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Gap Analysis of University Online Learning Website from Students' Perspectives: A Case from Telkom University, Indonesia

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Gap Analysis of University Online Learning Website from Students' Perspectives: A Case from Telkom University, Indonesia

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Abstract. The purpose of this research is to observe the perceived quality of Telkom University online learning website from students' perspectives. Students here act as the main users of the learning platform and we would like to see whether the perceived quality and the ideal quality already fulfil users' expectation. The data used are the primary and secondary data with a set of sample taken from 100 students. We use the question items from website quality method and analyse the data with importance performance analysis (gap analysis). The research shows that the usability and service interaction aspects of the website have quite significant gaps between perceived and ideal qualities.

Keywords: Education Management, Website Quality, Virtual Learning, Gap Analysis

1. Introduction

Implementing effective information technology (IT) will reduce unexpected costs and increase flexibility [1]. This type of technology brings the world of communication into a new paradigm. The existence of the internet has removed national borders in terms of information flow [2]. This results in an increasingly dynamic educational environment. Universities that are not able to adapt to this development will not be able to compete with universities that are already capable [3].

The growth of internet users in Indonesia continues to increase from year to year. Noted penetration of an increase in internet users in Indonesia by 28% from the number of 71.19 million users in 2013 increased to 82 million users in the first quarter of 2019 [4]. The world of education is demanded to always improve its quality so that Indonesian people can survive and be able to adjust in this era of information disclosure [3]. Universities as one of the education units are also required to provide public services, both public and private universities.

For this reason, a virtual educational platform is needed by university as one of the information services, both for lecturers, students and other general public [5]. The website itself is a form of mass media whose publication is via the internet and can be accessed 24 hours and from any hemisphere [6]. Another advantage of publication via the website is its interactive capabilities and very fast distribution [7]. Thus, the website can be a gateway for educational institutions to go public. The quality of a good information system which in this study is a website according to [8]. The quality of the system is measuring the information process through the system used or the relationship between the characteristics of the system with the successful implementation [9]. Meanwhile, the quality of

information is a function that concerns the value of the output produced by a system that is felt by the user [10].

Based on these indications, this study conducted an analysis of the quality of information systems from the Telkom University website with the Webqual approach and Importance Performance Analysis (IPA) according to students' perceptions, especially students of Telkom University's Faculty of Communication and Business. Webqual is one method of measuring website quality based on end-user ratings. Webqual is prepared based on three assessment criteria, namely, usability, information and service interaction. Whereas IPA is an analytical technique used to identify the factors of an object of measurement on its performance and importance. User ratings can be divided into two perspectives, namely, the assessment of the desired quality (ideal) and the perceived quality (actual). The level of quality can be demonstrated by looking at the gap (gap) between these two assessment perspectives.
The objectives of this research are to find out the quality level of Telkom University website information system based on the dimensions that exist in Webqual; to find out the quality level of Telkom University website information system based on the gap (gap) between perceived quality (actual) and desired quality (ideal); and to describe the position of information system quality indicators of Telkom University virtual learning website so that it shows which indicators are in accordance with user expectations and which indicators need improvement.

2. Literature Review

Quality measurement is one important element in the aspects of integrated quality management [11]. Quality measurements of goods and services or other parts of the company body will be useful to provide information about current performance [12]. Referring to the quality of the information system, [7] revealed that the quality of the system was measuring the information process through the system used or the relationship between the characteristics of the system and the successful implementation. Meanwhile the quality of information is a function that concerns the value of the output produced by a system that is felt by the user [7].

From this context, quality in information systems can be concluded as the value of characteristics in an information system that is felt by the user [10]. The quality of information systems is often associated with the quality of services because of the nature of the information system that has similarities with the characteristics provided to the recipient. [13] concluded that quality is in accordance with customer specifications. The basic idea is that quality does not meet a number of criteria established by the company, instead quality meets the criteria set by the customer.

There are two dominant theory models that are built based on information systems and marketing disciplines for website quality measurement. The two theoretical models are Technology Acceptance Model (TAM) and Web Quality (Webqual). Technology Acceptance Model (TAM) was first put forward by [14], is a method of approach to explain and predict one's acceptance of information technology. The TAM model believes that the actual use of technology can be predicted from the intentions of its users and attitudes towards its use, which in practice is influenced by the ease of use and its benefits.

On the other hand, website quality is one of the methods of measuring website quality developed by Stuart Barnes and Richard Vidgen [10]. This method is a development of SERVQUAL which was widely used before in measuring service quality in general. Webqual is based on the concept of Quality Function Deployment (QFD), namely, "structured and disciplined processes that provide a means to identify and carry the voice of the customer through each stage of product and or service development and implementation" which can be interpreted as a structured and disciplined process that presents a means of identifying and bringing in the voice of customers through each stage of development and implementation of a product or service. From the QFD concept which states the development of a product or service is preceded by a "voice of customer", webqual is prepared based on the perception of the end user (end user) of a website.

Quality measurement is one important element in the aspects of integrated quality management. Quality measurements of goods and services or other parts of the company body will be useful to provide information about current performance. Referring to the quality of the information system, [7]

revealed that the quality of the system is measuring the information process through the system used or the relationship between the characteristics of the system and the successful implementation. While the quality of information is a function that concerns the value of the output produced by a system that is felt by the user.

As mentioned before, quality in information systems can be concluded as the value of characteristics in the information system that is felt by the user [7]. According to [15], service quality is how far the difference is between reality and customer expectations for the service they receive.

3. Research Methodology

This research is categorized into descriptive research type using quantitative methods. Descriptive research is a form of research that studies problems in society, as well as the procedures that apply in society and situations, including relationships, the activities, attitudes, views, and processes that are taking place and the effects of a phenomenon [16]. The sampling technique used in this study is multistage sampling in which sampling uses more than one probability sampling technique. The first part is Proportionate Stratified Random Sampling and the second using Accidental Sampling [17].

In this study, we chose not to use "neutral" instrument items to minimize "ambiguous" data, so the results obtained were less accurate. The Likert scale design used in this study follows the original WEBQUAL instrument with a scale of 1-4 (1 = strongly disagree, 4 = strongly agree). Data collection was done by online questionnaire. Questionnaires were distributed in several forums and social media that are relevant to the sample and population is 100 Telkom University students.

The gap analysis was conducted to answer the problem "how is the level of Telkom University website quality viewed from the gap (perceived gap) between perceived quality (actual) and desired quality (ideal)?" The actual quality was indicated by respondents' assessment of performance (performance) website quality building attributes based on WEBQUAL dimensions, while the ideal quality was shown from the respondents' assessment of the importance of these quality attributes. For determining the value of the gap, it could be seen from the disagreement between the value of the actual quality (performance) and ideal quality (importance).

$$Qi = Pi - Ii$$

Qi = quality level
Pi = actual quality value (performance)
Ii = ideal quality value (importance)

4. Result and Discussion

A good level of quality is indicated by a positive result or $Qi \geq 0$. This means that the actual quality value meets the ideal quality expected by the user. Conversely, if the result is $Qi < 0$ or negative, then the level of quality is declared bad and has not been able to meet the user's ideal desires.

The size of the gap is represented by a percentage based on the scale used on the measurement instrument, which is 1-4 (1 = 0%, 4 = 100%). Explanation of quality indicator gaps is described in each dimension, namely usability, information and service interaction. The following table (table 1) shows the gap calculation in the usability dimension.

Table 1. Question Items on Usability.

	Indicators	*Perf.* (P)	*Imp.* (I)	Q (P-I)
1	Easy to operate	3,00	3,01	-0,01
2	Positive experience	3,04	3,04	0,00
3	Competitive power	2,98	2,92	0,06
4	Compatible design	3,07	3,09	-0,02
5	Easy to use	2,96	3,00	-0,04
6	Understandable instruction	2,81	2,95	-0,06
	Average	2,97	3,06	-0.09

Source: analysed by authors

Table 1 above shows the gap values for indicators in the usability dimension. From this table, it can be seen that the difference value between the actual quality (performance) and the ideal quality (importance) of all indicator is negative. The average difference value of - (0.09) indicates the negative value or Q <0, which means that the actual quality perceived at this time cannot meet the ideal quality desired by the user, then the level of quality declared still bad. The following table 2 shows the information dimension gap.

Table 2. Question Items on Information.

	Indicators	*Perf.* (P)	*Imp.* (I)	Q (P-I)
1	Accurate information	2,96	3,08	-0,12
2	Detailed information	3,15	3,01	0,14
3	Easy to understand information	2,98	3,08	0,10
4	Relevant information	2,97	3,06	-0.09
5	Informasi actual	3,02	3,02	0,00
6	Informasi dapat dipercaya	2,90	3,11	-0.21
	Average	2,90	3,06	-0.16

Source: analysed by authors

Table 2 above shows the value of gaps in the indicators of Information dimension. From this table, it can be seen that the value of the difference between the actual quality (performance) and the ideal quality (importance) of all indicators negative value. An average value difference of - (0.16) indicates a negative value or Q <0 which means that the actual quality perceived at this time cannot meet the ideal quality desired by the user, then the level of quality declared still bad. The following table 3 shows the gap in Service Interaction.

Table 3. Question Items on Service Interaction

	Indicators	*Perf.* (P)	*Imp.* (I)	Q (P-I)
1	Good reputation	3,01	3,03	-0.02
2	Secure personal information	3,05	2,95	0,10
3	Room for personalization	2,84	2,93	-0,11
4	Sense of community	2,63	2,79	-0,16
5	Easy to communicate	2,89	2,91	-0,02
	Average	2,81	2,92	-0,11

Source: analysed by authors

The table above shows the value of the gaps of the indicators in the Service Interaction dimension. From this table, it can be seen that the difference between the actual quality (performance) and ideal quality (importance) of all indicators is negative. The average difference value of - (0.11).

After analysing every dimension, we used gap analysis or Importance Performance Analysis (IPA) to answer problem "which website quality indicators are in accordance with the wishes of users and which ones need improvement?" The results of the IPA showed the location of each indicator in the IPA matrix consists of four quadrants.

In determining the coordinates for each indicator, the average weighting of indicators is used and shows the position of the indicator in the IPA matrix graph (figure 1). The different colors of the markers represent the indicators of each dimension.

In this study, website quality measurements were carried out with WEBQUAL approach and Importance Performance Analysis (IPA) instruments. Science is a very useful analytical tool to describe the relationship between valuation factors seen from the level of importance and performance [17].

Based on the results of the study showed that indicator no 12 "reliable information" needed to improve this in accordance with the conditions in the reality where respondents in this study were students who did not believe in the information on the website and were more likely to seek information on the official account of the student organization.
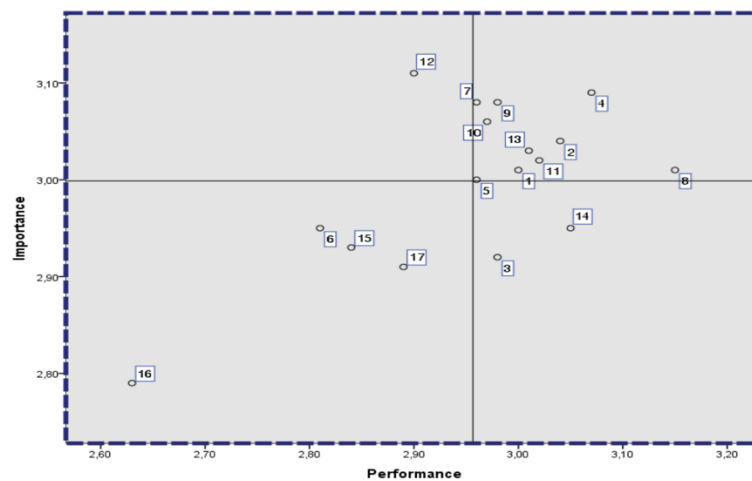

Figure 1. IPA matrix.

Based on the indications above results that the quality of information can be trusted could not meet the expectations of students because the indicator is in quadrant I and has a high gap value. In a previous study conducted by Juhanda (2011) that it was a high gap in the dimension WEBQUAL information dimension which stated the results of the negative gap and IPA in quadrant I is an indicator of the information dimension can be said to not be able to meet the expectations of users [17].

5. Conclusion

The level of information system quality on the Telkom University website on the usability dimension for the category is above, while the level of expectation for the category is high but higher than reality so that it is in line with user expectations. Quality level information system on the Telkom University website on the dimension information to be in the high category, while for expectations to be at high category but higher than reality so that something is not according to user expectations. The level of information system quality on the Telkom University website on the service interaction dimension for the high category, while for convenience is in the category high but higher than reality so it is not in accordance with user expectations.

The level of information system quality on the Telkom University website seen from the perceived quality gap (actual) and the desired quality (ideal) shows that the dimensions of usability,

dimensions information, and the service interaction dimension have a negative value which means that the actual quality perceived at this time cannot meet the ideal quality desired by the user, so the quality level is still poor. Thus the reality is not yet fulfilling website user expectations.

Website information system quality indicators that are in accordance with user desires and who need improvement. Indicators of the quality of information systems on the Telkom University website that are in accordance with the wishes of users are in quadrant II, namely Indicator 1 "easy to learn and operate", indicator 2 "positive experience", indicator 4 "design in accordance", indicator 5 "easy to use", indicator 7 "accurate information", indicator 8 "information with the right level of detail", indicator 9 "information easily understood", indicator 10 "relevant information", indicator 11 "actual information", indicator 13 "good reputation" which has a high level of importance and its performance too feel good. Information system quality indicators on the Telkom University website that need improvement are in quadrant I, which is indicator 12 "reliable information" which has a high level of importance but its performance is felt to be low.

Based on the results of descriptive analysis shows that the three dimensions of Webqual have higher expectations, but the reality does not match user expectations, it is recommended that website managers better understand the user's expectations such as by making observations about the user's expectations for the website. Last but not least, when viewed from the IPA analysis indicator 12 "reliable information", website managers are expected to make improvements or improve their performance such as gathering information needed by students and loaded on the website and always providing information in accordance with the reality that exists in real time.

For further research, research with Website quality measurement will still have meaningful contributions. Research development can be done by connecting website quality with the main service quality of the company website owner. More broadly, research can be done on several company websites that are in one industry or an educational institution. It is also expected that to apply measurements, website quality in companies and educational institutions that are judged to have flaws in order to become input for managers the website.

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