
SYSTEM USABILITY MEASUREMENT USING A USE QUESTIONNAIRE ON THE PEDULILINDUNGI APPLICATION

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ABSTRACT:

PeduliLindungi is an application developed to help relevant government agencies track in order to prevent the spread of the corona virus disease (COVID19). This app is built on community engagement to share location data with each other while traveling so that contact history searches can be carried out with people with COVID-19. Users of this application will also receive notifications if they are in a crowd or in a red zone, especially areas or subdivisions where people are infected with COVID-19 or patients are under surveillance. The number of respondents in this study were 135 people by distributing questionnaires online to PeduliLindungi users. Measuring questionnaire data using a Likert Scale. It can be concluded that the four variables used in usability measurement obtained results with a feasibility level for the usefulness variable of 71.85%, the ease of use variable was 77.96%, the ease of learning variable was 81.94% and the satisfaction variable was 70.74%. So, the results of the overall analysis obtained a percentage value of 74.68% where the PeduliLindungi application has a decent value.

Keywords: PeduliLindungi; Usability; Use Questionnaire.

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INTRODUCTION

The story of the coronavirus begins with the first report of a COVID19 outbreak of a cluster of human pneumonia cases in

the city of Wuhan, China, in late December 2019. The first date of onset of cases was December 1, 2019. The patient's symptoms include fever, malaise, dry cough and

shortness of breath. diagnosed as a symptom of pneumonia virus infection. Initially, the disease was called Wuhan pneumonia by the press because of its pneumonia-like symptoms. The genome sequencing results show that the causative agent is the new coronavirus. The World Health Organization (WHO) provisionally named the novel coronavirus 2019 (2019nCoV) on 12 January 2020, and then officially changed it to coronavirus disease 2019 (COVID19) on 12 February 2020 (Pranata, 2021).

The Government of the Republic of Indonesia has made various efforts to combat the spread of this virus. Due to the lack of vaccines that can still enter the human body and their ability to spread very quickly, one step that is considered effective is to slow the spread of the COVID-19 virus (Alfaritsi et al., 2020). By slowing down the spread of the virus in society, it is hoped that medical facilities will be able to treat existing patients so that medical facilities do not fall due to the imbalance in the number of patients and medical facilities.

One of the government's breakthroughs is the creation of the PeduliLindungi application which is able to warn the public if they enter an area affected by COVID-19, find health facilities and track any abnormalities. anyone who has the potential to be infected with the COVID-19 virus.

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spread of the corona virus disease (COVID19).

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Through this study a usability analysis will be carried out on the PeduliLindungi application which was launched in early March to help overcome the Covid19 pandemic, however the availability of this application cannot be measured. Based on this background, a study "Measuring System Usability Using the Use Questionnaire in the PeduliLindungi Application" will be carried out.

PeduliLindungi

PeduliLindungi is an application developed to help relevant government agencies track in order to prevent the spread of the corona virus disease (COVID19). This app is built on community engagement to share location data with each other while traveling so that contact history searches can be carried out with people with COVID-19. Users of this application will also receive notifications if they are in a crowd or in a red zone, especially areas or subdivisions where people are infected with COVID-19 or patients are under surveillance.



Figure 1. The PeduliLindungi application

Usability

How easy it is to use, learn, and encourage users to use the system as a tool to accomplish tasks and reduce, abuse, and deliver benefits. The level of quality that satisfies users is an understanding of usability. According to Jakob Nielsen, Usability is a quality measure that is useful in providing a value for the ease of use by system users or website interfaces by considering certain criteria (Nielsen, 2021). It can be concluded that usability is a measurement made to evaluate a system or application using certain conditions given to users who have used the system or application.

Use Questionnaire

The Use Questionnaire is a collection of questionnaires provided by Lund. The questionnaire can be used to measure

usability because it contains three measurement standards according to ISO 9241 namely efficiency, effectiveness and satisfaction. According to Gita Indah Marthasari & Nur Hayatin, the questionnaire has three variables to measure system user satisfaction (user satisfaction), namely usefulness, ease of use, ease of learning and user satisfaction (Marthasari & Hayatin, 2017).

RESEARCH METHODS

1. Research Object

The object of this research is the PeduliLindungi application. The data collection method used is a questionnaire using Google Forms (Gform), so that the questionnaire can be easily distributed and filled out. The scale for the questionnaire survey results

is divided into a Likert scale which is divided into a scale of 1 to 4, namely Strongly Agree (SS), Agree (S), Disagree

(TS), and Strongly Disagree (STS), with a score of each scale on Table 1 follows:

Table 1. Measurement Scale

Statement	strongly agree	agree	don't agree	totally disagree
Score	4	3	2	1

2. Research Stages

The research steps are levels or levels which can also be referred to as levels in a research activity. Where these steps have a process that is carried out in a structured, consistent, standard, logical and systematic manner. The following are the steps and explanations carried out in this study:

- a. Exploring the Concept The initial step of this research was exploring the concept by documenting the concepts used in this study, especially looking for references to the Cares Protect Application, Usability, Use Questionnaire and Likert Scale.
- b. Analysis of the questionnaire statements At this stage, the analysis of the questionnaire statements was carried out using the analysis of the usefulness of the PeduliLindungi application. Research indicators This research will be the basis for developing statements from the questionnaire.
- c. Collection and Distribution of Questionnaires The stages of data collection and analysis are carried out by creating a measuring instrument in the form of a questionnaire on the

Google Form. Distribution of data to respondents is done online through social networks such as Instagram, Whats App and Line according to predetermined criteria.

- d. Feasibility Test Each questionnaire statement must undergo a feasibility test, validity test and reliability test to find out whether the tools used are good.
- e. Usability Testing Analysis The results of filling out the questionnaire are then added up and the usability value is calculated.
- f. Conclusion The final step in this study is to draw conclusions.

RESULTS AND DISCUSSION

The results carried out in this study went through several stages as shown in Figure 2.

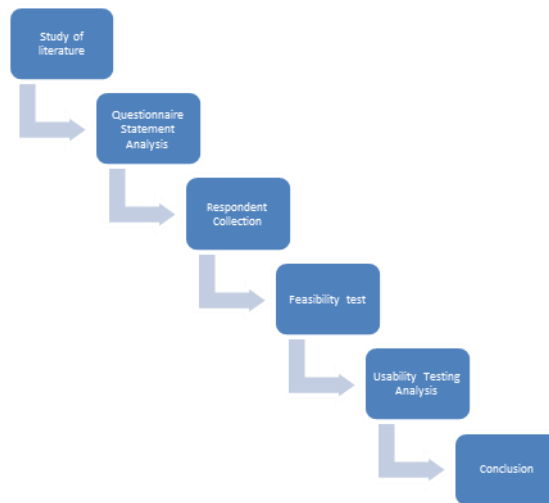


Figure 2. Research Stages

The application of information technology can be an integral part of improving quality and increasing trading activity, one of which is the use of information systems. This study uses the USE Questionnaire as usability measurement. The USE Questionnaire is a questionnaire consisting of four indicators, namely usefulness, ease of use, ease of learning and satisfaction variables. This research uses questionnaire data which has been filled in by 135 respondents at random. The respondents were divided into categories of gender, age and occupation. In the gender category, it was shown that there were more male respondents (91 people) than female respondents (45 people). This is consistent with the statement that men have higher activities outside the home. In the age category, it was shown that the majority of respondents were 12-17 years old (0 people), 18-25 years (58 people), 26-40 years (68 people), 41-55 years (6 people), >55 years (3

people). 18 - 25 years to 26 - 40 years often do activities outside the home such as offices, shopping centers, tourist attractions, restaurants and cafes, cinemas, banks, hotels, public transportation (stations, bus stops, terminals, etc.), public facilities (RPTRA, parks, etc.), places of worship (mosques, churches, etc.), health facilities (hospitals, health centers, etc.). This PeduliLindungi application can help carry out monitoring by the Government of outside activities carried out outside the home.

A. Questionnaire Statement Analysis

The first step in taking measurements with usability testing is compiling statements that will be used for the questionnaire and distributed to respondents for PeduliLindungi users. These statements refer to the USE Questionnaire tool. From this tool, 16 statements in the questionnaire can be used which are divided into 4 factors according to the factors in the Use

Questionnaire, namely usefulness, learning (A. Lund, 2021).
satisfaction, ease of use, and ease of

Table 2. Questionnaire Statement Analysis

factor	No	Declaration
Usefulness	1	The PeduliLindungi application helps me to be more active
	2	The PeduliLindungi application helps me to be more productive
	3	The PeduliLindungi application is very useful
	4	The PeduliLindungi application can save me time when using it
Ease of Use	5	The PeduliLindungi application is easy to use
	6	The PeduliLindungi application is simple to use
	7	The PeduliLindungi application is user friendly
	8	I can use the PeduliLindungi Application without written instructions
	9	I can recover quickly and easily when I make mistakes
Ease of learning	10	I learned to use the PeduliLindungi application quickly
	11	I can easily remember how to use the PeduliLindungi Application
Satisfaction	12	I am satisfied with the PeduliLindungi Application
	13	The PeduliLindungi application is very pleasant to use
	14	the way the PeduliLindungi Application works is like what I want
	15	The PeduliLindungi app is amazing
	16	The PeduliLindungi application is very comfortable to use

The equation formula used to calculate the level of usability using the Use Questionnaire is as follows:

$$(\%) = \frac{s \times y \times d}{s \times y \times ha} \times 100 \% = \frac{\text{measurement usability score}}{\text{Maximum usability score}} \times 100\%$$

Information:

Pk (%) : Usability level in percent

s : Scale score

y : The number of statements

d : Number of respondents

ha : Maximum amount

The data obtained is then converted based on the feasibility category table:

Table 3. Eligibility Category Number (%) Classification

Number (%)	Classification
< 21	Very Unworthy
21- 40	Not Feasible
41 - 60	Enough
61 - 80	Worthy
81 - 100	Very Worth it

B. Validity test

The validity test is used to determine the feasibility of the statement items. A questionnaire is tested for validity when closing the questionnaire can reveal something that is measured by the questionnaire (Sugiyono, 2018). The measurement of the validity test in this study was to correlate the bivariate Pearson R table with $n(135) = 0.221$. This was explained

by the number of respondents as many as 135 people, so that the r table value was 0.221 and it could be concluded if the r count was greater than the r table calculator declared valid and vice versa if the r count is smaller than the r table then the measuring instrument is declared invalid. The results of the questionnaire validity test can be seen in table 4.

Table 4. Questionnaire Validity Test Results

Total Correlation			
Number	R Count	R Table	Information
1	0.801	0.221	Valid
2	0.748	0.221	Valid
3	0.824	0.221	Valid
4	0.731	0.221	Valid
5	0.776	0.221	Valid
6	0.792	0.221	Valid
7	0.71	0.221	Valid
8	0.638	0.221	Valid
9	0.622	0.221	Valid
10	0.559	0.221	Valid
11	0.624	0.221	Valid
12	0.82	0.221	Valid

13	0.817	0.221	Valid
14	0.809	0.221	Valid
15	0.813	0.221	Valid
16	0.845	0.221	Valid

Table 5. Questionnaire Validity Test Results per Sub Group

Korelasi Per Sub Group				
No	R Count	R Table	Information	Sub Group
1	0.911	0.221	Valid	<i>Usefulness</i>
2	0.875	0.221	Valid	
3	0.874	0.221	Valid	
4	0.798	0.221	Valid	
5	0.85	0.221	Valid	<i>Ease of Use</i>
6	0.883	0.221	Valid	
7	0.78	0.221	Valid	
8	0.737	0.221	Valid	
9	0.673	0.221	Valid	<i>Ease of Learning</i>
10	0.935	0.221	Valid	
11	0.916	0.221	Valid	
12	0.87	0.221	Valid	
13	0.896	0.221	Valid	<i>Satisfaction</i>
14	0.855	0.221	Valid	
15	0.886	0.221	Valid	
16	0.867	0.221	Valid	

C. Reliability Test

Reliability relates to the degree of consistency and balance of data or findings (Sugiyono, 2016). The reliability test is to find out the consistency of the measuring instruments that can be used, and to maintain consistency when re-measurement, and to find answers from

sources, whether they can be processed further. The results obtained from the reliability test can be seen from the coefficient value of Croanbach's Alpha. To determine the level of instrument reliability, categories are used which can be seen in Table 6.

Table 6. Cronbach's Alpha Reliability Level

Interval Relibilitas	Katagori
0.80<r11<1,00	Very High Reliability

0.60 r_{11} <math>< 0,80</math>	High Reliability
0.40 r_{11} <math>< 0,60</math>	Moderate Reliability
0.20 r_{11} <math>< 0,40</math>	Low Reliability
0.00 r_{11} <math>< 0,20</math>	No Reliability

From the results of calculations using SPSS, the Croanbach's Alpha

coefficient results are obtained as shown in Table 7.

Table 7. Questionnaire Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.947	16

The reliability test was carried out by inputting the data obtained from the results of answering statements with a valid value of 16 and producing a Cronbach's Alpha of 0.947. Because the value of Cronbach's Alpha is in the range of $0.80 < r_{11} < 1.00$, as the basis for decision making in the reliability test above, it can be concluded that the 16 questions used show that the reliability of the questionnaire is at a very high level. So it can be concluded that the components and answers from the questionnaire can be declared reliable so that data processing can be continued because they meet the criteria.

D. Reliability Test Results

After processing the data first, the thing that needs to be done is to analyze the results of the questionnaire. Data processing is carried out after the feasibility test results are obtained, namely the validity and reliability tests according to the provisions. After distributing the 16 statements in the questionnaire to 135 respondents, then the results of the questionnaire were recorded. The assessment was carried out using a Likert scale with a scale of 1 to 4, namely SS (4), S (3), TS (2), and STS (1). The recap results can be seen in Table 8.

Table 8. Questionnaire Reliability Test Results

factor	No	Declaration	Score
Usefulness	1	The PeduliLindungi application helps me to be more active	3
	2	The PeduliLindungi application helps me to be more productive	2.77
	3	The PeduliLindungi application is very useful	3.03
	4	The PeduliLindungi application can save me time when using it	2.7
Total Usefulness			11.5

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	5	The PeduliLindungi application is easy to use	3.21
	6	The PeduliLindungi application is simple to use	3.24
Ease of Use	7	The PeduliLindungi application is user friendly	3.2
	8	I can use the PeduliLindungi Application without written instructions	3.15
	9	I can recover quickly and easily when I make mistakes	2.79
Total Ease of Use			15.6
Ease of learning	10	I learned to use the PeduliLindungi application quickly	3.26
	11	I can easily remember how to use the PeduliLindungi Application	3.3
Total Ease of learning			6.56
	12	I am satisfied with the PeduliLindungi Application	2.93
	13	The PeduliLindungi application is very pleasant to use	2.81
Satisfaction	14	the way the PeduliLindungi Application works is like what I want	2.79
	15	The PeduliLindungi app is amazing	2.69
	16	The PeduliLindungi application is very comfortable to use	2.93
Total Satisfaction			14.1
Grand Total			47.8

E. Overall Use Questionnaire Measurement To get the results of this study, the overall measurement can be calculated as follows.

$$(PK) = \frac{47.79 \times 135}{4 \times 16 \times 135} = \frac{6451.65}{8640} = 74.68\%$$

Based on the calculation above, the usability level of the PeduliLindungi application is 74.68%. According to table 4.2 these figures fall into the proper category.

F. Use Questionnaire Measurement on Usefulness Aspects

In the usability aspect, it is necessary to measure the extent to which the product allows users to achieve their goals, which can be calculated as follows.

$$(PK1) = \frac{11.50 \times 135}{4 \times 4 \times 135} = \frac{1552.5}{2160} = 71.85\%$$

Based on the calculation above, the usability level using the Use Questionnaire method for the usefulness

of the PeduliLindungi application is 71.85%. With this value, the level of usability in the Usefulness variable for

the PeduliLindungi application is at a feasible level. This can be interpreted that the PeduliLindungi Application has proper use for customers in conveying information. One of them provides information about the movement of users outside the home.

$$(PK2) = \frac{15.59 \times 135}{4 \times 5 \times 135} = \frac{2104.65}{2700} = 77.96\%$$

Based on the calculation above, the usability level using the Use Questionnaire method for ease of use (Easy of Use) of the PeduliLindungi application is 77.96%. With this value, the usability level in the Easy of Use variable for the PeduliLindungi Application is very feasible. This can be interpreted that the PeduliLindungi application has the ease of use that is

$$(PK3) = \frac{6.56 \times 135}{4 \times 2 \times 135} = \frac{885.6}{1080} = 81.94\%$$

Based on the calculation above, the usability level using the Use Questionnaire method for easy learning (Easy Learning) of the PeduliLindungi application is 81.94%. With this value, the usability level in the Easy of Learning variable for the PeduliLindungi Application is at a very feasible level. This can be interpreted that the

$$(PK4) = \frac{14.15 \times 135}{4 \times 5 \times 135} = \frac{1910.25}{2700} = 70.74\%$$

G. Measurement of Use Questionnaire on the Aspect of Ease of Use

In the aspect of convenience, it is necessary to measure how far the user's ease of use is and can be calculated as follows.

appropriate for customers. One of them is by making it easier to check vaccine certificates, and going in and out of public places.

H. Measurement of Use Questionnaire on Ease of Learning Aspects

In the aspect of convenience, it is necessary to measure how far it is easy to learn for users and can be calculated as follows.

PeduliLindungi Application has a very decent satisfaction that is needed by users.

I. Measurement of Use Questionnaire on Satisfaction Aspects

In the aspect of satisfaction, it is necessary to measure user perceptions, feelings, opinions of users.

Based on the calculation above, the usability level using the Use Questionnaire method for Satisfaction of the PeduliLindungi Application is 70.74%. With this value, the usability level in the Satisfaction variable for the PeduliLindungi Application is at a feasible level. This can be interpreted that the PeduliLindungi application has a good user satisfaction aspect for obtaining information. One of them is that users can easily memorize how to use the PeduliLindungi application and how the PeduliLindungi application works according to the wishes of the users.

CONCLUSION

Based on the results of the analysis obtained, it can be concluded as follows. The four availability variables have percentage values, namely: (1) Usefulness variable with a percentage of 71.85%, (2) Ease of use variable with a percentage of 77.96%, (3) Ease of learning variable with a percentage of 81.94%, and (4) Satisfaction variable with a percentage of 70.74%. Measurement of the usability aspect as a whole produces a percentage value of 74.68% which indicates that the usability measurement results in the PeduliLindungi Application have a decent value.

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