

E-Learning Quality Analysis Of Use Of Web Conference In The Improvement Of Students With Learning Method Webqual (Case Study: Universitas KH. A. Wahab Hasbullah)

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Abstract. E-learning is a distance learning system that is electronic technology and computer networks. Many models of e-learning one using web conferencing quality of e-learning can be measured using methods now WebQual. WebQual is the method used to measure the quality of a website by the end user. WebQual prepared based research in three dimensions namely usability, information quality and interaction quality. This study aims to determine the quality of web conferencing so that students can enhance the learning process and to know the most influential indicators in the quality of e-Learning. This study uses 90 respondents and 22 questions to test the validity and reliability. Validity test results obtained r count $>$ r table as well as a test of the reliability obtained 0,807 alpha value greater than r table then consistency questionnaire declared invalid. On a Likert scale test known dimensions or indicators usability get the highest levels of interpretation satisfied. So the dimensions of usability positive influence to user satisfaction.

Keyword: *E-learning, webqual, quality, web conference*

1. Introduction

Development of computer technology and the Internet is now very rapidly seen the emergence of a wide range of services is turning into online. The advent of Internet development makes all the needed information easily and quickly obtained. Many individuals are also agencies that execute business processes using computer technology and the Internet. The website is an outgrowth of all internet technology. The website is a whole web pages contained in a domain that contains the information [6].

Advances in Internet technology allows someone to communicate flexibly without being limited by time and place. Currently the cost is relatively cheap internet connection and supported by the internet provider that diverse. Use of the internet is now not only found the city alone, even in every corner of the many that use the internet. The use of any good computer or notebook personal computer has been used in various fields. One area that uses the Internet as a service is the field of education.

In the field of education development of the Internet serve as innovation in teaching and learning, especially at the higher education level. The learning process is usually done indoors can now be done anywhere and is not time-bound. The website is used as a means of learning can be called learning management system (LMS). [3] LMS is a software platform that is delivered by an instructor to users via the Internet in the shortest time possible so that occurs between cycles of good management of data and information and knowledge makes it possible to learn anywhere and anytime. In LMS there are various kinds of service one of them, namely audio and video communications. Audio-video services are able to provide facilities for students to interact as in the classroom. Audio-video services on LMS sometimes a lot of obstacles such as lack of bandwidth as well as the lack of knowledge of students sometimes make those services less qualified. Sharing research that describes the quality of a website a lot of popping including "Analysis of the quality of the website using methods WebQual and importance - performance analysis" [2] which explains that there are several indicators that determine the quality of a website is usability, information, service interaction

2. Research Method

Methods of data analysis used in this study were:

2.1 Webqual

Quality website at this time is a strategic issue in interacting with the website. [1]WebQual is a method used to measure the quality of a website which has been developed by Stuart Barnes. WebQual sourced from a concept of Quality Function Deployment. QDF is a concept that is based on the voice of customer, which means WebQual formed based on user perceptions (end user) of a website.

WebQual formed of three dimensions of usability, information and service interaction. An overview of the three dimensions mentioned below:

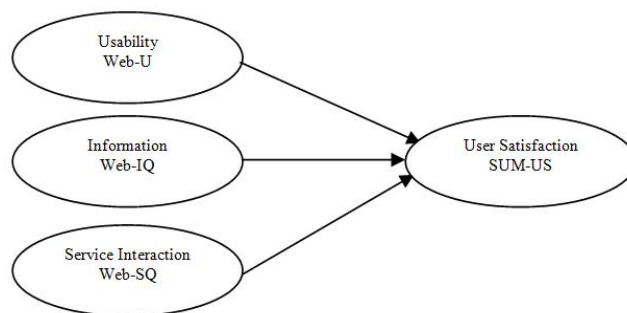


Figure 2.1 Model Webqual [7].

Research using variables based on the method WebQual as did a previous study by Vidgen and Barnes covering usability, information and service interaction. There are 22 indicators in determining the quality of an e-Learning include:

Table 2.1. Indicator Research [2]

Category	Indicator
<i>Usability</i>	Interaction clear and understandable
	Easy to navigate
	attractive appearance
	Customized design
	Competitiveness
	Easy to learn and operate
	Easy to use
	Positive experience
<i>Information</i>	Accurate information
	Information can be trusted
	Current information
	relevant information
	Information is easy to understand
	Information with a level of detail appropriate
<i>Service Interaction</i>	The information in the appropriate format
	Good reputation
	Security interact
	Security of personal information
	Ease of communication
	Implementation services
	Personalized space
Sense of community	

2.2 Materials and Web Conference Tools

As for materials or tools used in this study are:

1. SPSS application is used in the calculation of the analysis to determine the values that affect the quality of e-Learning.
2. Mconf, a free tool that is used for web conferencing. The advantages of this mconf is setting simple and easy, do not need to create a server, unlimited duration, unlimited participant, etc. Mconf can be accessed at the link url mconf.org. participant only just sign up and instantly get merged into one room.

2.3 Data collection

1. Sampling Technique Judgments
 Methods of sample selection using judgment sampling techniques or purposive sampling. Purposive sampling technique is. sampling selected or assigned based on its relevance to the research objectives[10]
 Excess of purposive sampling is [8]:
 1. The results are representative and accurate
 2. Sampling deliberately drawn from the population based on investigator assessment.

3. Sampling is more easily implemented.
2. Design questionnaires
In the next stage of designing the questionnaire. A questionnaire is a list of questions that must be answered or performed respondents. Compiler design questionnaires based on the method WebQual. 4.0 which will be tailored to the topic of the question and the purpose of research. The purpose of the questionnaire is as follows:
 - a) Obtain the data relevant to the purpose of research.
 - b) Obtain the data and validity reliability significant.

2.4 Validity test

Validity is a test used to determine the extent of measuring instruments used in measuring what is being measured [5]. valid indicator would be really appropriate to measure what you want measured. The purpose of the above statement is to test the validity of the tests performed on the steps of the content of a question with a view to measuring the accuracy of the questionnaire used in the study.

The validity of a question used in the collection of data by correlating each variable value of the respondents' answers with the number of values for each variable. The results of the correlation significant than the critical value of 0.05. The formula to correlate using Pearson bivariate correlation that can be used in the test the validity of the data with SPSS applications. The validation test formula as follows:

The validity of the test formula Pearson bivariate correlation [4]

Information:

- r_{xy} = Correlation coefficient
- x = score each question number
- y = total score questions
- n = the number of respondents

Variations in question were correlated significantly with the total value of showing these questions can provide support in finding what we want to find. Testing criteria are [4]:

1. If $r_{xy} \geq r$ table (test two side with sig. 0.05), the instrument or item-item questions significantly correlated to the total value (declared invalid).
2. If $r_{xy} < r$ table (two-sided test with sig. 0.05) the instrument or item-item question did not correlate significantly to the total value (declared invalid).

2.5 Reliability test

Reliability testing is a method of data analysis to measure consistency whether the results remain consistent if done recalculation. The point is that the questionnaire be reliable if the results of respondents' answers to questions are always consistent over time [4] Reliability test for determining the quality of using the Cronbach alpha Cronbach alpha. The method is suitable for use on a value scale (e.g. 1-4, 1-5). Forms formula of Cronbach alpha method as follows:

$$r_i = \text{Cronbach Alpha Formula Method [4]}$$

Information:

- r_i = Instrument reliability
- n = The number of question items tested
- = The number of variants of the score of each item
- = Variant total

2.6 Flow Research

Below is a described line of inquiry in this study. Starting with the grooves determine the problem until the results of the analysis. The flow of research as follows:

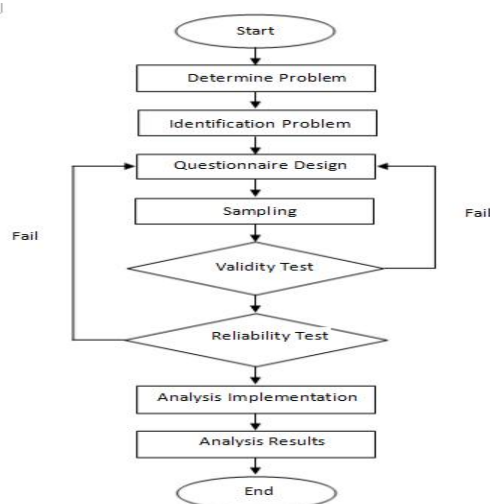


Figure 2.1. Flow Research

3. Discussion

3.1 Total Respondent

At this stage of sampling respondents researchers obtained data on the number of students at that college forlap.ristekdikti.go.id University KH. A. Wahab Hasbullah of approximately 800 students at the end of 2016.

In this research the model formula used in determining the number of samples using a model formula solvin.

The slovin following formula [9]:

Information

where:

n: Total Sample

N: total population

e: Error tolerance

$$n = N / (1 + N e^2)$$

$$n = 800 / (1 + 800 \times 0,1^2)$$

$$n = 800 / (1 + 8)$$

$$n = 88,89$$

$$n = 90$$

3.2 Value r tabel

To determine the value of r table based calculation (degree of freedom) [5]:

$$DF = (\text{number of respondents} - 2).$$

$$= (90-2)$$

$$= 88$$

According to the table above, the value distribution r table 88 value that is equal to 0.213. After finding the value r table we then do validation test with data from respondents. Here are the results of the retrieval of data from a questionnaire distributed to 90 respondents using a Likert scale of 1-5.

3.3 Validity test

After getting the data from the questionnaires then the next to test the validity by using SPSS software. Results of the test will determine the validity of the later design of the questionnaire is accurate and the results are valid in exploring the goals of this research are the question and the results have not been accurate. Here are the results of testing the validity of the 22 questions.

Table 3.1 result validity test

Question	R _{count}	R _{table}	information
1	0,548	0,213	Valid
2	0,621	0,213	Valid
3	0,310	0,213	Valid
4	0,544	0,213	Valid

5	0,543	0,213	Valid
6	0,453	0,213	Valid
7	0,426	0,213	Valid
8	0,398	0,213	Valid
9	0,426	0,213	Valid
10	0,412	0,213	Valid
11	0,391	0,213	Valid
12	0,559	0,213	Valid
13	0,640	0,213	Valid
14	0,410	0,213	Valid
15	0,353	0,213	Valid
16	0,502	0,213	Valid
17	0,440	0,213	Valid
18	0,412	0,213	Valid
19	0,425	0,213	Valid
20	0,333	0,213	Valid
21	0,403	0,213	Valid
22	0,336	0,213	Valid

From the test results validity above and compared with r table then obtained a valid explanation for r count > r table. The table above suggests that all the questions declared valid and can proceed to the next test is to get the reliability test alpha value

3.4 Reliability test

Having obtained the results of the value of each question was valid based on the validity of the test, the next step to test the reliability that aims to determine the value of the consistency of the questionnaire that has been deployed to the questionnaire accurately. The reliability test using Cronbach's Alpha method with SPSS software. Alpha method used data questionnaire with Likert scale of 1 - 5. Basic principal decision-making in this test is if the value of consistency alpha > r table it can be concluded that all the questionnaires can be declared reliable or consistent, otherwise the value of consistency alpha < r tables then all the questionnaires can be declared unreliable.

The output below is the result of the reliability test was obtained from a questionnaire spread.

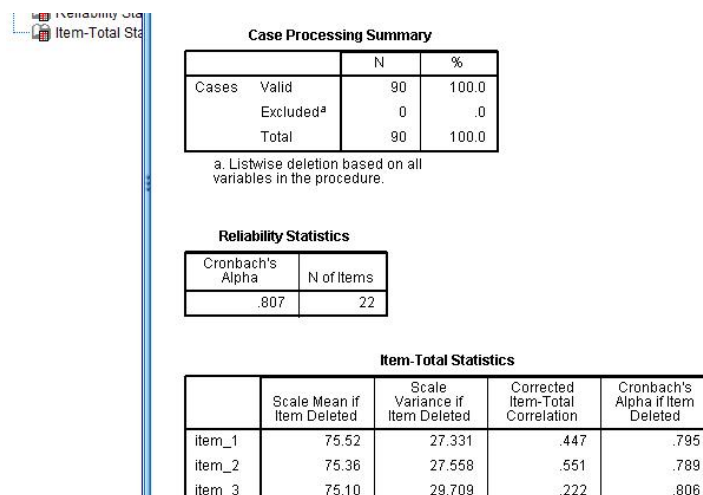


Figure 3.1 Reliability Test Results

Judging from the results of a reliability test can be seen that the value of alpha of 0.807 then the alpha value will be compared with the value of r table with a value of DF = 88 sought on the distribution of significant value r table 5% r table values obtained at 0.213. So as alpha = 0.807 > r table = 0.213 then the questions on the questionnaire can be said reliable or reliable as a means of collecting data in the study.

3.5 Likert scale

This method will be used as an assessment of the quality of e-Learning in the use of web conferencing as the improvement of student learning designed Likert scale whose dimensions based methods WebQual namely usability, information quality and service interaction. Measurement scale for satisfaction levels ranging from 1 - 5. Formula to determine the interval ranges numerical scale ratings as follows [4]:

Information

- RS = range of scales
- m = the highest number of measurement
- n = lowest number of measurement
- b = the amount of class

So the range of scales is 0.80.

The table below illustrates the scale range to be used in e-Learning quality assessment, namely:

Table 3.2 Range of average grading scale

Very satisfied	$4,2 \leq x \leq 5$
Satisfied	$3,6 \leq x \leq 4,1$
Less satisfied	$2,8 \leq x \leq 3,5$
Not satisfied	$2 \leq x \leq 2,7$
Very Dissatisfied	$1,2 \leq x \leq 1,9$

After the table rating scale ranges formed can then be made respondent satisfaction level calculation table on the quality of e-Learning with Likert scale. The average assessment scores can be calculated using the formula[4]:
 average =

Here is a table of the results of the calculation of average and quality assessment results corresponding e-Learning from the data collecting questionnaire:

Table 3.3 Assessment of quality with the Likert scale

Number Question	Value question					Average	Interpretation
	5	4	3	2	1		
1	1	34	41	14	0	3.2	Less satisfied
2	0	41	45	4	0	3.6	Satisfied
3	2	56	32	0	0	3.7	Satisfied
4	10	54	26	0	0	3.8	Satisfied
5	1	49	36	4	0	3.6	Satisfied
6	1	48	39	2	0	3.5	Less satisfied
7	0	60	28	2	0	3.6	Satisfied
8	7	62	21	0	0	3.8	Satisfied
9	0	47	37	6	0	3.5	Less satisfied
10	0	55	33	2	0	3.6	Satisfied
11	1	62	26	1	0	3.7	Satisfied
12	1	40	42	7	0	3.4	Less satisfied
13	0	43	43	4	0	3.4	Less satisfied
14	2	51	37	0	0	3.6	Satisfied
15	5	54	31	0	0	3.7	Satisfied
16	1	48	37	4	0	3.5	Less satisfied
17	1	46	41	2	0	3.5	Less satisfied
18	0	58	30	2	0	3.6	Satisfied
19	4	63	23	0	0	3.8	Satisfied
20	1	46	40	3	0	3.6	Satisfied
21	0	54	34	2	0	3.5	Less satisfied
22	1	60	28	1	0	3.7	Satisfied

From the calculation of the average of each indicator or questions can be seen that there are 14 indicators that interpretation satisfied than those who are less satisfied. Then the satisfaction level of users of web conferencing is quite good.

The following chart is based on the value of the level of satisfaction above table

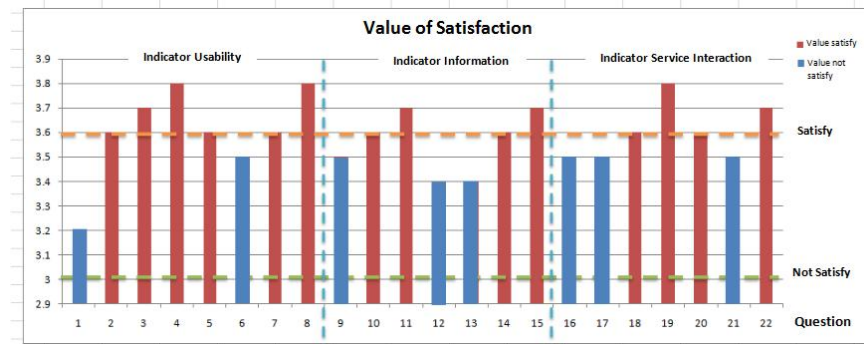


Figure 3.2. Graph the results of user satisfaction

4. Conclusion

Based on the analysis of e-Learning quality measurement that utilize web conferencing to the satisfaction of users that have been done previously to the conclusion that:

- a. The data in this study found the number of respondents amounted to 90 based on the formula solvin, and the known value of r tables based on the number of respondents is 0.213. Then the validation test and reliability test is valid or reliable because the obtained r count larger than r table. Validation test found a correlation value of each question is always greater than r table. Similarly, the reliability of test scores Cronbach's Alpha .807 greater than r table.
- b. After analyzing the three-dimensional measurement using WebQual namely usability, information, service interaction based on user satisfaction. Usability get 6 interpretation satisfied, information getting four interpretations are satisfied, and service interaction to get four interpretations are satisfied, then get usability dimension or indicator that get the most satisfaction levels. So that the dimensions of usability positive influence to user satisfaction

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