Measuring The Quality of Website Services covid19.kalbarprov.go.id Using The Webqual 4.0 Method

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Abstract. Website covid19.kalbarprov.go.id is a website that serves as a medium for spreading information about the spread of the coronavirus in West Kalimantan. Currently, the number of covid19.kalbarprov.go.id website users is very large because many people want to know the latest information about the coronavirus in the West Kalimantan region. Therefore it is necessary to measure the level of user satisfaction on the site covid19.kalbarprov.go.id. The purpose of this study is to determine the level of user satisfaction with website services using the Webqual 4.0 method. Webqual is one method of measuring website quality based on the perception of end-users. Webqual variables are usability, information quality, service interaction quality, and user satisfaction. In processing research data using the smartPLS application to determine the level of validity and reliability of the data obtained. The results showed that usability, information quality, and service interaction had a positive effect on User Satisfaction. So it can be concluded that the quality of usability, quality of information, and quality of service interaction affect the satisfaction of website users covid19.kalbarprov.go.id.

1. Introduction
Coronavirus 19 (COVID-19) is an infection brought about by intense respiratory disorder coronavirus 2 (SARS-CoV-2) which is exceptionally infectious [1]. Initially, this virus was widespread in Wuhan, Hubei Province, China. Epidemiologically, the majority of infected patients are related to the Hunan Seafood Gosir Market [2]. The spread of COVID-19 has come to the attention of the world of public health, which links human physical and mental health and even mental safety [3]. Indonesia is expected to be significantly affected by COVID-19 in a longer period [4].

To see the spread of COVID-19 in Indonesia, the Indonesian government created a website. The website is a collection of pages of information on the internet about certain subjects published by individuals or organizations [5]. One of the websites created by the government is the covid19.kalbarprov.go.id website which serves as a medium to display information about the spread of the coronavirus in West Kalimantan. The information displayed on the covid19.kalbarprov.go.id website are data from the number of confirmed patients, the number of patients treated, the number of patients recovered, the number of patients who died, the coronavirus distribution map in West Kalimantan and so on. Users of the
covid19.kalbarprov.go.id website are people in West Kalimantan and communities outside West Kalimantan.

Website quality is an important thing to pay attention to [6]. To find out the quality of the covid19.kalbarprov.go.id website seen from the degree of user satisfaction, research is required utilizing the Webqual 4.0 strategy. Webqual is one of the estimation strategies or procedures site quality dependent on end-client observation [7]. This method is a development of Servqual which was widely used before in measuring service quality [8].

To evaluate a website refers to three core dimensions that represent the quality of a website, namely quality of usability, quality of information and quality of service interaction [8]. Previous research that used the same variable was entitled Evaluating Website E-Commerce Business [9]. Used to measure the web quality impact of online organic food purchase intentions in Malaysia [10]. Used to see the effect of online store customer satisfaction on website quality [11]. Also used is the analysis of factors that affect the quality of intranet websites on agency X [12].

Research explains some theoretical background. Then, a brief description of the research methodology is presented. The hypothesis is then examined against the findings. In the end, the results are wrapped together with research contribution.

2. Method

This study uses primary data by distributing questionnaires using Google form as an assessment of website quality. Based on Website Quality (WebQual) 4.0 modeling, there are three components of website quality which will at that point be utilized as independent variables. Three components of website quality utilizing the webqual 4.0, namely Usability quality, Information quality, and Service Interaction quality. While user satisfaction as a dependent variable (dependent). Here is the webqual 4.0 model contained in Figure 1.

Figure 1. Webqual Model 4.0 Conceptual Model

H1: Usability quality has a positive and significant impact on user satisfaction.
H2: Information quality has a positive and significant impact on user satisfaction.
H3: Service interaction quality has a positive and significant impact on user satisfaction.

The use of Webqual 4.0 as a theory to determine user satisfaction has often been done such as evaluation of e-learning [6] and e-commerce [7]. However, the use of this theory for evaluation on the web relating to the response to COVID 19 is not much. So that the contribution of this research is that it can provide recommendations on the satisfaction indicators of users of the covid19 web, especially on the covid19.kalbarprov.go.id website. Website quality measurement models can be measured by question indicators of each variable, the following are indicators designed on the questionnaire:
Table 1. Research Instruments

| Variable          | Question Indicator                                                                 |
|-------------------|------------------------------------------------------------------------------------|
| Usability Quality | 1. Easy to operate
                  | 2. Interaction with the website is clear and understandable
                  | 3. Easy to navigate
                  | 4. Attractive appearance
                  | 5. Display according to the type of website
                  | 6. There is additional knowledge about website information
                  | 7. Right in arranging the layout of information
                  | 8. Easy to find website addresses                                                |
| Information       | 9. Provide reliable information
                  | 10. Provide the latest information                                                |
| Quality           | 11. Provides information that is easy to read and understand                        |
                  | 12. Provide detailed information                                                   |
                  | 13. Provide relevant information                                                   |
                  | 14. Provide accurate information                                                   |
                  | 15. Present information in an appropriate format                                  |
| Service           | 16. Has a good reputation                                                          |
| Interaction       | 17. Provides security for interacting                                              |
| Quality           | 18. Sense of security in conveying personal data                                    |
| (WEB-IQ)          | 19. There is a community atmosphere                                                |
                  | 20. Easily attracts interest and attention                                         |
                  | 21. Easy to communicate                                                            |
                  | 22. High level of trust                                                           |
| (WEB-SQ)          |                                                                                   |
| Overall Impression| 23. Overall appearance                                                            |

Based on the questionnaire currently collected, there were 160 respondents, which included the sample and population of this study. In this study changing qualitative research by distributing questionnaire sheets, so that the data obtained are converted into numerical data using a Likert Scale.

Table 2. Likert Scale

| No | Remarks      | Score |
|----|--------------|-------|
| 1  | Strongly agree | 5     |
| 2  | Agree        | 4     |
| 3  | Neutral      | 3     |
| 4  | Disagree     | 2     |
| 5  | Strongly Disagree | 1 |

In principle, this research are used to create an equation that is expected to help those who need to predict the value of related variables from the independent variables on the website.

3. Results and Discussion

Questionnaires were distributed since May 2020. 160 questionnaires were collected, and the data will also be further analyzed. Respondents in this study were web users covid19.kalbarprov.go.id. Based on the data in table 3, 65 respondents are male and 95 respondents who are female. Most respondents aged less than 20 years were nine respondents, aged 20 to 30 years were 141 respondents, aged 31 to 40 years were eight respondents and more than 40 years were two respondents. Website users covid19.kalbarprov.go.id not only domiciled in West Kalimantan, but some live outside West Kalimantan as many as 66 respondents and who live in West Kalimantan alone as many as 94 respondents. The current employment status of respondents is
that 106 respondents have worked, who have not worked as many as 47 respondents, and other as seven respondents.

Table 3. Characteristics of Respondents

| No | Characteristics | Remarks          | Amount | %    |
|----|-----------------|------------------|--------|------|
| 1  | Gender          | Male             | 65     | 40.62% |
|    |                 | Female           | 95     | 59.38% |
| 2  | Age             | <20              | 9      | 5.63%  |
|    |                 | 20-30            | 141    | 88.12% |
|    |                 | 31-40            | 8      | 5%     |
|    |                 | >40              | 2      | 1.25%  |
| 3  | Domicile        | West Kalimantan  | 94     | 58.75% |
|    |                 | outside West Kalimantan | 66 | 41.25% |
| 4  | Job Status      | already working  | 106    | 66.25% |
|    |                 | not yet working  | 47     | 29.38% |
|    |                 | other            | 7      | 4.37%  |

In this study, we will examine the relationship between latent variables and indicators, or the outer model explains how each indicator relates to the latent variable. There are several stages in outer model testing, namely Cronbach Alpha, Convergent Validity, Discriminant Validity, Composite Reliability and Average Variance Extracted (AVE). The convergent validity value are the value of the loading factor on latent variables with the indicators. The expected loading factor value is \( > 0.7 \) but if the outer loading value is 0.5 it can still be tolerated to be included in the model. And the following is a research model after the value of each indicator is entered and processed using the PLS Algorithm in Figure 2.

![Path Diagram Between Variables](image)

**Figure 2.** Path Diagram Between Variables

Based on user perceptions of measurement of service interaction quality , information quality
and usability quality variables, it is concluded that the value generated at each indicator has an outer loading value > 7.0. This means having a positive impact on users because of the ease of using the website, accurate information and good service interactions can be obtained on the website covid19.kalbarprov.go.id. A construct will be worth reliable if it has an AVE value above 0.50 and composite reliability above 0.70.

Table 4. Value of Construction Validity and Reliability

|                           | Cronbach’s Alpha | Composite Reliability | AVE  |
|---------------------------|------------------|-----------------------|------|
| User Satisfaction         | 1,000            | 1,000                 | 1,000|
| Information Quality       | 0.942            | 0.953                 | 0.742|
| Service Interaction Quality| 0.921            | 0.937                 | 0.678|
| Usability Quality         | 0.926            | 0.939                 | 0.659|

In table 4, above the value it very well may be seen that of each test meets the criteria, where the value produced is more than the standard value which means that this study is valid and reliable. Based on the results of partial least square (PLS) processing will produce a coefficient of determination (R-square) on endogenous variables, a model is supposed to be strong if the R-square value is 0.75, moderate if the R-square value is 0.50 and weak if the R-square value is 0.25. Then the results R-square value is 0.667, which means that the value indicates that user satisfaction can be explained by construct variables (information quality, service interaction quality and usability quality) of 66.7% while the remaining 33.3% is influenced by variables others that are not contained in this research model. To get the hypothesis test and the value of the path coefficient, the bootstrapping function is tested. The following table 7 is the result of T-statistics.

Table 5. Value of Construction Validity and Reliability

|                                          | T-Statistics |
|------------------------------------------|--------------|
| Information Quality -> User Satisfaction | 2,547        |
| Service Interaction Quality -> User Satisfaction | 2,609        |
| Usability Quality -> User Satisfaction  | 2,199        |

The coefficient path or inner model values indicate the level of significance in hypothesis testing. The significance of the coefficient path indicated by the t-statistic value must be above 1.64 for the hypothesis at alpha five percent. So the variables that have a significant relationship are shown in table 5. So from the results of this study based on the T-statistic values above, H1, H2, and H3 are accepted because the T-statistic value above 1.64, which means the three variables namely information quality, service interaction quality and usability quality have a positive and significant impact on user satisfaction variables.

4. Conclusions
From the questionnaire data processing as many as 160 respondents using smartPLS software, it can be concluded that in testing the measurement model that is passed through several stages,
namely calculating the AVE value, calculating the value of composite reliability and Cronbach’s alpha, it can be seen that the value generated above the standard value can be said to be valid and reliable. Furthermore, for structural models testing in hypothesis testing, it can be seen from the t-statistic values above 1.64. H1, H2, and H3 are accepted and the three variables namely information quality, service interaction quality and usability quality have a positive and significant impact on user satisfaction variable. For further research, it can be done by adding other methods or by comparing webqual methods with other methods to find out which method is the best in analyzing a website. From the results of the questionnaire, it was concluded that some input from users to improve the website such as the addition of chat features for users to consult related COVID information and the addition of search features on the website.

References
[1] M. A. Shereen, S. Khan, A. Kazmi, N. Bashir, and R. Siddique, 2020, “COVID-19 infection: Origin, transmission, and characteristics of human coronaviruses,” J. Adv. Res., vol. 24, pp. 91–98.
[2] L. Yang et al., 2020, “Epidemiological and clinical features of 200 hospitalized patients with coronavirus disease 2019 outside Wuhan, China: A descriptive study.,” J. Clin. Virol., vol. 129, no. March, p. 104475.
[3] W. Cai, B. Lian, X. Song, T. Hou, G. Deng, and H. Li, 2020, “A cross-sectional study on mental health among health care workers during the outbreak of Corona Virus Disease 2019,” Asian J. Psychiatr., vol. 51, no. March, p. 102111.
[4] R. Djalante et al., 2020, “Review and analysis of current responses to COVID-19 in Indonesia: Period of January to March 2020,” Prog. Disaster Sci., vol. 6, p. 100091.
[5] S. N. Kane, A. Mishra, and A. K. Dutta, 2016,”Preface: International Conference on Recent Trends in Physics (ICRTP 2016),” J. Phys. Conf. Ser., vol. 755, no. 1.
[6] M. L. Jundillah, J. E. Suseno, and B. Susrarso, 2019, “Evaluation of E-learning Websites Using the Webqual Method and Importance Performance Analysis,” E3S Web Conf., vol. 125, no. 2019, pp. 1–5.
[7] J. F. Andry, K. Christianto, and F. R. Wilujeng, 2019, “Using Webqual 4.0 and Importance Performance Analysis to Evaluate E-Commerce Website,” J. Inf. Syst. Eng. Bus. Intell., vol. 5, no. 1, p. 23.
[8] O. G. Hekhamyar and D. Supriyadi, 2017, “Measurement Satisfaction Information System Quality Service On BSI Using Webqual And CSI,” Indones. J. onComputer Inf. Technol., vol. 2, no. 2, pp. 1–6.
[9] M. Sutisna, A. D. Prayogo, and I. S. Sarah, 2019, “Evaluating Website Repeat Usage Using Webqual 4.0: a Guide for E-Commerce Business,” IOP Conf. Ser. Mater. Sci. Eng., vol. 662, no. 2, pp. 0–7.
[10] J. Hasanov and H. Khalid, 2015, “The Impact of Website Quality on Online Purchase Intention of Organic Food in Malaysia: A WebQual Model Approach,” Procedia Comput. Sci., vol. 72, pp. 382–389.
[11] R. A. Putra and W. K. Raharja, 2019, “Evaluation of Online Shop Website Quality Using WebQual 4.0 Method and Its Effect on User Satisfaction,” Int. J. Informatics, Technol. Comput. Zambrut, vol. 3, no. 2, pp. 71–79.
[12] J. A. Kadar, D. Napitupulu, and R. K. Jati, 2017, “Analysis of factors influencing the quality of intranet website based on WebQual approach case study in agency X,” Proceeding - 2017 3rd Int. Conf. Sci. Inf. Technol. Theory Appl. IT Educ. Ind. Soc. Big Data Era, ICSITech 2017, vol. 2018-Janua, pp. 526–532.