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

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***Abstract*— The Ministry of Communication and Information (KOMINFO) of Indonesia released the mobile-based e-Health app PeduliLindungi Mobile-Apps (PLMA) in April 2020. It helps the Indonesian government track and stop the COVID-19 pandemic. PLMA detects, tracks, warns, and stops Covid-19. KOMINFO requires all citizens to utilize PLMA, which has been downloaded over 10,000,000 times. However, PLMA was criticized by those who used its apps due to application errors, data breaches, and incorrect user data. 470,521 Google Play Store users rated it 3.8 on September 29, 2021. The PLMA review score suggests the application needs revision. PLMA receives concerns regarding its navigation, features, connection and performance issues, personal data security, and accessibility. The study examines PLMA's impact on application users' UX and UI. Few research has measured or evaluated PLMA UI/UX. The meCUE 2.0 framework by Minge (2020) evaluates application user experience services. It's new and extensive. MeCUE 2.0's questionnaire comprises 34 statement items. Modules I and II (Perception of quality of instrumental and non-instrumental products), III (Emotions), IV (Consequences), and V (Overall Evaluation) comprise it. This study began by translating and giving 50 respondents the meCUE 2.0 questionnaire. The PLMA UI/UX ratings 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 contributes ideas and uses. It advises UX designers and policymakers to consider key elements when creating PLMAs.**

Keywords*— *e-Health, PeduliLindungi, User Experience, User Interface, meCUE 2.0

***Abstrak*— Kementerian Komunikasi dan Informatika (KOMINFO) Indonesia merilis aplikasi *e-Health* berbasis *mobile* PeduliLindungi Mobile-Apps (PLMA) pada April 2020. Aplikasi ini membantu pemerintah Indonesia melacak dan menghentikan pandemi COVID-19. PLMA mendeteksi, melacak, memperingatkan, dan menghentikan Covid-19. KOMINFO mewajibkan seluruh warga untuk memanfaatkan PLMA yang telah diunduh lebih dari 10.000.000 kali. Namun, PLMA dikritik oleh mereka yang menggunakan aplikasinya karena kesalahan aplikasi, pelanggaran data, dan data pengguna yang salah. 470.521 pengguna Google Play Store memberi peringkat 3,8 pada 29 September 2021. Skor ulasan PLMA menunjukkan bahwa aplikasi perlu direvisi. PLMA menerima kekhawatiran terkait navigasi, fitur, masalah koneksi dan kinerja, keamanan data pribadi, dan aksesibilitasnya. Studi ini mengkaji dampak PLMA terhadap UX dan UI pengguna aplikasi. Beberapa penelitian telah mengukur atau mengevaluasi PLMA UI/UX. Kerangka kerja meCUE 2.0 oleh Minge (2020) mengevaluasi layanan pengalaman pengguna aplikasi. Ini baru dan luas. Kuesioner MeCUE 2.0 terdiri dari 34 item pernyataan. Modul I dan II (Persepsi kualitas produk instrumental dan non-instrumental), III (Emosi), IV (Konsekuensi), dan V (Evaluasi Keseluruhan) terdiri dari itu. Penelitian ini dimulai dengan menerjemahkan dan memberikan kuesioner meCUE 2.0 kepada 50 responden. Peringkat PLMA UI/UX adalah 3,17 untuk kegunaan, 4 untuk kegunaan, 3,33 untuk estetika visual, 3 untuk status, 3,67 untuk komitmen, 3,67 untuk emosi positif, 2,67 untuk emosi negatif, 3,67 untuk niat menggunakan, 2,67 untuk loyalitas produk, dan 3.67 untuk evaluasi keseluruhan (107.00). Penelitian ini menyumbangkan ide dan kegunaan. Ini menyarankan perancang UX dan pembuat kebijakan untuk mempertimbangkan elemen kunci saat membuat PLMA.**

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

I. INTRODUCTION

PeduliLindungi Mobile-Apps (PLMA) is an e-Health application that was launched in April 2020 by the Ministry of Communication and Information (KOMINFO) of the Republic of Indonesia. This application 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 government 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 land, sea, and air. To download the program, vaccination certificates are also given out. The government has several of rules or policies about how to use the PeduliLindungi, 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.

p-ISSN 2301-7988, e-ISSN 2581-0588
DOI : 10.32736/sisfokom.v12i2.1657, Copyright ©2023
Submitted : March 25, 2023, Revised : May 20, 2023, Accepted : May 24, 2023, Published : July 1, 2023

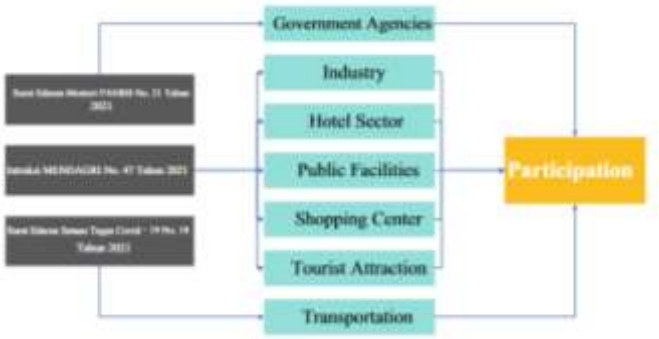

Fig. 1. PeduliLindungi applications are governed by government rules[1]

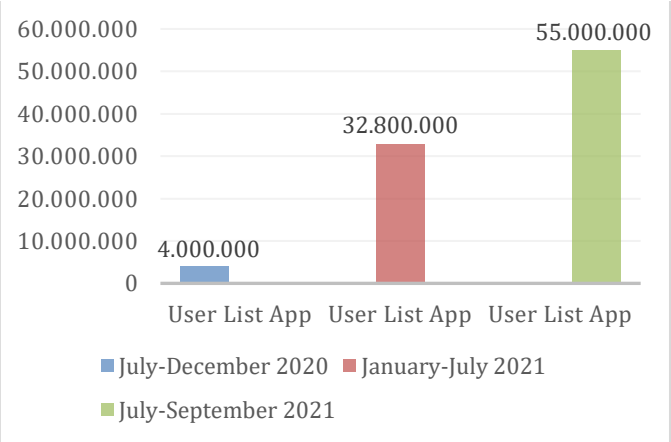

Fig. 2. Number of PeduliLindungi application users[1]

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 confidential information, and inaccessibility[2]. The PLMA faces several challenges, including people'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].

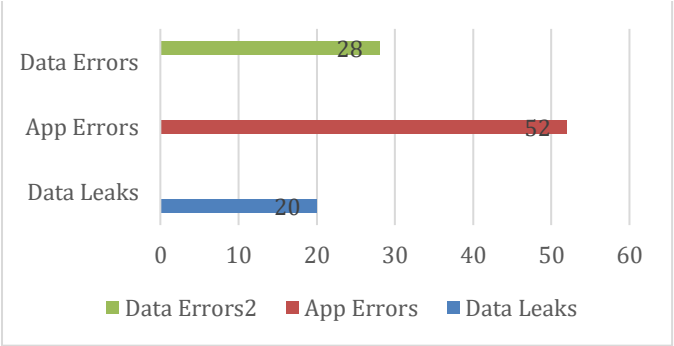

Fig. 3. Technical problems is referred to as PLMA[1]

Several previous studies related to PLMA, but very lack studies on PLMA user experience and user interface, previous related studies were PeduliLindungi's COVID-19 Treatment Success (Indonesian Case Study)[1], User Satisfaction Analysis of PeduliLindungi App Using EUCS Method[5], PeduliLindungi App Users Multinomial Naive Bayes-SMOTE Fine-Grained Sentiment Analysis[6], Integration and Interoperability Issues with PeduliLindungi Data and Software Architecture Refactoring [7], Aspects of the PeduliLindungi App User's Goals, Procedures, Tools, and Surroundings[8], PeduliLindungi User Satisfaction Research[9], Google Play PeduliLindungi sentiment analysis using the Random Forest Algorithm with SMOTE[10], Case Study of Jakarta University Students' Use of the PeduliLindungi App to Prevent COVID-19[11], PeduliLindungi, an Indonesian tracking app, sheds light on an integrated model of tracking apps[12], Factors That Influence Indonesians' Plans to Use the PeduliLindungi App During COVID-19[13], Sentiment Analysis Machine Learning Comparison PeduliLindungi Applications[14], Binary Sentiment Reviews: Support Vector Machine vs. Naive Bayes Classifier for the PeduliLindungi App[15], Support Vector Machine and Naive Bayes Algorithm-Based Particle Swarm Optimization Analysis of Google Play User Reviews for PeduliLindungi[16], and Acceleration of Pedulilindungi's Popularity Among the Public in Relation to the Corona Virus (Covid-19)[17].

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 measuredI/UX in PLMA, but the numbers are still very small and limited. Several previous studies related to the user experience perspective and the PLMA user interface include Research by Bianca, et al., 2023[18], During the Covid-19 pandemic, a study was 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 was processed using PLS-SEM. QuantitativeTquantitative cross-sectional design is used. The results proved that PeduliLindungi's service quality dimensions were well-

p-ISSN 2301-7988, e-ISSN 2581-0588
DOI : 10.32736/sisfokom.v12i2.1657, Copyright ©2023
Submitted : March 25, 2023, Revised : May 20, 2023, Accepted : May 24, 2023, Published : July 1, 2023

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)[19] 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 Kusuma, 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 15 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 meCUE 2.0. Minge (2020) proposes the meCUE 2.0 framework[20] for app user experience evaluation. The design of this framework is novel and comprehensive. MeCUE 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 meCUE 2.0 assessment to 50 people. Thüring and Mahlke's CUE model is the basis for the meCUE architecture, which disentangles practical and aesthetic evaluations of quality. Interactional characteristics have a direct impact on usability and utility, while sensory input and cognitive processing are essential for percept formation, and this is the reason why its suitable for user experience measurement[20]–[22].

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. 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:

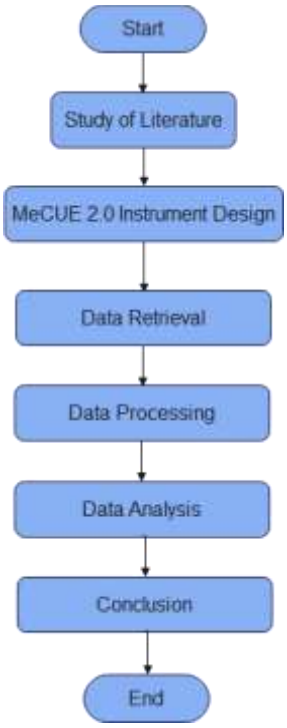

Fig. 4. Research Steps

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 all(2021)[23] and Arianto, et all(2022) meCUE2.0 indicator table[24]:

TABLE I. ADAPTATION MECUE 2.0 FRAMEWORK INTO INDONESIAN CONTEXT[23]

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 cara menggunakan aplikasi ini
Module II *(Perception of non-*	Visual Aesthetic	Desain aplikasi ini terlihat menarik
		Aplikasi ini dirancang secara

p-ISSN 2301-7988, e-ISSN 2581-0588
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Module	Dimension	Item in Indonesian Versions
instrumental product qualities)		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 pasif
Module IV *(Consequences)*	Intention to Use	Saya tidak akan menukar aplikasi 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	

CUE and MeCUE 2.0 framework were used had been described as below:

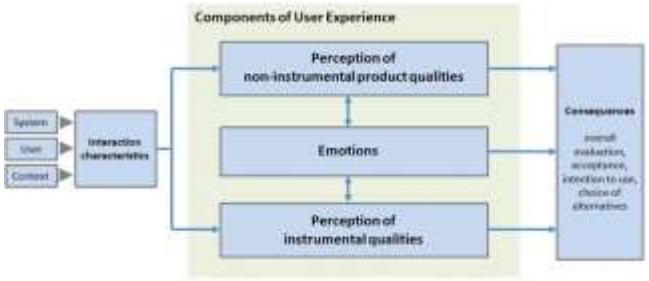

Fig. 5. The CUE Model, or Components of User Experience[21]

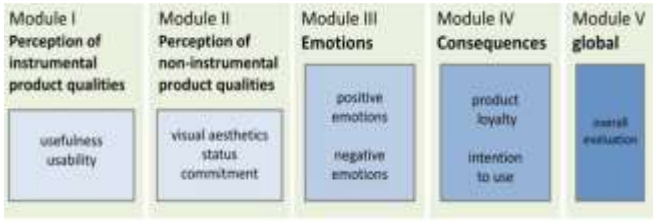

Fig. 6. The MeCUE 2.0 Model[25]

C. Data Retrieval

Collecting data obtained from distributing questionnaires to 50 respondents based on Hair et all(2011)[26] in each meCUE 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: $V=\Sigma/[n(c-1)]$ ("User Experience Evaluation Using the meCUE 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[27]. Description ofAikenaiken formula (Zarvianti et al. 2022):

s=r- l_0
l_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 MECUE 2.0 QUESTIONNAIRE WAS DISTRIBUTED TO RESPONDENTS[23]

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	Prosedur pengoperasian aplikasi ini mudah dipahami					
6	Dengan bantuan aplikasi ini, saya akan mencapai 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					

p-ISSN 2301-7988, e-ISSN 2581-0588
DOI : 10.32736/sisfokom.v12i2.1657, Copyright ©2023
Submitted : March 25, 2023, Revised : May 20, 2023, Accepted : May 24, 2023, Published : July 1, 2023

No	Questions	STS	TS	N	S	SS
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					
15	Saya tidak akan keberatan jika teman-teman saya iri pada saya untuk aplikasi ini					
16	Aplikasi ini membuat saya senang					
17	Aplikasi ini membuat saya lelah					
18	Aplikasi ini mengganggu saya					
19	Aplikasi ini membuat saya rileks					
20	Saat menggunakan aplikasi ini, saya merasa lelah					
21	Aplikasi ini membuat saya merasa sangat senang					
22	Aplikasi ini membuat saya Frustrasi					
23	Aplikasi ini membuat saya merasa gembira					
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	Saya akan mendapatkan aplikasi ini untuk diri saya sendiri (lagi) kapan saja					
33	Saat menggunakan aplikasi ini, saya lupa waktu					

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

D. Data Processing

After distributing the meCUE2.0 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 meCUE2.0 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.

III. 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

p-ISSN 2301-7988, e-ISSN 2581-0588
DOI : 10.32736/sisfokom.v12i2.1657, Copyright ©2023
Submitted : March 25, 2023, Revised : May 20, 2023, Accepted : May 24, 2023, Published : July 1, 2023

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	∑S	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
C: 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 > 0.4, then the questionnaire is considered reliable[26]. 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:

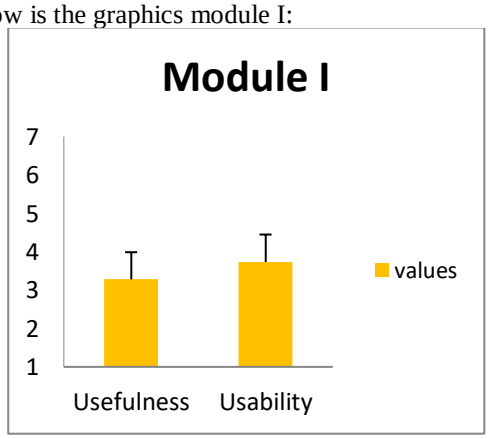

Fig. 7. Module I

Module I in user experience research with MeCUE 2.0

p-ISSN 2301-7988, e-ISSN 2581-0588
DOI : 10.32736/sisfokom.v12i2.1657, Copyright ©2023
Submitted : March 25, 2023, Revised : May 20, 2023, Accepted : May 24, 2023, Published : July 1, 2023

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 that 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

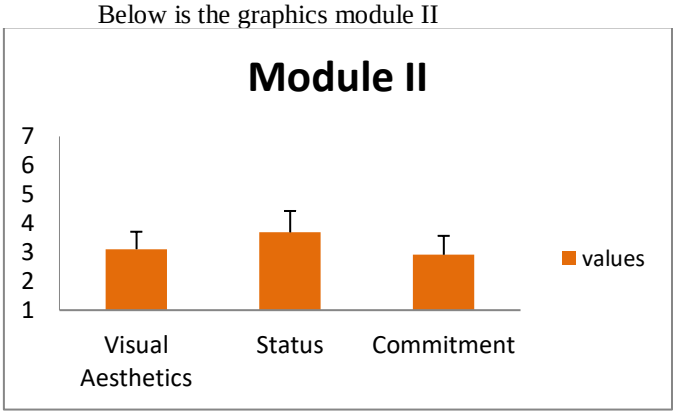

Fig. 8. Module II

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

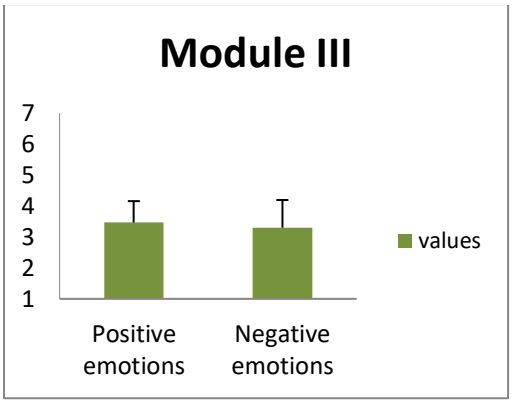

Fig. 9. Module III

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

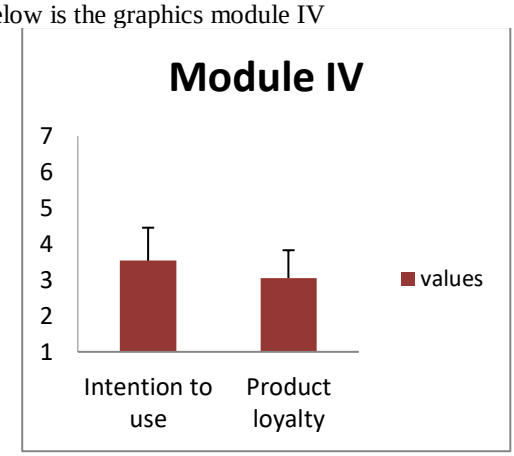

Fig. 10. Module IV

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

p-ISSN 2301-7988, e-ISSN 2581-0588
DOI : 10.32736/sisfokom.v12i2.1657, Copyright ©2023
Submitted : March 25, 2023, Revised : May 20, 2023, Accepted : May 24, 2023, Published : July 1, 2023

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

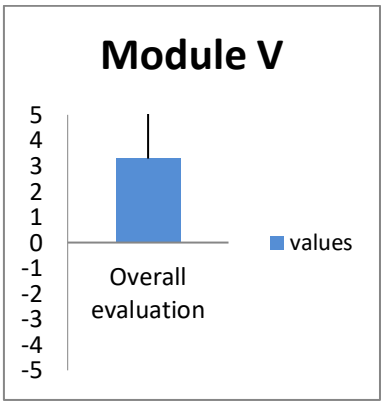

Fig. 11. Module V

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.

p-ISSN 2301-7988, e-ISSN 2581-0588
DOI : 10.32736/sisfokom.v12i2.1657, Copyright ©2023
Submitted : March 25, 2023, Revised : May 20, 2023, Accepted : May 24, 2023, Published : July 1, 2023

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.

IV. 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.

ACKNOWLEDGMENT

Thank you to the Academic Community of the Faculty of Engineering, Information Systems Department and LP2M at the Universitas Islam Madura for their motivation and assistance so that this research was carried out properly at 2023.

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p-ISSN 2301-7988, e-ISSN 2581-0588
DOI : 10.32736/sisfokom.v12i2.1657, Copyright ©2023
Submitted : March 25, 2023, Revised : May 20, 2023, Accepted : May 24, 2023, Published : July 1, 2023

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p-ISSN 2301-7988, e-ISSN 2581-0588
DOI : 10.32736/sisfokom.v12i2.1657, Copyright ©2023
Submitted : March 25, 2023, Revised : May 20, 2023, Accepted : May 24, 2023, Published : July 1, 2023