes, guideline designs, and recommendation designs in the form of prototypes. The wireframe results shown in Figure 6 are high-fidelity wireframe designs. This wireframe is used to display a clear picture of each component, such as buttons, text, menus, and so on. Figure 7 is a guideline design. The guideline design on the LAZNAS AL IRSYAD website is designed with a focus on uniformity and consistency of visual elements, including in the selection of colors, logo icons, and buttons for the website prototype. The color selection is based on the results of research with respondents to determine the appropriate, comfortable, and easy-to-see colors. Figure 8 is a recommended design that produces a design prototype. This prototype is a simulation of direct visitor interaction with the user interface on the LAZNAS AL IRSYAD website.

=		Search × 💭				
	=	South Rout For		=	the second se	100 C
		Poseria POTPQ Angkalan ke-10				=
		Mengenal Figh Thahash Bersama Uklada Bina Bachi, Lo			Babania Berrakat	Sedekah Zeket
		Resolution program Resolution (control and an internal and an internal			Emokan Lemandrah menunakan selut, Inter A sedabah senara untera mejara	
		Lange Chapter			LADARI A Treas	Bahagia Berzakat
		Roomi Dibuka, Program PETPO Angkatan Ke X Siap Cetak Unter		Conasi Sekarang		season accounts restart Athen in Figure
		Repairies to a				147N45 Al-Invold
		Pages studied and a state of the state of th	Laporan Kesangan	tel Paper Law Lawy		
		and the second s			Pith transaksi metalui:	Turasistan DISAT, INTAK & SEDIMAN Anda, dengan MANNE & MUDRIN
		No. of Concession, Name		And see the second second second	Department State Sec.	1927 The Arran
	And 10 12 10 100					ALC: 20 12 10 100
Zelat	Program	Sedekah Har Palestina		Htung Zokat, Usaha	Profil	berits02
Zekat	Program	Sedekah Plar Polestina		Houng Zakat, Usaha	Profil	berta02
2008 	Program	Sodelah Mar Palestina	Form Pembayaran Zakat Pord	Hiung Zelat. Usaha	Profi	bertati:
200		Sedekah Flar Palestina	Form Pembayaran Zahat Pord	Htung Zokat. Usaha	Poll	Berta02
Zorat Bahagia Berzakat Instansi unajara revoluto atai	Propase =	Secoluli Tar Palestina	Form Pendagaran Zakat Pord	Houng Zakat, Usaha	Profi	Dorita C2
2000		Sodokun Har Palostna Bohagia Berzakat Radas tersebat as the first Radas	Form Penebayanan Zakat Perd	Houng Zelat, Usaha	Profil E	Dorzsol Thiortan Kinkin, LANEA Ji Yoyal Lahaha Rasive Pendilika Kaj Esser Dhad O. 1, 270 - Constanting
2 cost		2008 AT The Polestee Behagia Berzakar Teals Teals New 1	Forn Pennagenen Zekel Perst	Hourg Zelat Usahe	PrpH	Televis Ostalan, La Zesta al Profil John An Freshver Penditikan Lag Sisan Disata O.S. 7, 507 - Ostanaman
Zoort	Program	Sector for Polester	Form Periodogram Zakal Port	Hung Zakit Usha	Frydd	Control Contro
Canal Bahagia Berzakat Lester tergen Lester tergen Desgrammenter Pengage		Coperan Far Paleston	Core Needes war. Zikat Patt.	Hung Zakat Olaha	Pectil	Contract2
Cont Records Results Records Results Control Contr		Cocourt Par Parents	Con Pontosyota 2440 Port.	Hung Zatat Unitu	Held	There is a factor in the second secon
Cold Cold State Cold State		Colour fue Average Backgein Personal The Standard Regeneration The Stand	Cent Revolution 2 and Port	Hard Start Contract	LAZING Al boyon LAZING Al boyon Alsonertypes	There is a finite set of the set
Control Contro		Control for Provincial Control for the Provincial Contro	Concentration 2 and Point	Hung Start Out	LAZMAN Al-byged Billion and the state of the state	Carlos Ca

Fig. 6. Wire frame website tampilan mobile





Fig. 8. Mobile view website solution design

The results of the evaluation of the recommendation design by conducting interviews with 5 respondents produced conclusions as in Table 5.

TABLE V RESULTS OF THE RECOMMENDATION DESIGN INTERVIEW WITH RESPONDENTS

No	Category	Results
1	View or layout	Nice looking, comfortable, and easy to
		use
2	Selection of font,	The font and size are good; the colors
	size, and color	should have a gradient.
3	Compliance of fea-	It's good and easy to understand using
	ture changes with	this display.
	needs	
4	Ease of use	Easy to use

This evaluation against the requirement stage was carried out by distributing the questionnaire again with a list of questions using the system usability scale (SUS) to 58 respondents on the LAZNAS AL IRSYAD website. The original data results from the SUS questionnaire were obtained after the distribution process and then calculated and weighted according to the SUS score. The final SUS score results, as shown in Figure 4.49, namely 83.62, are at the "excellent" rating. This indicates that the display is in accordance with the needs of visitors.

IV. CONCLUSION

This study successfully improved the UI/UX of the LAZNAS AL IRSYAD website using the UCD method. The SUS score increased from 73.49 to 83.62, indicating a significant increase in user satisfaction. The new design is expected to be a reference for further development. This study can be further developed in accordance with technological advances. The prototype that has been created can be implemented and used on the LAZNAS AL IRSYAD website to support user needs and server development can be carried out so that it runs smoothly.

V. ACKNOWLEDGMENT

The author would like to thank LAZNAS AL IRSYAD and LPPM UMP for the facilities and opportunities in carrying out this research.

References

 S. Mariam and I. Rodiah, "The role of philanthropic institutions for community welfare (case study at the gemma insani indonesia foundation," *SOSIAL: Jurnal Peneitian Ilmu-Ilmu Sosial*, vol. 9, no. 2, pp. 13-18, 2024.

- [2] A. Widiastuti *et al.*, "Financial performance before and during the covid-19 pandemic in telecommunication companies listed on the indonesia stock exchange," *Kompak: Jurnal Ilmiah Komputerisasi Akuntansi*, vol. 15, no. 1, pp. 134-145, 2022.
- [3] A. Lubis, "Innovation and digitalization of zakat in the industrial era 4.0," *Jurnal Ekonomi dan Keuangan Islam*, vol. 6, no. 2, p. 189–200., 2020.
- [4] M. Waheed and F. A. Jam, "Teacher's intention to accept online education: Extended TAM model," *Interdisciplinary Journal of Contemporary Research in Business*, vol. 2, no. 5, pp. 330-344, 2010.
- [5] L. A. Irsyad. (2020) Laznas al-irsyad al-islamiyyah. [Online]. Available: https://shorturl.at/MjmPz
- [6] A. S. Eichler, "Improvement of UI/UX of mobility App based on company developments," B.S. thesis, University of Twente, 2020.
- [7] H. Harisuddin and D. Hartono, "Financial deepening impacts on regional economic growth," *Signifikan: Jurnal Ilmu Ekonomi*, vol. 8, no. 1, pp. 23-36, 2019.
- [8] M. Shikida and K. Yagi, "A method for supporting medical-interview trainings using wearable smart glasses," *Journal of ICT, Design, Engineering and Technological Science*, vol. 1, no. 2, pp. 37-41, 2017.
- [9] I. F. Zamzami, "Deep learning models applied to prediction of 5g technology adoption," *Applied Sciences*, vol. 13, no. 1, p. 119, 2022.
- [10] C.-H. Wang and K.-C. Wu, "Interdisciplinary collaborative learning with modular programming and information visualization of urban smart spaces," *Journal of Advances in Technology and Engineering Research*, vol. 8, no. 1, pp. 24-32, 2022.
- [11] A. V. d. F. Santos and Z. d. C. Silveira, "Design for assistive technology oriented to design methodology: A systematic review on usercentered design and 3D printing approaches," *Journal of the Brazilian Society of Mechanical Sciences and Engineering*, vol. 43, no. 11, p. 483, 2021.
- [12] M. Pratama and A. Cahyadi, "Effect of user interface and user experience on application sales," in *IOP Conference Series: Materials Science and Engineering*, vol. 879, no. 1. IOP Publishing, 2020, p. 012133.
- [13] V. Azarenkov and D. Svintsova, "Analysis of trends in ui/ux interface development and their impact on future user experience," Поліграфічні, мультимедійні та web-технології: тези доп, vol. 145, 2023.
- [14] S. Frans, M. R. T. D. Dominica, I. K. Lucky, S. Lilik, and Y. U. Eva, "Application of the user centered design method to evaluate the relationship between user experience, user interface and customer satisfaction on banking mobile application," *Jurnal Informasi Dan Teknologi*, vol. 6, no. 1, 2024.

- [15] A. K. Nisah, "User Experience-based Design on the Academic Information System Admin Module of Jakarta State University," Ph.D. dissertation, Universitas Negeri Jakarta, 2019.
- [16] A. Kurniawan, R. I. Rokhmawati, and A. Rachmadi, "Evaluation of user experience with heuristic evaluation and persona methods (study on: Dalang ki purbo asmoro website," *Jurnal Pengembangan Teknologi Informasi dan Ilmu Komputer*, vol. 2, no. 8, pp. 2918-2926, 2018.
- [17] O. Daly-Jones, N. Bevan, and C. Thomas, "Handbook of user-centred design," *IE2016 INUSE Deliverable D*, vol. 6, 1997.
- [18] R. T. Amanda and R. A. Putri, "Application of User-Centered Design Method in E-Commerce Sales System," *Sistemasi: Jurnal Sistem Informasi*, vol. 13, no. 3, pp. 1295-1307, 2024.
- [19] B. Aaron, "Determining what individual SUS scores mean: Adding an adjective rating scale," *Journal of usability studies*, vol. 4, p. 3, 2009.

- [20] J. Brooke, "SUS: a retrospective," *Journal of Usability Studies*, vol. 8, no. 2, pp. 29-40, 2013.
- [21] F. A. Slamet, "Research and development model (r n d)," Malang: Institut Agama Islam Sunan Kalojogo Malang, 2022.
- [22] F. A. Jam, M. B. Donia, U. Raja, and C. H. Ling, "A time-lagged study on the moderating role of overall satisfaction in perceived politics: Job outcomes relationships," *Journal of Management & Organization*, vol. 23, no. 3, pp. 321-336, 2017.
- [23] A. Santoso, "Slovin formula: Panacea of sample size problem?" Suksma: Jurnal Psikologi Universitas Sanata Dharma, vol. 4, no. 2, pp. 24-43, 2023.
- [24] R. Alroobaea and P. J. Mayhew, "How many participants are really enough for usability studies?" in 2014 science and information conference. IEEE, 2014.
- [25] IDF. (2024) How to conduct user interviews. [Online]. Available: https://shorturl.at/gegW0