Analysis of The Effect of Information Quality on The University of North Sumatera Library on User Satisfaction

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Muhammad Rasyid Ridlo, Dirmansyah, Nur'aini, Hotlan Siahaan, Fitri Dian Jannah, Alif Akbar Saragih

Library and Information Science, Faculty of Cultural Sciences, University of North Sumatra
Dr. T. Mansur No.9, Street Padang Bulan, Medan Baru, Medan City, North Sumatera, 20222, Indonesia

rasyidridlo@usu.ac.id , fitridianj.fdj@gmail.com , alif.akbar@students.usu.id

Abstract

Libraries are one of the measuring tools so that universities can improve their rankings in the ranking system of all the best universities in the world, namely Webometrics. A library that is already based on a website is certainly an added value for universities, but it needs to be reviewed based on the quality of the information submitted and the satisfaction of users who get the information. This study aims to determine the effect of information quality and user satisfaction on the information provided by the University of North Sumatra library website. The research method used is a quantitative method with questionnaires distributed to 100 North Sumatra University students who have used the library website. In this study, two variables were used, namely the quality of information as an independent variable and user satisfaction as the dependent variable. Based on the results of the study, it is known that the variable quality of information on the library website simultaneously has a significant effect on user satisfaction with the University of North Sumatra Library website. This is evidenced by the existence of a hypothesis test which states that. This is evidenced by the results of data analysis using the SPSS Windows 26 program which shows the tcount value with the number 8,772. The quality of information that is influential and significant is reviewed based on 3 important indicators, namely the speed with which users obtain information, the accuracy or level of accuracy of the information obtained, and the suitability or relevance of the information found to the user's needs.

Keywords: Information Quality; User Satisfaction; University of North Sumatra Library

1. Introduction

Technology continues to develop along with the changing times so that it makes various human activities easier. Likewise, libraries can now be used digitally, namely in the form of a website. Information provided digitally has different qualities and gets different responses in user satisfaction. Website is one of the indicators in the evaluation of the library. A good library can provide services to its users through the website. At the tertiary level, the library serves as a focal point for the academic community to seek reference reading materials in support of various activities that require literature as a reference of information. At this level, the library must be able to facilitate the needs and provide collections that are suitable for its users, especially supporting various activities of the Tri Dharma of Higher Education.

Current information services have shown their existence, in terms of the number of libraries that use library information system applications, such as websites with OPAC domains, and digital libraries. Websites are a necessity for academics in universities, especially students who should be digital natives or someone who grew up with the presence of technology, surfing the internet and searching for information digitally has become a mandatory activity for students every day. Not only students, but lecturers also need access to digital literature to improve their quality so they can keep up with students, and become digital natives. Therefore, lecturers also participate in increasing the number of visitors to digital libraries.

Webometrics is a ranking system for all the best universities in the world and is used to evaluate three web impact factors, SWIF (Simple Web Impact Factor), IWIF (Internal Web Impact Factor), and EWIF (External Web Impact Factor). The data provided shows the comparison and quality between websites and has advantages such as being easy to calculate using search engines, especially on WIF. Looking at data from the Webometrics website at the beginning of October 2022, the University of North Sumatra was ranked 2884th in the world, 29th in Indonesia, and had an impact value of 2446. Currently, 3 universities in

Indonesia are ranked highest, namely, the University of Indonesia (603rd world ranking), Gadjah Mada University (696th world ranking), and Brawijaya University (914th world ranking), this means that the University of North Sumatra is still far from the three universities [13].

Meanwhile, the 2020-2024 Strategic Plan states that the University of North Sumatra plans to internationalize so that it can continue to produce competent and innovative graduates from time to time. One area of interest for internationalization is scientific research. The amount, quality, and usefulness of research results from the University of North Sumatra are still relatively low and quite limited. Of course, it is important to improve website management, because this is one indicator that can improve the ranking of the University of North Sumatra in Webometrics.

Website is a new medium that libraries can use as promotional and marketing media in communicating and offering what the library has [15]. The existence of the website is also one of the university's progress, especially in managing the library to be digital. The quality of information is a measure of the success of an information system. The information system in question is the interaction of users, data, processes, and information that processes and produces the output of information needed to support an institution or organization [12].

Similar Web is a website to check and analyzes traffic from a website, attribute data provided by Similar Web, namely Total Visit or the number of website visitors, Bounce Rate or the percentage of visitors who immediately leave the website after opening one page, Pages per Visit or average number of pages viewed per visit., and Average Visit Duration or the average time visitors visit the website. Based on these data attributes, the traffic owned by the website repository of the University of North Sumatra (repository.usu.ac.id) is considered quite good with a total of 52,300 visits. However, the bounce rate obtained was 76.74% while the good bounce rate limit was less than 40%, so it can be said that the bounce rate of the USU Repository website was bad. Then, pages per visit are at 1.50, which means that visitors to the USU repository open 1-2 pages on average. The last one, there is an average visit duration with an average visitor spending 1 minute 21 seconds [9].

Research related to website quality on library users has previously been studied by previous researchers, including [8], [15], and [4]. The first study measures the effect of the use of information quality and interaction of library website services on user satisfaction with the WebQual 4.0 method. In this study, 3 variables were used, namely the usability variable, information quality variable, and information service interaction quality variable. This study resulted in a determination value that stated the correlation between the dependent variable and the independent variable. However, when a simultaneous test was carried out, the usability variable and the quality variance did not significantly affect user satisfaction. The results of the comparison of tcount with ttable show the results of tcount < ttable which means that part there is no influence between the usability variable and the information quality variable on user satisfaction. In the partial test results of the independent variable website quality, the quality of service interaction shows that this variable has a positive influence and partially affects user satisfaction [8].

The second study measured the influence of website quality on library user satisfaction. Based on the results of the study, it was found that the variables of usability quality, service interaction quality, interface quality, and digital library service quality had a significant effect on library visitor satisfaction. The quality of the library website has a significant impact on the satisfaction of library users, with a value of 87.4%. The quality of digital library services has the greatest influence on users 52.6%. Website quality has a partial and significant effect on library user satisfaction. However, the quality of information does not significantly affect the satisfaction of library users. So that website users believe that the quality of information on the current library website can meet their needs, and is reputable, and reliable, relevant, detailed and easy to understand [15].

Third, the study analyzes the influence of website quality on user satisfaction on the library website. The analysis was conducted based on 3 dimensions of WebQual, namely usability quality, information quality, and interaction quality. Based on the results of his research, it was found that the quality of use has a positive and significant influence on user satisfaction, with the ease of learning, understanding, and browsing, besides that the website interface is also attractive and displays good visuals. Then the same as the first dimension, the quality of information and interactions have a positive and significant influence on customer satisfaction. This can be seen from the test results of validity, reliability, normality, multicollinearity, homoscedasticity, autocorrelation, and linearity. The quality of the interaction is reviewed based on the ability to provide a sense of security during transactions, a good reputation, and ease of communication. While the quality of information is reviewed based on the accuracy of the information, reliability of the information, delivery of the latest information, relevance, ease to understand, and detail (Junaidi et al., 2016)

Library Website is one of the assessment indicators to improve the ranking of the University of North Sumatra in Webometrics because from the number of visitors the accessibility level of the library's website can be assessed. The quality of students and lecturers can also be improved to carry out the Tri Dharma of Higher Education with the strategic position of the library website. Therefore, this study aims to determine the effect of information quality and user satisfaction on the information provided by the University of North Sumatra library website. The novelty of this research compared to previous research is the incorporation of information quality aspects from the theory of the Web Assessment Index with the five categories (Marincas, Vultur, 2007) and the E-Qual Model (Tate et al., 2007).

2. Research Method

Researchers use quantitative research methods, namely an approach to explain the situation to be studied with the help of literature studies as a supporter of the analysis that will be strengthened by existing theories. This method uses data obtained from a survey of website quality and user satisfaction. Meanwhile, for data analysis using simple linear regression analysis, namely a statistical inference tool with an approach method for modeling the relationship between one dependent variable and one independent variable [5]. Researchers in this study used 2 variables, namely the information quality variable as the independent variable or variable X and the user satisfaction variable as the dependent variable or variable Y Instrument indicators on information quality variables include accurate, reliable, up-to-date, on-topic, easy to understand, and detailed because the quality of information that is accurate and can meet the needs and requirements of users will increase user satisfaction (Junaidi et al., 2016).

The population is the totality of individuals whose characteristics will be examined, these individuals can be the work of humans, organizations, animals, natural objects, and so on. Not only the characteristics but the subject or individual will also be examined based on their quality. Population is defined as the characteristics or qualities of the subject or object under study in general [10].

While the sample is a small part of the population, [10] the sample is part of the overall characteristics and the number contained in the population. The sample also serves to facilitate research if it has a large population. Sampling also needs to be ensured that it will represent the entirety of the specified population.

When researchers examine the quality of information and user satisfaction with the library website of the University of North Sumatra, the population used is all active students of the University of North Sumatra who use the library website. Based on data from the Ministry of Education, there are currently 46,090 active students. The researcher determines the number of samples based on the Slovin formula which is commonly used in taking the number of representative samples, therefore the research results can be generalized and the calculation process does not use the entire number of samples. Based on this formula, and the use of an error rate of 10%, the number 100 is obtained, which means the researcher will use 100 data for research. Sampling is done by accidental sampling technique or sampling based on chance, that is, every person met by the researcher and meets certain predetermined characteristics, that person can be used as a sample. Researchers collected data through questionnaires distributed online. The questionnaire uses a Likert scale regarding the quality of information with a total of 6 questions and 10 questions regarding user satisfaction.

After the researchers succeeded in collecting the questionnaires, the researchers conducted 2 tests, namely the validity test and the reliability test on the data obtained. First, test the validity of the questionnaire using the Pearson Product Moment Correlation method, paying attention to a score of rcount and rtable. When the processed research questions are said to be valid, it can be continued with the second test, namely the reliability test using Cronbach's Alpha method. After 2 tests have been carried out and all estimates are met, parameter testing can be carried out.

The major hypothesis of this study, namely.

H_0	:	The quality of information on the University of North Sumatra Library website has no significant effect on user satisfaction with the University of North Sumatra Library Website.
H_1	:	The quality of information on the University of North Sumatra Library website has a significant effect on user satisfaction with the University of North Sumatra Library.

3. Results

3.1. Characteristics of Respondents

The data collection instrument used by the researcher in this study was by using a questionnaire totaling 16 questions. Researchers distributed questionnaires to respondents with the substance of relevant questions related to information quality (X) and user satisfaction (Y) on the library website of the University of North Sumatra. Respondents in this study totaled 100 people who were students of the University of North Sumatra with active status and were in the age range of 19-24 years in 2022. The following is a detailed description of the respondents.

3.2. Respondent Data

Respondents in this study were dominated by female students, amounting to 80 people with a percentage of 80%, while male respondents were 20 people with a percentage of 20%. The following is the respondent's data by gender.

Table 1. Respondent Data by Gender

Gender	Amount	Percentage
Woman	80	80%
Man	20	20%
Amount	**100**	**100%**

3.3. Data analysis

3.3.1. Validity Test Results

Validity test is a test used to determine whether a meter is enabled or disabled. The measuring instrument here is the questions included in the survey [3]. When the researcher conducted the validity test, the researcher used a significant level of 5%. With a total of 100 respondents, the value of the rtable is 0.195. Therefore, if rcount < rtable, then the instrument item is invalid. Meanwhile, if the value of rcount > rtable, then the instrument item can be said to be valid. The following is the result of processing data on the validity of the questionnaire which was carried out using the SPSS Windows 26 Program.

Table 2. Validity Test Results for Variable X

No.	Variable	Indicator	Rcount	Rtable	Result
1		Provide accurate information	0.219	0.195	Valid
2		Trust information	0.54	0.195	Valid
3	Information	Updating Information	0.416	0.195	Valid
4	Quality (X)	Relevant to academic needs	0.429	0.195	Valid
5		Easy to understand	0.354	0.195	Valid
6		Detailed information	1	0.195	Valid

Source: Research results, 2022

Data processing in the table of validity test results shows that the r_{count} value for all instruments with an error rate of 5% and a 95% confidence level gets a higher score than the r_{table} value. Judging from the distribution table of the rtable value for respondents, totaling 100 people, the rtable value of 0.195 is obtained. So based on the results which show that rcount > r with a value of 0.678 > 0.195, it can be seen that the instrument in the questionnaire distributed by the researcher obtained valid results.

3.3.2. Reliability Test Results

After the questions on the questionnaire were said to be valid, the researcher continued processing the data to test the reliability using Cronbach's Alpha method. Data is said to have poor reliability if Cronbach's Alpha value is less than 0.6. However, if the value is above 0.6 or reaches 0.7 to 0.8, then the data has a good level of reliability. The following is the result of the data processing of the questionnaire reliability test which was carried out using the SPSS Windows 26 program.

Table 3. Reliability Test Results

Reliability Statistics

Cronbach's Alpha	N of Items
.705	6

Source: Research results, 2022

The results of the reliability test data processing showed that the Cronbach's Alpha value of a total of 6 question instruments on the X variable which was distributed to 100 respondents through the questionnaire had a higher value of 0.6. Based on the research rules, the data can be declared to have good reliability if Cronbach's Alphavalue is above 0.6 or reaches 0.7 to 0.8. Therefore, this shows that the value of Cronbach's Alpha is greater than 0.6 with a value of 0.705 > 0.6. So that the reliability test of the 6-question instruments on the X variable is declared reliable.

3.4. Reliability Test Results

To find out how much influence the independent variables have, it is necessary to test the hypothesis in a study.

3.4.1. Partial Test (t-Test)

A partial test with a t-test is a way to show the level of influence of the independent variable (X) partially onthe dependent variable (Y). The following are the results of partial test data processing carried out using the SPSS Windows 26 program.

Table 4. Partial Test Results (t-Test)

Model		Unstandardized		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	17.529	3.046		5.755	0.000
	X	0.995	0.113	0.665	8.772	0.000

Source: Research results, 2022

The value of t_{count} shows a positive effect if the value is greater than t_{table}(2.04841) and has a significance value of less than 0.05. Based on the table of partial test results above, it can be seen that the value of t_{count} > ttable, which is 8.772 > 2.04841. And

a significance value of 0.000 <0.05. Therefore, it can be concluded that the information quality variable has a positive and significant effect on user satisfaction at the University of North Sumatra Library.

4. Discussion

Processing of data obtained from the questionnaire on the influence of information quality on user satisfaction with library websites shows valid, reliable, and positive and significant effects. This is analyzed from the test results using SPSS Windows 26, the first is a validity test based on variables X and (Y). Variable X shows the results of $r_{count} > r_{table}$ with a value of 0.678 > 0.195, which means that all questions asked as variable X in the questionnaire are valid. The second test is the reliability test which shows that Cronbach's Alpha value is greater than 0.6 with a value of 0.705 > 0.6. From the results of the reliability test, it can be seen that the 6 question instruments were declared reliable. the third test, namely hypothesis testing using a partial test (t) states that the quality of information has a positive and significant effect on user satisfaction. This is evidenced by the value of $t_{count} > t_{table}$, which is 8.772 > 2.04841 which is positive, and a significance value of 0.000 <0.05 which is significant. The results of the research data processing are in line with the theory that website quality has a stimulant effect on user satisfaction and has a great influence on user satisfaction [15]. User satisfaction describes the alignment between one's expectations and the results obtained [11].

The quality of information is divided into several questions. Specifically related to information that is accurate, reliable, timely, relevant, easy to reach, as needed, and formatted. Based on this definition, the quality of information referred to refers to the quality of the web which consists of website content, suitability and format of information, quantity, accuracy, and relevance of products or services displayed on the web to users [7]. Information quality has 3 indicators that are important in analyzing user satisfaction, namely accurate, fast, and relevant. These three indicators are in the questions in the questionnaire distributed by researchers. Therefore, user satisfaction can be assessed with accurate, fast, and relevant information.

The accurate dimension measures user satisfaction in terms of data accuracy when the system receives input and then processes it into information. System accuracy is measured by looking at how often the system produces incorrect output when processing input from users, but it can also be seen how often errors or errors occur in the data processing process [1]. In the accurate indicator, the results of the hypothesis test of variable X show the effect on user satisfaction. This is in line with the theory in research related to the Analysis of the Effect of Website Quality on User Satisfaction on the Library Website which states that the quality of information that is accurate and can meet the needs and needs of users will affect the increase in library user satisfaction.(Junaidi et al., 2016).

Then the quick indicator of the results of the hypothesis test variable X affects user satisfaction. This is in line with the theory in the research on the Effect of Kandaga Website Quality on User Satisfaction which states that the Kandaga website has helped students and educators in obtaining fast, accurate and diverse sources of information so that the level of satisfaction of library users has increased. This theory also supports the results of the hypothesis test of the variable X on the accurate indicator (X_1) [15].

In the third indicator, which is relevant to the results of hypothesis testing, the X variable affects user satisfaction. This is in line with the theory in the study of the Effect of Usability, Information Quality, and Service Interaction Quality of the Riau University Library website on User Satisfaction which states that the quality of information is the quality of the content contained on the site, whether or not the information is relevant for user purposes. If the information provided is the topic of discussion with user requests, then the quality of the information provided shows relevance and will affect user satisfaction [8].

User satisfaction in terms of the content of a system in the form of functions and modules that can be used by system users and also the information generated by the system [2]. Information quality has a positive and significant effect on user satisfaction. The higher the quality of information produced by an information system is expected to affect the higher the end user satisfaction with the status of the information system [6].

5. Conclusion

Based on the results of research on the quality of information on user satisfaction of the University of North Sumatra library website, it can be concluded that the quality of information on the University of North Sumatra library website has an effect on user satisfaction, especially by students of the University of North Sumatra. The quality of information is reviewed based on 3 indicators, namely fast, accurate, and relevant. This becomes a benchmark for user satisfaction and becomes the most dominant variable that affects user satisfaction. If the information obtained by users through the library website has these 3 indicators, then the user will feel satisfied. The results of the research findings on the quality of information on user satisfaction indicate that the question indicator variable X is declared valid in the validity test and reliable in the reliability test. And the quality of information has a positive and significant effect on user satisfaction. Therefore, improving the quality of website information in a better direction will increase user satisfaction with the University of North Sumatra library website. By obtaining research results that have a positive effect between the two variables, it is expected that the administrator of the University of North Sumatra library website maintains and improves the quality of information on the library website. The librarian's performance factor has a positive and significant effect on user satisfaction, especially for students regarding the quality of information. then the current performance

of librarians will increase user satisfaction [14]. In addition, the management also needs to collect information needs of the academic community, especially from the point of view of the students of the University of North Sumatra.

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