

APLD Mecue2-Rev1

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Exploring User Experience and User Interface of Indonesian e-Health PeduliLindungi Mobile-Apps with MeCUE 2.0 Framework

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Abstract— PeduliLindungi Mobile-Apps (PLMA) is a mobile-based e-Health application that was released by the Ministry of Communication and Information (KOMINFO) of the Republic of Indonesia in April 2020. Its goal is to help the government keep track of the Covid-19 Pandemic in Indonesia and stop it from spreading. PLMA is used to find Covid-19, keep track of it, warn people about it, and stop it from spreading. Reports say that more than 10,000,000 people have downloaded PLMA, and KOMINFO has told all citizens that they must use this app. But PLMA was criticized by people who used its apps because of problems like application errors, data leaks, and mistakes in user data. Also, as of September 29, 2021, 470,521 people had reviewed it on the Google Play Store, giving it an average score of 3.8. The score from the PLMA review shows that the application needs to be improved. PLMA also gets complaints about how hard it is to navigate, how features aren't clear, how there are problems with connection and performance, how personal data isn't safe, and how hard it is to get to. The purpose of the research is to investigate and evaluate PLMA which focuses on the user experience (UX) or user interface (UI) of application users. UI/UX in PLMA has been measured or evaluated in a few studies, but the numbers are still very small and limited. Minge (2020) came up with the MeCUE 2.0 framework as a way to evaluate an application user experience service. It is a fairly new and comprehensive framework. The MeCUE 2.0 Framework is a questionnaire with 34 statement items. It is made up of 4 modules: Modules I and II (Perception of quality of instrumental and non-instrumental products), Module III (Emotions), Module IV (Consequences), and Module V (Overall Evaluation). In the first step of this study, the MeCUE 2.0 questionnaire was translated and then given to 50 people. The results showed that the UI/UX ratings for PLMA were 3.17 for usefulness, 4 for usability, 3.33 for visual aesthetics, 3 for status, 3.67 for commitment, 3.67 for positive emotions, 2.67 for negative emotions, 3.67 for intention to use, 2.67 for product loyalty, and 3.67 for overall evaluation (107.00). This research makes a contribution both in terms of ideas and in terms of how they can be used. For example, it tells UX designers and policymakers that they should pay attention to important factors while developing PLMAs.

Keywords— e-Health, PeduliLindungi, User Experience, User Interface, MeCUE 2.0

Abstrak— PeduliLindungi Mobile-Apps (PLMA) adalah aplikasi e-Health berbasis mobile yang dirilis oleh Kementerian Komunikasi dan Informasi (KOMINFO) Republik Indonesia pada bulan April 2020 dengan tujuan untuk membantu pemerintah dalam memonitoring pengendalian dan pencegahan penyebaran Pandemi Covid-19 di Indonesia. PLMA digunakan untuk tracing, tracking, warning dan fencing pada penyebaran Covid-19. Berdasarkan laporan PLMA telah diunduh oleh 10.000.000+ pengguna dan KOMINFO telah mengharuskan semua warga negara untuk menggunakan aplikasi ini. Namun PLMA mendapat kritikan dari pengguna aplikasi terkait keluhan dalam penggunaan aplikasi seperti error aplikasi, kebocoran data, dan kesalahan data pengguna. Selain itu, hingga 29 September 2021, 470.521 orang telah mengulasnya di Google Play Store, dengan akumulasi hasil ulasan rata-rata 3.8. Skor review PLMA ini menunjukkan bahwa aplikasi tersebut perlu disempurnakan. PLMA juga terdapat keluhan perihal kesulitan dalam navigasi, fitur yang tidak jelas, masalah koneksi dan format, keamanan data pribadi dan keterbatasan aksesibilitas. Penelitian ini bertujuan untuk melakukan eksplorasi dan evaluasi PLMA yang fokus dalam perspektif user experience (UX) atau user interface (UI) pengguna aplikasi. Terdapat beberapa penelitian yang telah melakukan penelitian untuk mengukur atau mengevaluasi UI/UX pada PLMA akan tetapi jumlahnya masih sangat sedikit dan terbatas. Metode yang digunakan adalah framework MeCUE 2.0, framework yang relatif baru dan komprehensif yang diusulkan oleh Minge (2020) untuk menilai sebuah layanan aplikasi user experience. Framework MeCUE 2.0 berisi kuesioner yang terdiri dari 4 modul yaitu Modul I & II (Persepsi kualitas produk instrumental dan non instrumental), Modul III (Emosi), Modul IV (Konsekuensi), dan Modul V (Evaluasi Keseluruhan), dengan sebanyak 34 item pernyataan. Tahapan pertama dalam penelitian ini yaitu menerjemahkan kuesioner MeCUE 2.0 kemudian menyebarkannya kepada 50 responden. Hasil penelitian menunjukkan evaluasi UI/UX untuk PLMA adalah Usefulness (3,17), Usability (4,00), Visual Aesthetics (3,33), Status (3,00), Commitment (3,67), Positive Emotion (3,67), Negative Emotion (2,67), Intention to use (3,67), Product loyalty (2,67) dan Overall Evaluation (107,00). Penelitian ini memberikan kontribusi secara konseptual dan praktis dengan memberikan rekomendasi desainer UX dan pemangku kebijakan untuk memperhatikan faktor-faktor penting dalam pengembangan PLMA.

Kata Kunci— e-Health, PeduliLindungi, User Experience, User Interface, MeCUE 2.0

I. INTRODUCTION

PeduliLindungi Mobile-Apps (PLMA) [17] an e-Health application that was launched in April 2020 by the Ministry of Communication and Information (KOMINFO) of the Republic of Indonesia. This applica¹⁰ is built on mobile technology[1]. Its purpose is to assist the government in Indonesia in monitoring the Covid-19 Pandemic and preventing the disease from expanding further. PLMA is utilized to locate Covid-19, maintain a record of it, notify people about it, and halt its progression throughout the world[2], [3]. The Indonesian go³³mmnt made the PLMA, which is a digital shift, to stop the spread of COVID-19 in Indonesia. It is set up so that everyone in Indonesia can use it, and it is up to the government to convince people to use it. The app is also used for transportation on planes, in stores, at tourist spots, and in other public places. It is also used for transportation on the land, sea, and in the air. To download the program, vaccination certificates are also given out. The government has several of rules or policies about how to use the Peduli Lindungi, and all government departments in Indonesia are required to do so. The application has to be made because there needs to be a lot of community tracking.

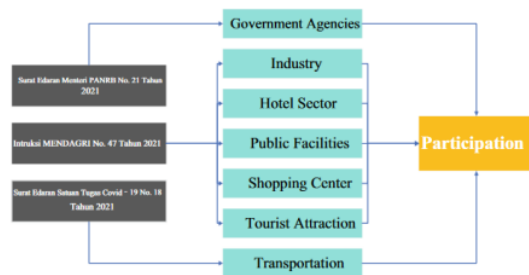


Fig. 1. PeduliLindungi applications are governed by government rules[1]

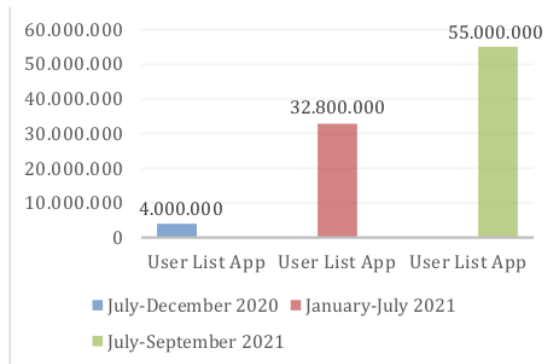


Fig. 2. Number of PeduliLindungi application users[1]

There have been over ten million downloads of PLMA, and KOMINFO has instructed all residents to use this app. According to the reports, there have been over ten million downloads[4]. The info above shows that PeduliLindungi is user-based. Over the past year, the line has grown. There is

room for growth between 4–5 million period users (July–December 2020) and 32.85 million period users (July–September 2021). This line shows that people are quickly becoming more confident in PeduliLindungi. The public trusts the PeduliLindungi app, as shown by these numbers. During the COVID-19 outbreak, people know that PeduliLindungi is important.

However, users of PLMA's applications complained about issues like application errors, data leaks, and incorrect user data. Additionally, as of the 29th of September, 2021, it had received 3.8 stars out of 5 from 470,521 reviews on the Google Play Store. The PLMA evaluation score indicates that the program could use some tweaks. In addition, PLMA receives feedback about the site's poor usability, unclear features, connection and performance issues, insecure storage of conf¹⁰idential information, and inaccessibility[2]. The PLMA faces several challenges, including p¹⁵le's trust in the application, the application's function in daily life, and the government's ability to devise a strategy that will convince people to use the application[1]. In Indonesia, the PeduliLindungi app has gotten the most feedback from its users, with application mistakes reaching 52%, data errors reaching 28%, and data leakage reaching 20%. People talk about data mistakes, application errors, and data leaks the most. These errors are caused by user data, which can lead to things like vaccine license data that didn't come out, wrong data on people who might get a vaccine, and errors that affect users, like missing the train or waiting in long lines. Because of the mistake, the app can't be used[1].

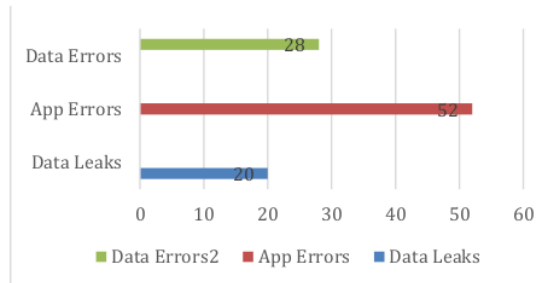


Fig. 3. Technical problems is referred to as PLMA[1]

The study aims to examine into assessing PLMA which concentrates on the user experience (UX) or user interface (UI) for app users. Few studies have examined or measured I/UX in PLMA, but the numbers are still v¹¹small and limited. Several previous studies related to the user experience perspective and the PLMA user interface include Research by Bianca, et al., 2023[5]. During the Covid-19 pandemic, a study w⁴ done on how users felt about the quality of a program based on the dimensions of electronic service quality (E-Service Quality). This research involved 198 PLMA users in the Java-Bali area and p¹⁹rocessed using PLS-SEM. QuantitativeTquantitative cross-sectional design is used. The results proved that PeduliLindungi's service quality dimensions were well-received by users. The PeduliLindungi (ESQ) application's quality is influenced by

user experience (EXP) and faith. (TRU). Reliability (REL), responsiveness (RES), ease of use (EOU), privacy (PRI), system availability (SA), application design (WD), and information quality (IQ) do not affect user views of the PeduliLindungi (ESQ) application. Then Victoria, et al. (2022)[6] examined User Interface Layout, Control, and Color Design Components for User Experience in the PeduliLindungi Application. This study examined the impact of PeduliLindungi's user interface design on user experience. To calculate the Severity Rate, respondents completed questionnaires on the Heuristic Evaluation method's 10 variables. Severity Rate measures application harm or deficiencies. The average Severity Rate is 1,298, indicating a superficial problem or fundamental design flaw that is not a priority for application enhancements. Then research by Kumar, et al. (2022)[2], based on UX Honeycomb, was done on Factors Affecting the PeduliLindungi User Experience. UX Honeycomb is used in this study. User experience design is explained by UX Honeycomb in terms of 7 signs and 3 factors. Think (useful, important, and trustworthy), Feel (wanted, trustworthy), and Use (findable, accessible, usable). This study uses raw data from 404 online surveys with 245 statements that reflect all UX Honeycomb variables and five possible answers: strongly disagree, disagree, neutral, agree, or strongly agree. According to the figures, all variables and indicators have a big effect on user experience, with Think having the biggest effect at 0.418, Use at 0.219, and Feel at 0.151.

The current research used mcCUE 2.0. Minge (2020) proposes the mcCUE 2.0 framework for app user experience evaluation. The design of this framework is novel and comprehensive. mcCUE 2.0 has a 34-item assessment. Modules I and II (perception of instrumental and non-instrumental product quality), Module III (Emotions), Module IV (Consequences), and Module V (Overall Evaluation). This study began by translating and distributing the mcCUE 2.0 assessment to 50 people.

The findings of this study have significance not only conceptually but also practically. For instance, it recommends to UX designers and government officials what to consider while developing PLMAs.

II. LITERATURE REVIEW

A. PeduliLindungi: An Indonesian M-Health Apps for Covid-19 Monitoring System

In April 2020, Indonesia's Ministry of Communication and Information (Kominfo) put out an app called PeduliLindungi to help the government deal with the COVID-19 plague. So, everyone in Indonesia is told by the Ministry of Communication and Information (Kominfo) to get the PeduliLindungi app[7]. The government of Indonesia keeps track of how COVID-19 is spreading in different ways, and the Android app from the Google Play Store can be used to do the same. A government-made app that lets travelers share their locations so that COVID-19 patients in Indonesia have their contact history found right away. This app is a forum for handling and community involvement. People often

talk about their thoughts on this app through the Cares Protect app on Google Play[8].

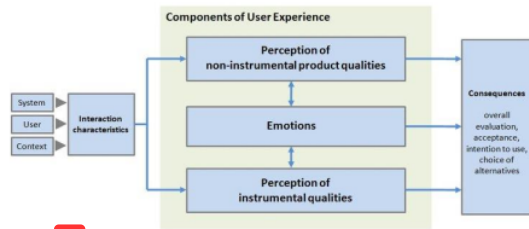
Several previous studies related to PLMA include PeduliLindungi's COVID-19 Treatment Success (Indonesian Case Study)[1], User Satisfaction Analysis of PeduliLindungi App Using EUCS Method[9], PeduliLindungi App Users Multinomial Naive Bayes-SMOTE Fine-Grained Sentiment Analysis[10], Integration and Interoperability Issues with PeduliLindungi Data and Software Architecture Refactoring [11], Aspects of the PeduliLindungi App User's Goals, Procedures, Tools, and Surroundings[12], PeduliLindungi User Satisfaction Research[13], Google Play PeduliLindungi sentiment analysis using the Random Forest Algorithm with SMOTE[14], Case Study of Jakarta University Students' Use of the PeduliLindungi App to Prevent COVID-19[15], PeduliLindungi, an Indonesian tracking app, sheds light on an integrated model of tracking apps[16], Factors That Influence Indonesians' Plans to Use the PeduliLindungi App During COVID-19[17], Sentiment Analysis Machine Learning Comparison PeduliLindungi Applications[18], Binary Sentiment Reviews: Support Vector Machine Naive Bayes Classifier for the PeduliLindungi App[19], Support Vector Machine and Naive Bayes Algorithm-Based Particle Swarm Optimization Analysis of Google Play User Reviews for PeduliLindungi[8], and Acceleration of PeduliLindungi's Popularity Among the Public in Relation to the Corona Virus (Covid-19)[7].

B. mcCUE 2.0 Framework

Thüring and Mahlke's User Experience Components Model (CUE model)[20] serves as the basis for the mcCUE architecture. This approach disentangles practical and purely aesthetic evaluations of quality. Instruments include elements of usability and utility, but visual aesthetics and recognizability are examples of non-instrumental qualities. Interactional characteristics have a direct impact on our ability to grasp both qualities. (i.e., product features, user characteristics, and context). Combining sensory input with cognitive processing is essential for percept formation. (e.g., goal conduciveness, compatibility with standards). Because happy feelings keep the UX in a good form, they are fundamental to UX design[21]. The CUE model highlights its value due to its pivotal function and connection to consumers' overall evaluations of a product's quality. (see Fig. 2). Although feelings are sparked by these presumptions, as demonstrated by bidirectional relations, they can also respond to them.

Developing and Validating an English mcCUE Questionnaire for User Experience is one of the studies that helped launch the mcCUE framework[22], mcCUE Questionnaire: A Modular User Experience Measurement Tool[23], The mcCUE Questionnaire (2.0): Meeting Five Basic UX Assessment Requirements[24], then several studies on the implementation of mcCUE including Using the mcCUE Questionnaire to Improve Mental Model-Based UX Evaluation[25], Smart Regency Mobile-Apps Service User Experience Evaluation and Enhancement Using the mcCUE Framework[26], then User Experience (UX) Metrics Using the mcCUE 2.0 Framework, Adapted for the Indonesian

Context[27].



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Fig. 4. The CUE Model, or Components of User Experience[22]

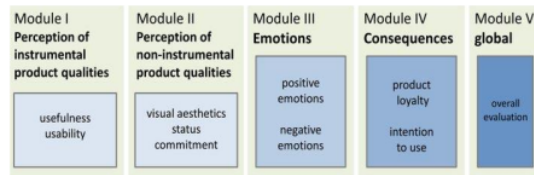


Fig. 5. The MeCUE 2.0 Model[28]

III. RESEARCH METHOD

The research stages of measuring the user interface and user experience in the m-health application the PeduliLindungi application are described in detail as follows:

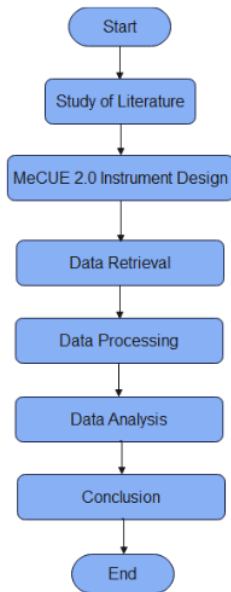


Fig. 6. Research Steps

A. Study of Literature

At this stage studying literature studies by searching journals at garuda.kemdikbud.go.id and on Google Scholar relating to Usability, User Experience, and the meCUE2.0 method, literature studies are carried out as a reference in conducting research.

B. MeCUE 2.0 Instrument Design

This stage is carried out by translating the meCUE2.0 questionnaire from English and German into Indonesian by having 10 criteria in 5 modules. Below is the meCUE2.0 questionnaire table based on Darmawan, et al(2021)[29] and Arianto, et al(2022) meCUE2.0 indicator table[30]:

1
TABLE I. ADAPTATION ME CUE 2.0 FRAMEWORK INTO INDOONESIAN CONTEXT[29]

Module	Dimension	Item in Indonesian Versions
Module I (Perception of instrumental product qualities)	Usefulness	Dengan bantuan aplikasi ini, saya akan mencapai tujuan saya Saya menganggap aplikasi ini sangat berguna Fungsi aplikasi ini tepat untuk tujuan saya
	Usability	Aplikasi ini mudah digunakan Prosedur pengoperasian aplikasi ini mudah dipahami Dengan cepat terlihat, bagaimana saya menggunakan aplikasi ini
Module II (Perception of non-instrumental product qualities)	Visual Aesthetic	Desain aplikasi ini terlihat menarik Aplikasi ini dirancang secara kreatif Aplikasi ini bergaya
	Status (Social Identity)	Dengan menggunakan aplikasi ini, saya akan dianggap berbeda Aplikasi ini akan meningkatkan posisi saya di antara rekan-rekan Saya tidak akan keberatan jika teman-teman saya iri pada saya untuk aplikasi ini
	Commitment (Social Identity)	Saya tidak bisa hidup tanpa aplikasi ini Aplikasi ini seperti teman bagi saya Jika saya kehilangan aplikasi ini, saya akan hancur
Module III (Emotions)	Positive Emotion	Aplikasi ini membuat saya rileks Aplikasi ini membuat saya senang Aplikasi ini membuat saya merasa sangat senang Aplikasi ini membuat saya merasa gembira Aplikasi ini menenangkan saya Saat menggunakan aplikasi ini, saya merasa ceria
	Negative Emotion	Aplikasi ini mengganggu saya Aplikasi ini membuat saya marah Aplikasi ini membuat saya frustrasi Saat menggunakan aplikasi ini, saya merasa lelah Aplikasi ini membuat saya lelah Aplikasi ini membuat saya merasa sedih
Module IV	Intention to	Saya tidak akan menukar aplikasi

(Consequences)	Use	ini dengan yang lain
		Dibandingkan dengan aplikasi ini, tidak ada aplikasi lain yang mendekati
		Saya akan mendapatkan aplikasi ini untuk diri saya sendiri (lagi) kapan saja
Product Loyalty	Saya sudah tidak sabar untuk menggunakan aplikasi ini lagi	
	Jika saya bisa, saya akan menggunakan aplikasi ini setiap hari	
	Saat menggunakan aplikasi ini, saya lupa waktu	
Module V (Global)	Overall evaluation	

15	1	ya tidak akan keberatan jika teman-teman saya iri pada saya untuk aplikasi ini						
16	1	likasi ini membuat saya senang						
17		Aplikasi ini membuat saya lelah						
18		Aplikasi ini mengganggu saya						
19	1	likasi ini membuat saya rileks						
20		Saat menggunakan aplikasi ini, saya 1 rasa lelah						
21		Aplikasi ini membuat saya merasa sangat senang						
22		Aplikasi ini membuat saya Frustrasi						
23		Aplikasi ini membuat saya merasa 3 mbira						
24		Aplikasi ini membuat saya merasa pasif						
25		Aplikasi ini menenangkan saya						
26		Saat menggunakan aplikasi ini, saya merasa ceria						
27		Aplikasi ini membuat saya marah						
28		Jika saya bisa, saya akan menggunakan aplikasi ini setiap hari						
29		Saya tidak akan menukar aplikasi ini dengan yang lain						
30		Saya sudah tidak sabar untuk menggunakan aplikasi ini lagi						
31		Dibandingkan dengan aplikasi ini, tidak ada aplikasi lain yang mendekati						
32	1	ya akan mendapatkan aplikasi ini untuk diri saya sendiri (lagi) kapan saja						
33		Saat menggunakan aplikasi ini, saya lupa waktu						

C. Data Retrieval

Collecting data obtained from distributing questionnaires to 50 respondents based on H8 et al(2011)[31] in each 23 CUE 2.0 questionnaire gives scores using a Likert scale of 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree)) for each statement item. The questionnaire was distributed via Google form for mapping the characteristic of the respondents and to capture responses for apps. Then the statement is validated using the Aiken equation formula which is written in Aiken formula equation: $V = \frac{\sum [n(c-1)]}{n^2}$ ("User Experience Evaluation Using the mCUE Questionnaire (Case Study on Traveloka and Pegipegi Applications)," 2019). The statement will be valid if the value of $V > 0.4$ and the statement is invalid if the value of $V < 0.4$ [32]. Description of Aikenaiiken formula (Zarvianti et al. 2022):

- 1.0 = The lowest validity rating score.
- c = The highest validity rating score
- r = Number assigned by an appraiser
- n = Number of appraisers

TABLE II. THE mCUE 2.0 QUESTIONNAIRE WAS DISTRIBUTED TO RESPONDENTS[29]

No	Questions	STS	TS	N	S	SS
1	Aplikasi ini mudah digunakan					
2	Fungsi aplikasi ini tepat untuk tujuan saya					
3	Dengan cepat terlihat, bagaimana cara menggunakan aplikasi ini					
4	Saya menganggap aplikasi ini sangat berguna					
5	3 sedur pengoperasian aplikasi ini mudah dipahami					
6	Dengan bantuan aplikasi ini, saya akan 3 ncapai tujuan saya					
7	Aplikasi ini dirancang secara kreatif					
8	Aplikasi ini akan meningkatkan posisi saya di antara rekan-rekan					
9	Saya tidak bisa hidup tanpa aplikasi ini					
10	Desain aplikasi ini terlihat menarik					
11	Dengan menggunakan aplikasi ini, saya akan dianggap berbeda					
12	Aplikasi ini seperti teman bagi saya					
13	Aplikasi ini bergaya					
14	Jika saya kehilangan aplikasi ini, saya akan hancur					

- Information:
- STS = strongly disagree (1)
 - TS = disagree (2)
 - N = neutral (3)
 - S = agree (4)
 - SS = strongly agree (5)

D. Data Processing

After distributing the mCUE2.0 questionnaire, it was then processed through several stages, namely:

1. *Checking data on Google Forms.* The data used is data that has been collected in Google Forms. After that, the data is recorded.
2. *Preprocessing Data.* Data cleaning which includes data completion, duplicate data removal, data blanking, and noise generation is performed as part of data preparation to convert raw data into data ready for later processing. In this study, data deletion was performed if one of the attributes was left blank or there was noise in the data.

E. Data Analysis

In conducting data analysis from the mCUE2.0 questionnaire, there are several steps. The following are some of the steps in data analysis:

1. *Data Collection.* Obtaining the data to be studied is the first step in the data analysis process.
2. *Editing Stage.* In particular, the process of verifying the accuracy and completeness of the data collection instrument.
3. *Coding Stage.* The point at this stage is to carry out the process of identifying and classifying each statement

contained in the data collection instrument based on the variable being studied.

4. *Tabulation stage.* Carrying out recording activities or data entry into main tables in research.
5. *Testing Stage.* Tests of data quality and validity of data collection are what we mean here.
6. *Data Description Stage.* Statisticians use a variety of central tendency and dispersion metrics to create visual representations of data, such as frequency tables and diagrams. The purpose is to learn about the features of study samples.
7. *Hypothesis Testing Stage.* The action of determining whether a statement can be accepted or rejected, or if it has any meaning at all. Conclusions or choices will be made based on this phase's results.

F. Draw a Conclusion

Conclusions are drawn by describing the results of the research only to answer research questions.

IV. RESULT AND DISCUSSION

The results of research on the exploration of the user experience and user interface for the PeduliLindungi Apps are presented as follows:

A. Characteristics of Respondents

The characteristics of the demographic group in this study show that 60% of the meCUE2.0 respondents are men and 40% are women. Only 2% of the people who answered are between the ages of 15 and 19, 72% are between the ages of 21 and 29, and 26% are older than 30. 28 percent of respondents work for private companies, 28 percent are company owners or entrepreneurs, 22 percent are students, 14 percent work for the government, and the last 8 percent do not have a job. The table below shows the demographics of meCUE 2.0 respondents:

TABLE III. DEMOGRAPHIC OF RESPONDENTS

Attribute		Percentage	Frequency
Sex	Male	60	30
	Female	40	20
Total		100	50
Age	15-20	2	1
	21-29	72	36
	30>	26	13
Total		100	50
Profession	Private employee	28	14
	Businessman	28	14
	Student	22	11
	Government employees	14	7
	Another	8	4
Total		100	50

B. Data Processing

Data processing is done by processing the results of the respondent's questionnaire obtained by using the validity and reliability tests as follows:

1. Validity Testing

The purpose of this validity test is to find out whether the items on the questionnaire are capable of being

used in research. This study used a total of 50 respondents using the Aiken formula.

TABLE IV. RESULTS OF THE VALIDITY TESTING

Rating Number	Criteria	ΣS	N (C-1)	V	Information
50	U.1	204	200	0,9803922	Valid
	F.1	176	200	1,1363636	Valid
	U.2	184	200	1,0869565	Valid
	F.2	178	200	1,1235955	Valid
	U.3	207	200	0,9661836	Valid
	F.3	180	200	1,1111111	Valid
	A.1	200	200	1	Valid
	S.1	163	200	1,2269939	Valid
	B.1	144	200	1,3888889	Valid
	A.2	195	200	1,025641	Valid
	S.2	163	200	1,2269939	Valid
	B.2	146	200	1,369863	Valid
	A.3	193	200	1,0362694	Valid
	B.3	134	200	1,4925373	Valid
	S.3	164	200	1,2195122	Valid
	PA.1	187	200	1,0695187	Valid
	ND.1	141	200	1,4184397	Valid
	NA.1	140	200	1,4285714	Valid
	PD.1	160	200	1,25	Valid
	ND.2	140	200	1,4285714	Valid
	PD.2	172	200	1,1627907	Valid
	NA.2	138	200	1,4492754	Valid
	PA.2	191	200	1,0471204	Valid
	ND.3	165	200	1,2121212	Valid
	PD.3	177	200	1,1299435	Valid
	PA.3	184	200	1,0869565	Valid
	NA.3	117	200	1,7094017	Valid
	NI.1	168	200	1,1904762	Valid
	L.1	173	200	1,1560694	Valid
	NI.2	162	200	1,2345679	Valid
L.2	167	200	1,1976048	Valid	
L.3	168	200	1,1904762	Valid	
NI.3	115	200	1,7391304	Valid	

Notes :

- F: Usefulness
- U: Usability
- A: Visual aesthetic
- S: Status
- 26 Commitment
- PA, PD: Positive emotions
- NA, ND : Negative emotions
- IN: Intention to use
- L: Product loyalty

In testing each criterion in the items in the table above, valid results were obtained so that the questionnaire was ready to be used in data collection.

2. Reliability Testing

After carrying out the validity test, the next step is to carry out a reliability test. The reliability test is carried out to find out if the questionnaire is truly trustworthy. If the Cronbach alpha value in each module is > 0.3, then the questionnaire is considered reliable[31]. The results of the reliability test can be seen in the table below:

TABLE V. STATISTICS OF TOTAL ITEMS AND CRONBACH ALPHA

Total Item Statistics and Cronbach Alpha				
Module	Cronbach Alpha	Indicators	Validity	Items
Module I	0.624	Usefulness	0.481	3
		Usability	0.594	3
Module II	0.796	Visual Aesthetic	0.543	3
		Status	0.657	3
		Commitment	0.832	3
Module III	0.798	Positive Emotion	0.756	6
		Negative Emotion	0.843	6
Module IV	0.806	Intention To Use	0.648	3
		Product Loyalty	0.738	3

With a value of > 0.624, the Indonesian version of the MeCUE 2.0 framework is thought to be reliable based on the statistical results of all 50 items and 50 interviewees. The results also show that the instrument is reliable because the Cronbach alpha value is greater than 0.8 and the score doesn't change much and stays the same. All indicators can be considered valid if their validity score is greater than 0.624, but an indicator of usability with several 0.481 has the lowest score. With a value of 0.843, the most important number comes from the negative emotion indicator.

C. Analysis of MeCUE 2.0

The result of the user experience research with MeCUE 2.0 frameworks was shown below:

1. Module I

Module I has 2 indicators, namely:

- a. Usefulness: 3.17
- b. Usability: 4.00

Below is the graphics module I:

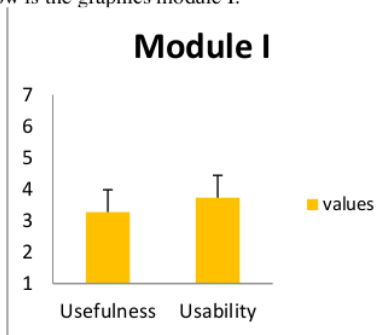


Fig. 7. Module I

Module I in user experience research with MeCUE 2.0 has 2 indicators namely Usefulness and Usability. Based on the research results, the Usefulness score on a scale of 1-5 is 3.17 and the Usability value is 4.00. That is, users, provide an assessment that the product being tested has a fairly good level of Usefulness, but there is still room for improvement. Meanwhile, a fairly high Usability value indicates the product is easy for users to use. Therefore, to improve the user experience of the product,

it is necessary to make improvements to the Usefulness aspect so that the product can better meet user needs while maintaining a high level of usability.

2. Module II

Module II has 3 indicators, namely:

- a. Visual Aesthetics: 3.33
- b. Status: 3.00
- c. Commitment: 3.67

Below is the graphics module II

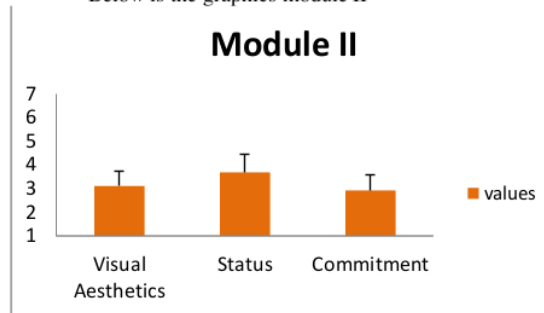


Fig. 8. Module II

Module II in user experience research with MeCUE 2.0 has 3 indicators namely Visual Aesthetics, Status, and Commitment. Based on the results of the study, the Visual Aesthetics score on a scale of 1-5 was 3.33, the Status value was 3.00, and the Commitment value was 3.67. That is, the user gives an assessment that the tested product has a fairly good level of Visual Aesthetics, but there is still room for improvement. In addition, the product is also considered to have a fairly good status by users. However, for the Commitment aspect, users give a relatively high rating, indicating a tendency to engage more deeply with the product.

In the context of product development, these results indicate that it is necessary to make improvements to the Visual Aesthetics aspect to increase product attractiveness and improve user experience. In addition, it is also necessary to pay attention to maintaining or enhancing the product's brand image through the Status aspect, and utilizing the potential of the Commitment aspect as a binding factor for users to the product.

3. Module III

Module III has 2 indicators, namely:

- a. Positive Emotions: 3.67
- b. Negative Emotions: 2.67

Below is graphics module III

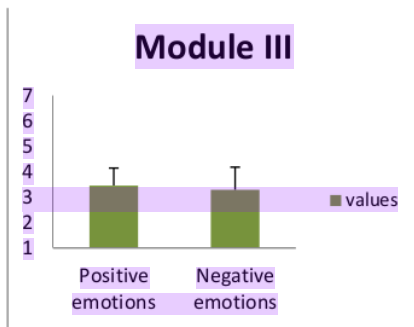


Fig. 9. Module III

Module III in user experience research with MeCUE 2.0 has 2 indicators namely Positive Emotions and Negative Emotions. Based on the research results, the value of Positive Emotions on a scale of 1-5 is 3.67, and the Negative Emotions value is 2.67. That is, users provide an assessment that the experience of using the product can trigger positive emotions in users with a relatively high value. Meanwhile, a lower Negative Emotions value indicates that the product tends not to cause significant negative emotions in users. In product development, these results indicate that the product can lead to a positive user experience, and needs to be maintained or improved. In addition, it is necessary to avoid factors that can cause negative emotions in users so that the experience of using the product becomes more optimal.

4. Module IV

Module IV has 2 indicators, namely:

- a. Intention to use: 3.67
- b. Product loyalty: 2.67

Below is the graphics module IV

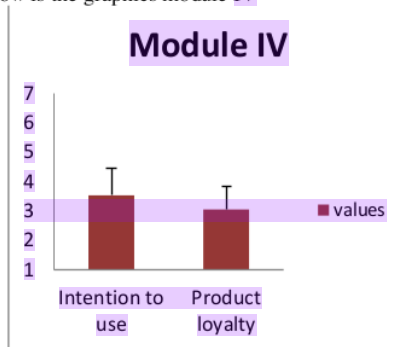


Fig. 10. Module IV

Module IV in user experience research with MeCUE 2.0 has 2 indicators namely Intention to use and Product loyalty. Based on the research results, the Intention to use

the value on a scale of 1-5 is 3.67, and the Product loyalty value is 2.67. That is, users provide an assessment that they are likely to want to use the product in the future (Intention to use) with a relatively high value. However, a lower product loyalty value indicates that users tend not to have a strong level of loyalty to the product.

In product development, these results indicate that the product has the potential to become the user's top choice in the future, but efforts need to be made to strengthen user loyalty to the product so they don't switch to other products.

5. Module V

Module V has 1 indicator, namely:

- a. Overall Evaluation: 107.00

Below is graphics module III

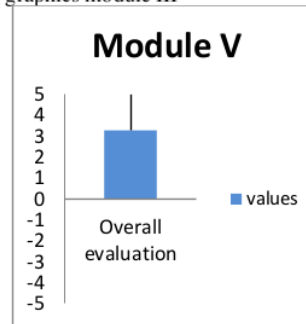


Fig. 11. Module V

Module V in user experience research with MeCUE 2.0 has one indicator, namely Overall Evaluation. Based on the results of the study, the Overall Evaluation score was 107.00. That is, users give an overall positive assessment of the products tested in the study. These results indicate that the product provides a good and satisfying user experience. In product development, these results can be a reference for product developers to maintain or improve product quality to meet user needs and expectations. In addition, positive ratings from users can also be a source of motivation for product developers to continue developing and improving product quality in the future.

The results of user experience research with MeCUE 2.0 show that users consider the product to have a fairly good level of usability and use (scores 4.00 and 3.17 in Module I). However, users consider the value of satisfaction with this product to be not high (there is no value for this module). In addition, users also give relatively low scores for the Visual Aesthetics, Status, and Commitment aspects in Modules II and III. This shows that there needs to be an improvement in these aspects so that the product is more attractive and has the status desired by the user.

The results of the research on Module IV show that users have the intention to use the product (value 3.67), but the level of loyalty to the product is still lacking (value 2.67). This could indicate that the user may be using the product for a

while, and is still considering looking for alternative products.

The results of the research on Module V show an Overall Evaluation score of 107, which indicates that overall, the product is considered good by users. However, keep in mind that the results of this study are based on only one product and a limited sample. Therefore, the research results cannot be used as a general reference for different products or user populations

D. Discussions

In the results of user experience research with MeCUE 2.0, several things need to be considered in interpreting these results.

In Module I, users give quite good scores on the Usefulness and Usability aspects, which indicate that the product is considered quite useful and easy to use. However, there is no value for the Satisfaction aspect, so no conclusions can be drawn regarding the level of user satisfaction with the product.

In Modules II and III, users give relatively low scores for the Visual Aesthetics, Status, and Commitment aspects, indicating that the product needs to be improved on these aspects to make it more attractive and have the status desired by users. A low Visual Aesthetics value can have an impact on reducing user interest in the product, while a low Status and Commitment value can indicate that the product is not considered important or has the desire to be known by users.

In Module IV, users have the intention to use the product, but the level of loyalty to the product is still lacking. This indicates that the product may only be used for a while and is still considering alternative products.

In Module V, the Overall Evaluation value indicates that overall the product is considered good by users. However, keep in mind that the results of this study are based on only one product and a limited sample, so the results cannot be used as a general reference for different products or user populations.

In interpreting the research results, it should also be noted that MeCUE 2.0 is only one of the user experience measurement methods that can be used, and each method has its advantages and disadvantages. Therefore, it is necessary to carry out further research using different methods or using MeCUE 2.0 on a wider population of users and different products to obtain more comprehensive results.

From the results of the user experience research analysis with MeCUE 2.0, several significant discussions can be carried out.

First, the research shows that users prioritize the Usefulness and Usability aspects in measuring the user experience of the product. Therefore, in the next product development, it is necessary to pay attention to these aspects to ensure that the product can meet the needs and is easy for users to use.

Second, low scores on the Visual Aesthetics, Status, and Commitment aspects indicate that improvements need to be

made to the appearance and image of the product to make it more attractive and have the status desired by the user. This can be done by involving graphic designers and branding consultants in product development.

Third, a relatively high Intention to use value indicates that the product has the potential to be widely used by users. However, the low level of loyalty indicates that a better marketing and product development strategy is needed to increase user loyalty to the product.

Fourth, keep in mind that the results of this study are based on only one product and a limited sample. Therefore, the results cannot be generalized to different products or user populations. Therefore, it is necessary to carry out further research using different methods or using MeCUE 2.0 on a wider population of users and different products to obtain more comprehensive results.

Fifth, the research results can be used as a reference in further product development. In product development, it is necessary to consider aspects that are considered important by users, such as Usefulness, Usability, Visual Aesthetics, Status, and Commitment, to improve product quality and meet user needs.

V. CONCLUSION

This study aims to explore and evaluate the user experience of PeduliLindungi Mobile-Apps (PLMA). Based on the results of the analysis and discussions that have been carried out, several important conclusions can be drawn from the PLMA user experience research with MeCUE 2.0. First, the Usefulness and Usability aspects are important factors in measuring the user experience of the product, so in further PLMA development, it is necessary to pay attention to these aspects to ensure the product can meet the needs and is easy for users to use. Second, aspects of Visual Aesthetics, Status, and Commitment need to be considered in PLMA development so that it is more attractive and has the status desired by users. This can improve user experience and strengthen PLMA's brand image. Third, a relatively high Intention to use value indicates the potential for PLMA to be widely used by users, but a low level of loyalty indicates the need for a better marketing and development strategy for PLMA to increase user loyalty to the PLMA. Fourth, the results of this study can only be used as a reference in further PLMA development, because the results are based on one product and a limited sample. Therefore, it is necessary to carry out further research using different methods or using MeCUE 2.0 on a wider population of users and different products to obtain more comprehensive results. Fifth, MeCUE 2.0 can be used as an effective tool in measuring user experience at PLMA, by providing comprehensive information about aspects that are considered important by users.

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