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Research

Analysis of Usability Level Peduli Lindungi Application

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Abstract

In the era of the COVID-19 pandemic, Indonesian people who will carry out activities outside the home are required to use the Peduli Lindungi Applicationas health information about themselves. This is because Peduli Lindungi Applications is an information application designed to detect the movement of the Indonesian population that can potentially be infected with the coronavirus. The purpose of this study was to determine the level of usability of users of the Peduli Lindungi Application using a usability scale system through five categories: Learnability and Efficiency. Memorability, Error, and Satisfaction. Quantitative descriptive methods and data collection using questionnaires and conducted online using a google form. Variable measurement scale refers to the Likert scale, showing the research results showing the level of usability with a score of 72.85 carried out interpretation of the data using the SUS score scale. At the same time, the percentage for learnability is 77.8%, efficiency is 76.9%, error is 56.8%, memorability is 75.8%, and satisfaction is 79.3%. Thus it can be said that Peduli Lindungi Application is user-friendly and can be accepted by the Indonesian people even though the error is below the average, which is identified due to the instability of the internet network,

Keywords: *COVID-19, Peduli Lindungi Application, the SUS score scale*

INTRODUCTION

At the end of 2019, the world was shocked by the presence of a deadly virus found in Wuhan, China, known as the coronavirus disease (covid 19). The uncontrolled spread of the coronavirus has caused tremendous panic throughout the world, including in the Republic of Indonesia.

The COVID-19 pandemic in Indonesia caused the government to intervene to take policies so that its spread could be controlled. Ministry of Communication and Information, in collaboration with other relevant ministries and institutions, is creating an application that aims to find information and the movement of Indonesian residents potentially infected with the coronavirus. This application is known as the Peduli Lindungi Application.

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In implementing an application, usability analysis is needed to determine its utilization and whether the application is user-friendly. Usability is a part of Human-Computer Interaction science that studies the design of interfaces and interactions between humans and computers. According to Jacob Nielsen, usability is a quality attribute that assesses the level of ease of the user interface.

This study uses a large number of respondents. It involves the age category that has used Peduli Lindungi Application. The questionnaire distribution area covers various regions in Indonesia so that this researcher can describe the user as a whole. Whereas in previous studies, the questionnaire distribution was only in the area where the researcher was.

This study aimed to determine the level of usability of users of the Peduli Lindungi Application using a usability scale system. A system usability scale is a questionnaire used to evaluate usability as a valid and reliable tool (Orfanou et al., 2015) (Prokopia V et al., 2020). Usability categories used are Learnability and Efficiency. Memorability, Errors, and Satisfaction (Nielsen, J 2012). The Peduli Lindungi Application can be developed further by knowing the user's usability level.

LITERATURE REVIEW

Before researching the usability level of the Peduli Lindungi Application, the researcher conducted a literature review on several similar and relevant previous studies to support this research.

The first reference is a similar study by I Wayan Sudiarsa I & I Gede Bagus Raditya (2020). In this study, the researchers used the method of collecting data obtained by randomly distributing questionnaires through group chats to 100 respondents. The assessment study was carried out by the heuristic evaluation method. This study's results show that nine problems are the main concerns in HE 9 and HE 10, and the overall usability of the Peduli Protect Application is said to be good. It can provide the information expected by the user.

The difference between the research conducted by I Wayan Sudiarsa I & I Gede Bagus Wiraditya and the research conducted by the researcher is the method I Wayan Sudiarsa I & I Gede is a heuristic evaluation method. In contrast, in this study, the assessment uses a usability scale system using five categories of usability: Learnability and Efficiency—memorability, Errors, and Satisfaction.

The second reference to be used is research from Usman Effendi (2019). In this study, researchers compared usability measurement techniques between the heuristic evaluation and the usability scale system methods. This comparison looks at the number of respondents, the use of testing instruments, the steps of testing implementation, the assessment calculation system, the process of determining the assessment results, and the strengths and weaknesses of the two methods.

The third reference that is used as a reference is the research of Muhammad Ismail Farouqi (2018). In this study, researchers evaluated the usability level of the Gojek application and data collection methods through direct interviews and questionnaires.

Definition of Usability

According to J Nielsen (2012), usability measures the quality of user experience when interacting with products or systems, whether websites, software applications, mobile technology,

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or other equipment that users can operate. Usability is a unit of 5 usability dimensions, namely learnability, efficiency, memorability, errors, and satisfaction

Learnability is a critical system dimension in usability, where the system must be easy to learn so that users can efficiently work with the system.

Efficiency is a way to achieve user goals in completing a job accurately and completely. Measuring efficiency can be done by calculating the time in completing a task or seeing the amount of effort required to complete a task.

Memorability is defined as the ability of users to retain their knowledge after a certain period. A relatively fixed interface design layout drives this capability.

Errors are a system dimension in usability that describes how many errors there are in completing a given task. A system must be free from errors, but if the user makes some mistakes while using the system, the user can find the error to operate again efficiently.

Satisfaction is a user perception that refers to how pleasant it is to use a system

RESEARCH METHOD

This study uses a quantitative descriptive method, using a usability scale system test. The usability scale system is distributed online to the Indonesian people using a google form. Resthe earchers took as many as 100 respondents from active users of the Care Protect application from various regions in Indonesia

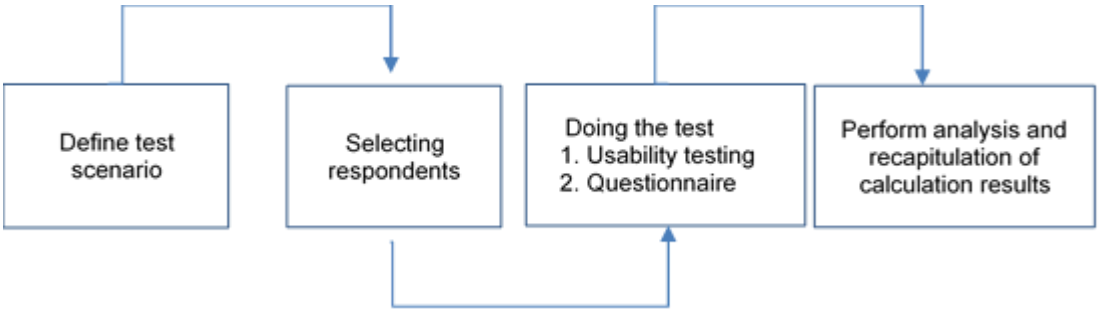

Figure 1. Research Steps

The research steps start from determining the test scenario, selecting respondents, conducting usability testing and questionnaires, and analyzing and recapitulating the calculation results.

In determining the test scenario, the activity is to create a test scenario starting with explaining the peduli lindungi application and a questionnaire.

In selecting respondents, the activities carried out are to determine respondents who assess the peduli lindungi application. The respondents who can rate the peduli lindungi application are those who already have and use the peduli lindungi application.

At the stage of conducting usability testing and questionnaires, the work carried out is to ask respondents to assess the peduli lindungi application based on the system usability scale instrument and questionnaire.

The stage of analysis and recapitulation of the test results is to recapitulate the results of the test calculations and analyze the reasons given by the respondents

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Table 1. System Usability Scale Testing Instruments

No	Statement	Scale
1.	I think will use this peduli lindungi app again.	1 s/d 5
2.	I feel the peduli lindungi apps complicated to use.	1 s/d 5
3.	I feel the peduli lindungi app is easy to use	1 s/d 5
4.	I need help from someone else or a technician in using the peduli lindungi app	1 s/d 5
5.	I feel the features of the peduli lindungi application are working properly	1 s/d 5
6.	I feel there are a lot of things that are inconsistent (mismatched on the peduli_lindungi apps).	1 s/d 5
7.	I feel others will understand how to use the peduli lindungi app quickly	1 s/d 5
8.	I feel the peduli lindungi app confusing	1 s/d 5
9.	I feel there are no obstacles in using the pedulilindungi application	1 s/d 5
10.	I need to get used to it first before using this system	1 s/d 5

The usability scale system is a testing tool using ten questions with five answer options, from strongly disagree to strongly agree, with a score ranging from 0 to 100. There are several rules in calculating the system usability scale score, namely:

- Each question has an odd number. The score of each question is obtained from the user's score minus 1
- Each question is even-numbered, the score of each question is obtained from 5 minus the user's score.
- The system usability scale score is obtained from the sum of each question score that has been multiplied by 2.5

In interpreting the results of the usability scale system score, five ways can be used, namely based on the interpretation of the percentile, grade, adjective, acceptable, and NPS comparison of the usability scale system score (Jeff Sauro, 2018). As shown in Figure 2

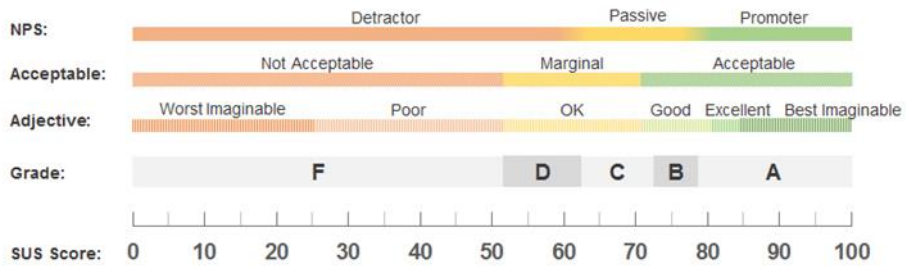

Figure 2. Interpretation of System Usability Scale Score

Table 2. below provides a clearer picture of the interpretation values contained in Figure 2,

Table 2. Interpretation of the Score System Usefulness Scale

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Grade	SUS	Percentile Range	Adjective	Acceptable	NPS
A+	84.1- 100	96 - 100	Best Imaginable	Acceptable	Promoter
A	80.8 – 84.0	90 - 95	Excellent	Acceptable	Promoter
A-	78.9 -80.7	85 - 89		Acceptable	Promoter
B+	77.2 = 78.8	80 - 84		Acceptable	Passive
B	74.1 – 77.1	70 - 79	Good	Acceptable	Passive
B -	72.6 -74.0	65 - 69		Acceptable	Passive
C+	71.1 – 72.5	60 - 64		Acceptable	Passive
C	65.0 – 71.0	41 - 59		Marginal	Passive
C-	62.7 – 64.9	35 - 40	ok	Marginal	Passive
D	51.7 – 52.6	15 - 34		Marginal	Detractor

Usability testing based on Nielsen includes 5 components: learnability, efficiency, memorability, error, and satisfaction. Learnability is a test to measure user convenience in using the application. Efficiency is a measure of how fast the application can complete commands. Memorability measures user recall related to application design. Error is a test to measure the level of an error made by the application in processing data, and satisfaction measures the level of comfort in using the application.

The measurement for the five usability components uses a Likert scale calculation with the formula: T x Pn, where T is the total number of respondents and Pn is the choice of Likert score numbers. To calculate the percentage of respondents' answers using the formula: Total score / Y x 100%, where Y is the linker's highest score x the number of respondents. Interval limits are used to find out the boundaries of the percentages that have been found. The interval formula: 100/ total Likert score.

RESULTS AND DISCUSSION

Point 1

The validity test aims to determine the validity or suitability of the questionnaire in the study to obtain data from respondents. This validity test uses the principle of correlation between each item's score and the total score obtained in the study. Comparison of the coefficient of validity (r) table with r calculations makes the basis for stating an item has a good level of validity if r table is more minor than the r calculated. This study uses 100 respondents and takes the value of r from the table with degrees of freedom n -2, where n is the number of respondents, the degree of freedom is 98, and the value of r table = 0.165. With a significance level of 5% or 0.05 and the results of the r count exceed the r table, it can be stated that all items are valid. (table 3)

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Table 3. Comparison of Table r and r Calculate

No. Question	r table	r count	Description
1	0.1654	0.3474	Valid
2	0.1654	0.1924	Valid
3	0.1654	0.1934	Valid
4	0.1654	0.5719	Valid
5	0.1654	0.2686	Valid
6	0.1654	0.2533	Valid
7	0.1654	0.4490	Valid
8	0.1654	0.1776	Valid
9	0.1654	0.2505	Valid
10	0.1654	0.2156	Valid

Point 2

System Usability Scale analysis is used to determine the level of usability in the peduli lindungi application. The data is retrieved online based on the usability scale system testing instrument. The first step is calculating each statement's score for each respondent. The score value of each information for each account with an odd number sequence can be calculated by the formula (xi - 1). Meanwhile, the exact series of statements can be calculated using the formula (5 – xi), where xi is the number on the Likert scale chosen by the respondent. After the formula calculates each odd and even statement, add up the results of each word and then the sum result is multiplied by 2.5. The total score for each respondent will range from 0-100. Then add up all the System usability scale values obtained from each respondent and averaged. The illustration of the usability scale system test results from this study is presented in table 4.

Calculation result data

Resp	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Jumlah	Value (Total x 2.5)
1	3	2	2	2	3	3	4	3	2	3	27	67.5
2	3	3	3	2	3	3	3	3	3	3	29	72.5
3	4	3	3	0	2	2	4	3	4	3	28	70
4	4	3	4	2	4	2	3	4	4	4	34	85
5	4	4	4	4	4	3	3	3	4	3	36	90
95	3	3	4	4	1	1	3	3	3	3	28	70
96	4	3	4	3	4	3	4	3	4	3	35	87.5
97	3	4	4	4	4	4	3	4	4	4	38	95
98	4	4	4	4	4	4	4	4	4	4	40	100
99	3	3	3	3	3	3	3	3	4	3	31	77.5

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10	4	3	4	4	3	2	3	3	4	3	33	82.5
Average Score (Final Result)												72.85

The system usability scale is a global aspect of subjective usability assessment perceived by users. The system usability scale score shows the level of user acceptance. From the results of the usability calculation of the care and protection application, the average value is 72.85
From the test results, data interpretation can be made using the system usability scale presented in Figure 3.

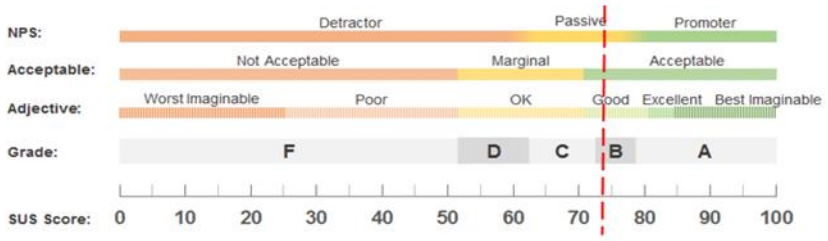

Figure 3. Interpretation of the Score results from the Peduli lindungi Application

A score of 72.85 indicates that the usability aspect of the peduli lindungi application is in grade B- this is because the result score is in the range of 72.6 - 74.0 and when viewed from the adjective interpretation it is in the good category while the percentile interpretation is in the field of 65. - 69.

Thus, from the existing interpretation, the peduli lindungi application can be accepted by the respondents, in this case, the Indonesian people. In summary, the interpretation results can be seen in table 5.

Table 5. Interpretation of the score results from the Peduli lindungi Application

Grade	SUS	Percentile Range	Adjective	Acceptable	NPS
B -	72.6 -74.0	65 - 69	Good	Acceptable	Passive

Point 3

Measurement results from the questionnaire for learnability, and efficiency. memorability, errors, and satisfaction can be seen in table 6

Table 6. Usability test results

Usability Category	Index Value
Learnability	77.8 %
Efficiency	76.9 %
Error	56.8%
Memorability	75.8 %

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Satisfaction	79.3%

CONCLUSION

Based on the research and analysis of the usability level of the Care Protect application using the usability scale system, the score is 72.85. The results are interpreted using the SUS score result scale. It can be seen that the usability aspect of the Protect Care application is in grade B - this is because the score results are in the range 72.6 – 74.0, and if viewed from the interpretation of the adjective, it is in a suitable category while the performance of the percentile is in the field of 65 -69. With an acceptable arrangement, respondents can accept the application of caring protection in this Indonesian society.

The percentage generated for learnability is 77.8%, which means that the Care for Protection Application is easy to learn so that users can efficiently work with the system. While the efficiency is 76.9%, which means that users of the Protective Care Application can complete a job wholly and accurately, and an error of 56.8% indicates that an error has occurred by the user caused by the unstable internet network and 75.8% memorability which states that the user can upgrade the features that exist in the care protect application after a certain period. And 79.3% of satisfaction explains that users feel comfortable using the Cares Protect Application.

From the results of this analysis, it can be concluded that the care to protect application can be user-friendly and acceptable to the Indonesian people

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