Usability Evaluation of the Website Services Using the WEBUSE Method (A Case Study: covid19.go.id)

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Abstract. The purpose of this study is to analyze the site usability evaluation system using the WEBUSE method on one of the information sites about COVID-19 namely the website covid19.go.id. The basic analysis was carried out on 24 usability criteria classified into 5 usability categories, namely: content, organization, and readability, navigation and links, user interface design, performance and effectiveness, educational purpose. Each category deals with one aspect of usability. Data from respondents' answers were analyzed using the WEBUSE method to get the usage point and usability level of the website that has been studied. This research produces a usability evaluation information system that provides an online evaluation questionnaire and this analysis is useful to present high-quality system information and user satisfaction aspects of the website covid19.go.id. The case study on the website covid19.go.id, shows that the level of usability and overall level of user satisfaction is good and acceptable for the general public from all walks of life. And in terms of satisfaction in the user interface design category, it is possible that some people are still uncomfortable with the look of the website.

1. Introduction

The internet is another form of virtual world whose presence has shaped a new life system. This technological sophistication has been able to answer the challenges of obstacles in time, and conditions. This technology continues to grow and develop, one of which is a website [1]. website can be interpreted as a collection of pages that show information about data, either dynamic or static that forms an interrelated building structure that every part is connected by hyperlinks [2]. the website has an important role for the organization because it can provide benefits such as being able to provide online services for its customers [3].

A service website is very necessary for the people in every country today to find out an actual and factual event so that it can meet the intake of reliable information, especially the service website from the government. The Indonesian government realizes that people need access to accurate, fast, and reliable information. That is the reason why the covid19.go.id site was created in order to become a one-stop official information source. This aims to ensure that people get access to official and accurate information about the education of the Covid-19 epidemic prevention in Indonesia.Indonesia is currently a top five country with a dense population in the world [4] and is estimated to be significantly affected by COVID-19 over a longer period [5].

Coronavirus 19 (COVID-19) is an infectious disease caused by a newly discovered type of coronavirus [6]. This new virus and the disease it caused was unknown before the outbreak in Wuhan, China, in December 2019. COVID-19 is now a pandemic in many countries around

the world [7]. It has spread widely in Wuhan, Hubei Province, China. Most patients are epidemiologically linked to the Huanan Seafood Wholesale Market [5][6].

In this study, WEBUSE is used as a tool to measure the level of reusability [8]. Website Usability Evaluation Method (WEBUSE) focuses on developing a web-based usability evaluation system with a subjective action approach that asks users to evaluate a website. WEBUSE was chosen because WEBUSE is a usability measurement tool that can be used for all types of websites. In addition, the usability criteria in WEBUSE are more complete and have included all the usability criteria that exist in WAMMI, Bobby, NIST Web Metrics, and Protocol Analysis. WEBUSE model development as a usability measurement standard, with a web-based questionnaire evaluation method that allows users to assess the usability of the website that has been evaluated [9]. Feedback from users based on experience using a website can measure user satisfaction in using a website that is efficient, easy to use, and meets user expectations [10].

2. Methods

Website Usability Evaluation Tool (WEBUSE) is a questionnaire used to obtain grades and usability levels and has four types namely effectiveness and performance, content, organization, and readability, UI design, and navigation and links [11]. This method can be used to evaluate the Covid-19 website. In this study, several references and theoretical basis are proposed that have a relationship with usability evaluation [12]. The WEBUSE method is used to evaluate websites that focus on web-based evaluation systems, consisting of 24 questions to evaluate website usability. The WEBUSE method is organized into 4 categories, namely, (1) Content, organization, and readability, (2) Navigation and links, (3) user interface design, and (4) Performance and effectiveness. The usability evaluation process can be seen in Figure 1.

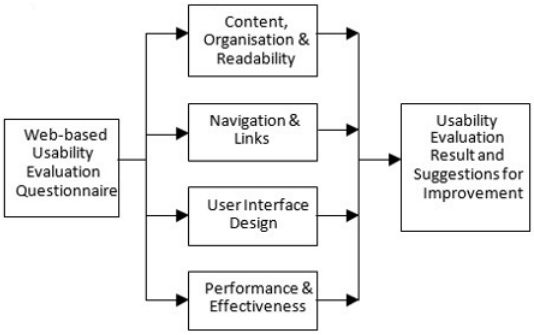

Figure 1. Evaluation Process with the WEBUSE Method (Chiew and Salim, 2003)

WEBUSE can evaluate the usefulness of the website by asking users to evaluate the website using an online questionnaire evaluation method that allows users to provide feedback on the usefulness from the website.[13]

2.1. Literarure Review

In the literature study stage, various documentation, research results, and theories are collected to get research concepts related to the application of reusability using the WEBUSE method on the website as a foundation in subsequent research stages. A literature study that has been done, shows that reusability is an important aspect of website development. A good website is ideally designed by taking into account several criteria, namely: easy to use (usability), navigation, easy to access, simplicity, concept writing, color blindness, graphics, and new technology. Good reusability will make users feel more comfortable when using a website [14].

2.2. Observation of Research Objects

Observation with an online questionnaire was created using Google Form with 24 questions in 5 selected options. The online questionnaire was filled out by about 208 respondents randomly in various circles, namely by sampling which was made easy. 203 Respondents taken were considered sufficient to extract initial information. An online questionnaire was given in a structured manner, according to 24 criteria (questions) usability classified into 4 usability categories. The following are steps for website evaluation using WEBUSE method:

(1) Respondents choose a website.
(2) Respondents answered usability website evaluation questionnaire.
(3) Responses (answers) from respondents are sent to the website evaluation system server for processing.
(4) Merit is used based on answers from users for each question, then accumulated for each usability category.
(5) Usability category points are the mean values of each criterion.
(6) Usability points from the website are the mean values of each category.
(7) Usability level is determined based on usability point.

The relationship between choice and usability aspects could be seen in the following table:

Table 1. Questionnaire choices and suitability of merit according to Chiew and Salim.

Options	Strongly Agree	Agree	Fair	Disagree	Strongly Disagree
Merit	1.00	0.75	0.50	0.25	0.00

Then merit is accumulated based on 4 usability categories. Mean values for each category are considered as usability points for each category. Usability points for the category, x, are defined as follows:

$$x = [\sum(I)/F]$$

where :
X = Usability points
I = Total number of merit for each question from category
F = Number of questions

The overall results of website usability points are the mean value points of usability for 4 categories. The usability level is based on the number of usability points. Table 2 shows the usability levels and corresponding usability points and in table 3 describes the question of each merit.

Table 2. Usability points and corresponding usability levels.

Points, *x*	0<=x<=0.2	0.2<x<=0.4	0.4<x<=0.6	0.6<x<=0.8	0.8<x<=1.0
Usability Level	Bad	Poor	Moderate	Good	Excellent

Table 3. Grouping 24 questions in 4 online questionnaire categories.

Category	Attribute	Description questions
Content, organization and readability	1	The material and topic of the website are interesting and always updated
	2	Ease of accessing websites to find what you want on the website
	3	Content compilation / organizing
	4	Ease of reading content / content available on the website
	5	Convenience in the language used
	6	Using scroll left and right when reading content on the website
Navigation and Links	7	Directions for position of existence on the website
	8	Existence of links and instructions to facilitate search of desired content
	9	Convenience when browsing a website with existing links or the back button on the browser
	10	Website has been well maintained and always updated
	11	Use of a new windows browser when browsing the website
	12	Placement of links and menus by standard and easy to recognize
User Interface Design	13	Attractive website design interface
	14	Website color selection used unobtrusive
	15	Doesn't contain disturbing features like scrolling or blinking text and repeated animations
	16	Consistent website views
	17	Websites don't have too many content of web advertisements
	18	Website design generates interest and is easy to learn how to use it
Performance & Effectiveness	19	Speed to download files or access one page to another page on the website
	20	Ease of distinguishing links that have not been and / or have been visited
	21	Ease of accessing the website at anytime, anywhere and anytime
	22	Website provides responding to expectations for all actions performed
	23	Website efficient and friendly for all people to use
	24	There are clear and useful messages when we don't know how to process an action

3. Discussion and Results

Questionnaires were distributed in May 2020. The questionnaire data collected were 208 data. However, there are 203 data that can be used for further analysis. Respondents in this study were website user covid19.go.id. Based on the data in table 4.2 there were 107 respondents who were male (51%) and 101 respondents who were female (49%). Covid19.go.id website users come from communities throughout Indonesia who can reach the website of covid19.go.id. The profession of respondents who work as students or students as many as 72 respondents (34%) and private employees as many as 89 respondents (43%), civil servants/military / police there are 8 respondents (4%), entrepreneurs as many as 39 respondents (19%).

Table 4. Characteristics of respondents.

Characteristics	Remarks	Amount	%	Characteristics	Remarks	Amount	%
Gender	Male	107	51	**Job Status**	Student / College Student	72	34
	Female	101	49		General Employees	89	43

In this study, using an external model that explains how each indicator relates to latent variables. There are several external models used, namely rho_A, Composite Reliability, Average Variance Extracted (AVE), and Cronbach's Alpha. Following are the results in Figure 2.

The construct is said to be valid and reliable if it has a Cronbach's Alpha value expected above 0.70 and Composite Reliability above 0.70 and rho_A above 0.70 and AVE above 0.50 [15].

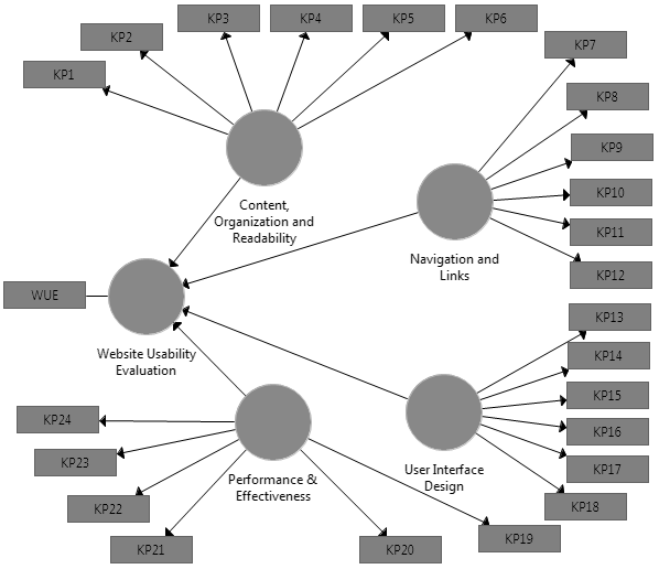

Figure 2. Path diagram each variable

Table 5. Value of construction validity and reliability.

Variabel	*Cronbach's Alpha*	*Rho_A*	*Composite Reliability*	*AVE*
Content Organization, and Readability	0.880	0.882	0.909	0,626
User Interface	0.842	0.843	0.884	0,556
Navigations and Links	0.843	0.855	0.882	0,559
Performance and Effectiveness	0.838	0.844	0.882	0,564

In table 5. These results indicate that all variables in this study are in accordance with the standards. In this data it can be seen that the value of each test meets the criteria, where the value produced is more than the standard value which means that this research is valid and reliable. So that further testing can be done.

Inner model testing in a partial least square analysis is done to determine the suitability of the model by looking at the value of R square. Based on the outcomes of partial least square processing will produce a coefficient of determination (R-square) on endogenous variables, a model is said to be strong if the R square value is 0.75. The moderate model if the R square value is 0.50 and the model was weak if the R square value is 0.25. R square test is a goodness-fit model test.

To get a hypothesis test and a path coefficient value, the bootstrap function is tested. Table 6 above is the result of T-statistics. The path coefficient or model value indicates the level of significance in hypothesis testing. The significance of the path coefficient shown by the t-statistic value must be above 1.64 for the hypothesis at alpha five percent. So from the results of this study based on the T-statistic value above, the results were accepted because the T-statistic value was above 1.64 which means that the three variables named usability, information quality, and service interaction quality had a positive influence on user satisfaction variables.

Table 6. T-statistics values.

Variabel	T Statistics
Content Organization, and Readability -> Website Usability Evaluation	2,075
User Interface -> Website Usability Evaluation	2,491
Navigations and Links -> Website Usability Evaluation	2,444
Performance and Effectiveness -> Website Usability Evaluation	2,551

4. Conclusions

The study of websites is an attempt to improve website usability. This is useful so that the website becomes easy to use and increases user satisfaction. Apart from the things that need to be fixed, the site http://covid19.go.id has something interesting. Among other writing styles that are simple and easy to follow. In addition, he has value as a provider of current information about COVID-19.

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