SITEKIN: Jurnal Sains, Teknologi dan Industri, Vol. 22, No. 1, December 2024, pp. 198 – 207
ISSN 2407-0939 Print/ISSN 2721-2041 Online

The Impact of WebQual 4.0 Method Variables on the Quality Service of Education in Indonesia

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ABSTRACT

The main focus of this study is educational institutions with results showing variables and indicators affecting customer satisfaction. A systematic literature review was used in this study, covering Indonesian national journals from 2017 to 2021 at various educational institutions. The review explores common variables used in website quality assessment using WebQual 4.0 and explores gaps within each theme. The results show variables and indicators affecting customer satisfaction. Society 5.0 (society 5.0) is indispensable in the development of the industry 4.0 revolution where by using WebQual 4.0 the psychological variables that are part of society 5.0 can be one part of the measurement variables from the human aspect in the use of technology. Basically, the measurement object can vary and can be combined with various other service quality measurement methods in educational institutions. So that the measurement results and the improvement suggestions obtained can be applied directly.

Keywords: *Customer, Education, Variable, WebQual 4.0, Website.*

Introduction

A website is a medium that has many interconnected pages (hyperlinks), serving to provide information in the form of text, images, video, sound and animation or a combination of all of them [1]. A company's website can have a very important role in a competitive environment. It can be used to provide information to enterprise customers, collect new users, retain existing users and more. Websites can be visited by different groups of users who may have different needs, requirements and interests [2].

Educational institution websites are media used to introduce educational institutions to the community or the outside world, as well as spread and obtain information related to

educational institutions. Nevertheless, an attractive and elegant educational institution website can also reflect the level of professionalism of the educational institution itself. Currently, educational institution websites are increasingly becoming a trend in the world of education, especially in Indonesia such as online learning media (e-learning). This can make it easier for students to access subjects provided by educators through the website so that it is more effective and informative. The existence of educational institution websites is basically to support the program of the minister of education in optimizing the internet in educational institutions, improving quality (managers, teachers, students), reducing the negative effects of internet use by improving educational modules, and promoting the internet [3].

To evaluate the quality of a website, it is necessary to obtain a realistic attitude from its visitors about the fulfillment of their expectations and perceived reality. Website quality assessment has been considered in many studies, therefore many approaches have been proposed [4].

WebQual is a technique or method of measuring quality based on the end user's perception of a website. This method is a development of ServQual developed by Parasuraman, which is widely used to measure service quality [5]. Through WebQual a site is evaluated for its ability to meet user needs [6]. The measurement has metamorphosed several times to WebQual 4.0. WebQual 4.0 has three main variables used in determining customer satisfaction, namely: usability, information quality, service interaction in various research on service quality in education (Table 1).

Many researchers have proposed different attributes and dimensions to measure e-service quality. In WebQual 4.0 there are three main dimensions that have a measurement scope, where the usability dimension includes the quality related to site design and user engagement, then the information quality dimension has the scope of the quality of the content contained on the website, and services. the interaction dimension has the scope of service quality interaction by users when investigating the site [7].

Research Methods

A systematic literature review was used in this research, where it is important to conduct a systematic review in any scope, to understand the level of previous research that has been done as well as to know the weaknesses and areas that need to be researched further in the future that will come [8]. A systematic literature review covering Indonesian national journals from 2017 to 2021 at various educational institutions can be seen in Table 1. This study explores the common variables used in website quality assessment using WebQual 4.0 and explores gaps in each theme.

Table 1. Literature Review Related to The Implementation of Webqual 4.0 In Educational Institutions

Object	Goal	Variable	Result
Educational Institution Webpage [9]	Knowing the influence of WebQual's independent variable on user satisfaction	1. Usage 2. Quality of information 3. Quality of service interaction	1. 57.5% of the 3 variables contribute to explaining the variation in consumer satisfaction 2. 42.5% of the variables outside the research model contribute to explaining the variation in user satisfaction

Object	Goal	Variable	Result
E-Learning of KH. A. Wahab Hasbullah University [10]	1. Know the quality of the web conference 2. Know the most influential indicators in the quality of e-Learning	1. Usage 2. Quality of information 3. Quality of service interaction	The usability variable gets the highest level of interpretation (satisfactory) so that it has a positive effect on user satisfaction.
University website in Bandung [11]	Measuring website quality	1. WebQual 4.0 (Usage, Quality of information, Quality of service interaction) 2. IPA (importance performance analysis)	1. Usage Variable: Statisfacation Rate 96.36% 2. Quality of information Variable: Statisfacation Rate 96,01% 3. Quality of service interaction Variable: Statisfacation Rate 96,20 %
Educational Institution Websites[12]	Knowing the quality of website services at the university in terms of user satisfaction and website performance	1. WebQual 4.0 (Usage, Quality of information, Quality of service interaction) 2. ISO/IEC 9126 (reliability quality & efficiency quality)	1. Variables contribute to explaining the variation in consumer satisfaction 2. Reliability quality improvement recommendations: a. File size reduction b. Save files in appropriate format c. Save time and bandwidth by compressing resources
Website of Dhyana Pura University [13]	Evaluate the quality of the website	1. Usage 2. Quality of information 3. Quality of service interaction 4. Overall Impression	The average score is 3.49 (satisfactory), where there are some instruments in the 4 dimensions of the WebQual method that are less satisfactory.
Mulawarman University Language Center Website [14]	Look at user responses to gauge the quality of a website	1. Usage 2. Quality of information 3. Quality of service interaction 4. User Satisfaction (dependent variable)	1. 64.2% of variables contribute to user satisfaction 2. 35.8% of variables outside the research model contribute to explaining the variation in user satisfaction 3. The usability variable has the highest correlation value
Universiti Stikubank E-Learning Website [5]	Evaluating e-learning websites	1. WebQual 4.0 (Usage, Quality of information, Quality of service interaction) 2. IPA (importance	1. The average student is satisfied (e-learning website quality is 86.75%) 2. Based on the IPA method, the 4 indicators need to be

Object	Goal	Variable	Result
		performance analysis)	improved
Website of Telkom University [15]	1. Measure the degree of gap between expectations and user perception 2. Determine priority factors for improvement	1.Usage 2.Quality of information 3.Quality of service interaction 4.Quality of User Interface 5.Availability	1. The level of user expectation for the quality of Telkom University's website is 93.49% (very important category) 2. The level of user perception of the quality of Telkom University's website is 72.25% (good category)
PMB Website of Tarutung State Christian Institute [16]	Evaluate the quality of the website	1.Usage 2.Quality of information 3.Quality of service interaction 4.Overall	Variables contribute to consumer satisfaction
Academic Portal and Student Director i-Student [17]	Analyze the quality of the website	1. Usage 2. Quality of information 3. Quality of service interaction	1. The Usefulness and Quality of Information dimension has a coefficient of 0.60-0.70 Interval (Good) 2. The Interaction Dimension on the academic portal website is in the range of 0.40-0.59 (Sufficient) 3. For the student directory website, the interaction coefficients were of good quality on all variables
Website of Kanjuruhan Malang University [18]	Knowing the influence of website quality on the decision of students to enroll in a university	1. Usage 2. Quality of information 3. Quality of service interaction	The quality of information is more dominant than the quality-of-service interaction, and the quality of use. Webqual has a significant influence on the respondent's decision
Academic information system [19]	Knowing the level, correlation, and influence of the use of academic information system services	1. ServQual (*tangible, empati, reliability, responsiveness, and assurance*) 2. WebQual 4.0 (Usage, Quality of information, Quality of service interaction)	1. ServQual is at an average score of 2.60, WebQual 4.0 is at an average score of 2.59 2. ServQual (X1) and WebQual 4.0 (X2) have a simultaneous positive effect on User Satisfaction (Y), with a total effect of 0.688 or 68.8%, (Improvement of academic information systems affects User Satisfaction) 3. External influence is 0.312 or 31.2%

Object	Goal	Variable	Result
			4. The academic information system needs to be improved
STMIK e-learning in Makassar [7]	Measuring the website service quality	1. Usage 2. Quality of information 3. Quality of service interaction 4. Quality of User Interface	1. Questionnaire results during the e-learning of the COVID-19 pandemic, STMIK Dipanegara Makassar has a quality website service 2. There are certain areas that need attention.
New student admission selection website (SPMB) of Universiti Sebelas Maret [20]	Evaluate and analyze website quality	1. WebQual 4.0 (Usage, Quality of information, Quality of service interaction) 2. IPA (importance performance analysis)	1. Gap value analysis has negative values (-1.12) on all attributes 2. Based on the IPA method, improvements should be made to 3 indicators.
Learning Management System (LMS) Website of Sriwijaya Polytechnic [21]	Analyzing the quality of website services from the website users (students) side	1. Usage 2. Quality of information 3. Quality of service interaction	1. Usefulness describes the quality of the Sriwijaya Polytechnic website as much as 0.278. 2. The quality-of-service interaction affects the quality of Sriwijaya Polytechnic website but not so much 3. The quality of information affects the quality of the Sriwijaya Polytechnic website by 0.619
Region IV University Website [22]	Measure the quality and describe the website's expectations	1. Usage 2. Quality of information 3. Quality of service interaction 4. Overall	1. usability criteria have a percentage of 81.05% (good criteria) 2. Information quality criteria have a percentage of 79.84% (good criteria) 3. Service interaction quality criteria have a percentage of 77.10% (good criteria).
Website of the Science and Technology Faculty of Imam Bonjol Padang State Islamic University [23]	Evaluate the quality of the website	1. WebQual 4.0 (Usage, Quality of information, Quality of service interaction) 2. IPA (importance performance analysis)	1. Gap between reach and web page performance is -0.126 (not yet reached) 2. There are 4 priority attributes to improve: a. Attractive appearance b. Appropriate design related to the type of website c. Information relevance, and d. Conveys a sense of

Object	Goal	Variable	Result
			community
Website of the Business and Economics Islamic Faculty of Indonesia University [3]	Measuring the quality of Website Information System services	1. Usage 2. Quality of information 3. Quality of service interaction	The service website has a positive impression, user ratings of the service website are good, and users feel safe and convenient
Integrated Lab Journal website of Sunan Kalijaga State Islamic University (UIN) Yogyakarta [24]	1. Determine which repairs will be made to the old system 2. Identify indicators that need to be maintained or improved based on user perceptions and expectations	1. WebQual 4.0 (Usage, Quality of information, Quality of service interaction) 2. IPA (importance performance analysis)	1. The highest gap is on the attractive website display indicator (usability variable) where the gap value is -0.830 2. The lowest gap is on the indicator regarding the positive experience of using the website (usability variable) where the gap value is -0.320.
IT Telkom Purwokerto igracias information system [25]	Measuring the quality of information systems	1. WebQual 4.0 (Usage, Quality of information, Quality of service interaction) 2. IPA (importance performance analysis)	The quality of the igracias information system does not match or meet user expectations

Results and Discussion

The method used in the WebQual 4.0 investigation of the object of educational institutions is to use an inquiry form, where each instrument in the study conducts tests that state the study in Table 1 has instruments that:

1. Valid because the estimated value of r for each item is positive and greater than r table, (estimated r > table r).
2. It is reliable because it meets the minimum requirement of Cronbach's alpha.

Table 1 shows the use of WebQual 4.0 to measure customer satisfaction in educational institutions to obtain measurement results, where each modifier used can affect or affect customer satisfaction. In the WebQual 4.0 application, it can be collaborated with various other methods, where from the measurement results there are findings that can be used as a reference in future measurements, especially for variables, as shown in Table 2.

Table 2. Findings In the Literature

Research Identity	Findings
[9]	Other variables or factors beyond those specified in the measurement, i.e. psychological variables or factors may affect customer satisfaction
[15]	The use of user testing can be done to find out specifically, what type of information the website user expects

Research Identity	Findings
[19]	Variables in ServQual and WebQual can be used simultaneously to improve quality
[20]	The use of WebQual 4.0 and IPA methods found attributes that need to be improved such as: website design, information presentation and, detailed and up-to-date navigation on the website.
[22]	In developing a website to achieve customer satisfaction, you can pay attention to: Easy website navigation, updated information, comprehensive and Interactive recommendation system.

The selection of variables is based on:

1. Previous studies have dominant categories based on customer perceptions of the service quality of a website [9] [11] [13] [14] [18].
2. The variables are determined by the institution to provide excellent service combined with the WEBQUAL 4.0 model [12] [15] [16].
3. Customer desire for excellent service is the basis for selecting the variables used in combination with the WEBQUAL 4.0 model [17].

In addition, based on previous studies, psychological factors have an influence in this study of almost 50% [9]. Recently, a new term has appeared which is the vision of the Japanese government which is Society 5.0 (society 5.0), an idea that explains the revolution in people's lives with the development of the industry 4.0 revolution with the concept to convey is how a revolution occurs in society that utilizes technology that considers aspects society. people and humanity [26]. The use of technology that considers humanitarian and humanitarian aspects becomes a reference in determining needs and expectations. Using WebQual 4.0 which is a quality measurement method based on user perception can determine the needs and expectations of users by adding a new variable which is a psychological variable which can be one part of the human aspect in the use of technology. This framework can be seen in Figure 2.

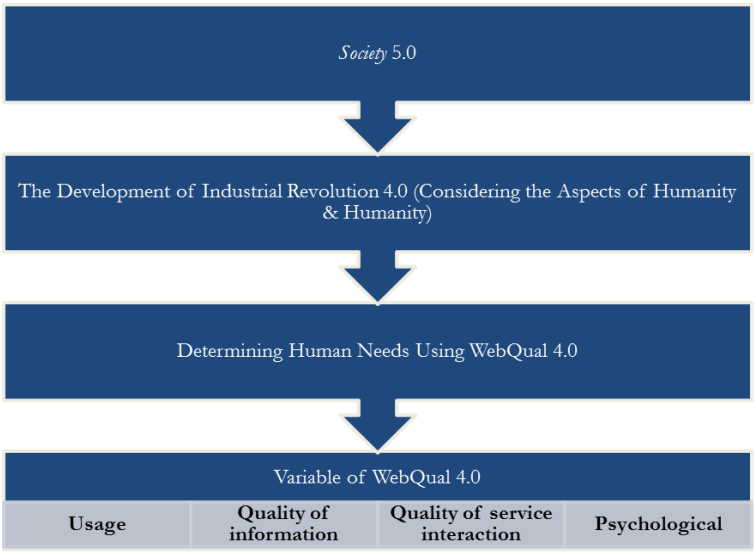

Figure 2. Next Research Framework

Conclusion

The results show variables and indicators affecting customer satisfaction. In measurement, a questionnaire is used as a measurement tool with an even distribution of respondents, where tests are carried out on the measuring tool in terms of validity and reliability in general. Basically, the measurement object can be diversified and can be combined with various other service quality measurement methods in educational institutions. So that the measurement results and even the improvement suggestions obtained can be applied directly. The implementation of assessments carried out by institutions to implement improvements in educational institutions in past research can be a reference for future assessments.

1. The institution determines the service standards that will be used as variables based on customer needs by considering customer psychological factors.
2. Assessments are carried out periodically at certain periods using established tools
3. Making improvements and improvements in the institution using the PDCA (Plann - Do - Check - Action) cycle
4. Updating the tools can be carried out according to needs and developments in situations and circumstances.

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