User's Satisfaction Analysis of the Academic Information Systems Quality using the Modified Webqual 4.0 Method and Importance-Performance Analysis

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Abstract

Currently, the academic information system (AIS) at universities processes academic data to facilitate student's activities. AIS was developed to provide maximum service to students. To optimize the use of information technology and to ensure the appropriateness of the provided AIS services, it is necessary to examine the level of service provided to improve quality. This study aimed to analyze the level of AIS service quality based on user perceptions and expectations. Dissemination of online questionnaires using Google Forms with a total of 100 students as respondents. This study used the modified Webqual 4.0 method as an indicator in the preparation of the questionnaire and the importance-performance analysis (IPA) method as an analysis method. The results of data were classified based on the percentage of user's satisfaction with AIS services with three classifications, namely good, moderate, and poor. The results of the IPA analysis showed that the AIS had good quality. The results obtained from the analysis of the quality of the AIS system had a conformity level of 90.90%, where respondents perceived close to satisfaction with AIS services. The gap level was -0.3281 which was the result of the perception/performance of the AIS that was not in line with the expectations of the user. The results of this study contribute to Universitas Muhammadiyah Gombong as reference material and evaluation of AIS system services in the future.

Keywords: Academic Information System; AIS; User Satisfaction; Importance-Performance Analysis; Web Quality.

Introduction

Information systems have developed rapidly and are very important for human needs in today's era. An academic information system is one of the main needs for schools from elementary school to high school to the university level. Academic information systems besides being able to facilitate work in academic management, it can also assist in storage security and increase efficiency and effectiveness [1] [2] by integrating business processes in universities.

Universitas Muhammadiyah Gombong is a university that has utilized information systems in its academic activities. This utilization can be seen by the development of an academic information system called the AIS.

AIS system of Universitas Muhammadiyah Gombong is an online academic service application (http://simak.unimugo.ac.id) which has varied facilities including updating student's data, inputting and printing student study plan, providing student's schedules, printing exam cards, showing and printing test results or transcripts [3], showing tuition bills and others .

The results of initial observations and interviews of researchers with users of the AIS, especially with students, the AIS at Universitas Muhammadiyah Gombong still had shortcomings in its use, namely AIS users judged that the AIS display was not attractive (not up to date), unresponsive (unable to adjust the display if accessed from various devices, especially mobile devices), other complaints were that when a user opens the AIS page from page 1 to the next page, the loading was slow, and several service menus on other AIS were not fully functional so the administrative process was ineffective and inefficient. The AIS users were expecting that AIS could look more attractive, up-to-date, and easy to use, other features that were not yet active can function properly and loading was not slow. In addition, the

successful level of the AIS system at the Universitas Muhammadiyah Gombong has never been evaluated well [4], especially from the user's point of view. The other important factor should be evaluated was its appropriateness to develop the information system. Therefore, based on the lack of observation results and to support the periodic improvement of student services, it is necessary to evaluate the quality of the AIS system implementation based on user's satisfaction.

Quality information systems affect user satisfaction [5]. Student satisfaction is one of the successes criteria of every development and implementation [6] of the academic system in higher education. The university should know the quality level of Academic Information System services from user perspective.

Several factors influence user's satisfaction with the quality of information systems, including usability, information quality, and service interaction [3]. A quality information system can facilitate the process of academic activities. Information quality factors and service quality will affect the information system [7].

In research, many methods are used to measure user satisfaction with information systems such as Delone Mclean, Usability Testing, e-Servqual, WebQual, Technology Readiness Index (TRI), End-User Computing Satisfaction (EUCS) and others. However, this study chose to use the Webqual 4.0 method because this method is the most appropriate and effective method to evaluate the quality of a website [8].

Webqual 4.0 is a method used to measure the quality of a website based on end-user ratings [3] [9] [10]. The Webqual 4.0 method is based on four dimensions(areas), namely: Quality of use, quality of information, quality of service interaction, and overall impression [7] [11] [12] [13]. The Webqual 4.0 method has undergone several developments, and the newest one is version 4.0 [14][15]. This method has been widely used by researchers to determine the service quality of a website [15]. The Webqual carried out in this study was a modified Webqual 4.0, namely Webqual 4.0 with four dimensions, with the modification of adding one dimension developed by Frandika Septa (2020), namely the dimension user interface quality [16].

Meanwhile, to specifically identify indicators that have or have not met the expectations of their users, the analysis technique *of Importance-Performance Analysis (IPA)* is used [12] which would identify important factors or attributes that must be shown by a university to meet the satisfaction of its users based on their perceptions and expectations of the website [3] [7] [17]. *IPA* method was used to map the relationship between the importance and the performance of each offered attribute and the gap between the performance and the expectations of these attributes. User ratings can be divided into two perspectives, namely an assessment of the desired quality (expectations) and perceived quality (performance). The level of quality can be measured by looking at the gap between these two assessment perspectives [3] [7] [17].

Service quality can be analyzed by analyzing the level of conformity, the level of the gap from the perception of service users to the performance of the website with the perception of service users to the expectations on the website used, and performing quadrant analysis [18].

The two Webqual and IPA methods were very suitable to be combined in this study because of the interrelationship between the Webqual and IPA methods. In the WebQual method, there are several indicators that can be used to evaluate the performance of the website and the importance of users of the website. These indicators were used in analyzing which indicators were priority to improve using the IPA quadrant [19].

In a previous study, Arif Masthori et al, used the Modified Webqual method in the evaluation of the quality of local government website services. This research produced a modified Webqual method that can explore the quality of website services as well as the level of benefits obtained through the application of the website so that this method can be used to evaluate the quality of local government website services more comprehensively [20].

The current study aimed to analyze the level of service quality of the academic information system with a modified Webqual 4.0 approach, namely measuring the quality of AIS based on user's satisfaction by examining the perceptions and expectations of AIS users [21]. Measurements were made by distributing questionnaires to 100 respondents online, so the results of this study contributed to the Universitas Muhammadiyah Gombong to serve as a reference or evaluation material for further development, and this research as a reference for other researchers in conducting research related to academic information systems.

Method

This research used a descriptive technique with a quantitative approach.

The data was obtained from the structure of the questionnaire given to AIS users. This research was related to the perceptions and expectations of AIS users at Universitas Muhammadiyah Gombong, therefore, the questionnaire used was in the Likert scale.

The following are the stages in this research:
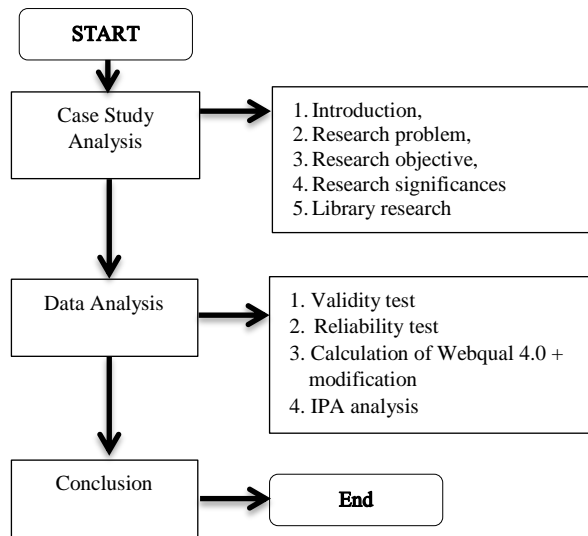
A.   *The Research Stages*

Figure 1. Research Stages

Figure 1 shows the flow of this research, case study analysis is a primary data collection process consisting of questionnaire results and secondary data related to supporting primary data, such as literature studies from books, journals, seminar proceedings, the internet, and others.

B.   *Webqual 4.0 Modification*

The method employed in this research was the Webqual 4.0 method which was modified with the addition of one dimension, namely the dimension of the quality of the user interface developed by F. Septa [16].

So that there were 5 dimensions in this research questionnaire instrument, namely the dimensions of usability quality, information quality dimensions, service interaction quality dimensions, user interface quality dimensions, and overall impression dimensions. **Table 1** below is the modified webqual 4.0 instrument in this study.

Table 1. Research Instruments

No	Variabel	Statement
1	Webqual 4.0: *Usability Quality*	UQ-1 User easy to learn to operate AIS UQ-2 User interaction with the AIS is clear and easy to understand UQ-3 AIS easy to navigate UQ-4 AIS easy to use UQ-5 AIS has an attractive appearance UQ-6 Design according to AIS type UQ-7 AIS contains competency values UQ-8 AIS creates a positive experience
2	Webqual 4.0: *Information Quality*	IQ-1 AIS provides accurate information IQ-2 AIS provides reliable information IQ-3 AIS provides timely information IQ-4 AIS provides relevant information IQ-5 AIS provides easy-to-understand information IQ-6 AIS provides detailed information IQ-7 AIS presents information in the right format
3	Webqual 4.0: *Service Interaction Quality*	SIQ-1 AIS has a good reputation SIQ-2 Users feel safe when making transactions SIQ-3 Users feel safe about personal information SIQ-4 AIS provides room for personalization SIQ-5 AIS provides space for community SIQ-6 AIS makes it easy to communicate with organizations SIQ-7 Users feel confident that the service received is as promised
4	F. Septa (2021): *User Interface Quality*	UIQ-1 AIS display using the right image UIQ-2 AIS display using the appropriate font(letters) UIQ-3 Display AIS Using appropriate colors UIQ-4 AIS display using appropriate page design UIQ-5 Link on AIS system works fine UIQ-6 Download / Loading speed on web pages

No	Variabel	Statement
5	Webqual 4.0: Overall Impression	OI Overall AIS system assessment

C. Sample

The population in this study were fulltime students in the academic year 2018 to 2021, they were 1234 people. The sample size to be taken in this study used the Slovin Equation with an error rate of 0.1, as follows [7]:

$$n = \frac{N}{1+(N*E^2)} \qquad (1)$$

Equation 1, showed where n was the sample size, N was the population size, and E was the percent allowance for inaccuracy due to sampling error that was still tolerable or desirable at 10%.

$$n = \frac{1647}{1+(1647*0.1^2)} = 94.28 \qquad (2)$$

Equation 2 showed the calculation of the sample results from the population obtained using the Slovin Equation, namely 94.28 rounded up to 95 people. The authors consider the 95 respondents to be the lower limit of the sample from the total population, so the authors took 100 respondents as the sample.

D. Questionnaire

The research instrument used a questionnaire distributed online using Google Forms provided by Google. The questionnaire created was based on the modified Webqual method. The questionnaire provided was close ended questions, so that respondents only chose the answers provided by the author, which consists of two types of answers and five Likert type answer scales. Each question had 2 choices, namely answers to perceptions/performance and expectations. **Table 2** and **Table 3** show the scale of respondents' measurement of the questionnaire

Table 2. Perception Questionnaire Likert Scale

Value	Interpretation
1	Very Dissatisfied
2	Not satisfied
3	Neutral
4	Satisfied
5	Very satisfied

Table 2 showed the scale of answers from the questionnaire on perceptions / performance

Table 3. Expectation Questionnaire Likert Scale

Value	Interpretation
1	Very Dissatisfied
2	Not satisfied
3	Neutral
4	Satisfied
5	Very satisfied

Table 3 shows the scale of answers from the questionnaire to expectations.

E. Collection of Questionnaires

The collection of questionnaires was carried out after the distribution of the questionnaires had been completed and closed.

The results of filling out the questionnaire were collected by downloading from Google forms in the form of a .csv file and then data processing and data analysis were carried out.

F. Importance Performance Analysis (IPA)

There were three analyzes that must be carried out in the analysis using IPA, namely the level of conformity analysis, the analysis of the gap level, and the IPA quadrant analysis or Cartesian diagram.

The first analysis carried out in IPA was a conformity analysis. There were two levels of conformity analysis, namely the analysis of the level of conformity per question item and the analysis of the level of total conformity. In calculating the per-item level of conformity analysis, it is shown in the **Equation 3** and the calculation of the total conformity level analysis is shown in the **Equation 4**.

$$Tki = \frac{Xi}{Yi}X100\% \qquad (3)$$

Equation 3 where Tk$_i$ is the level of conformity per item, X$_i$ is the perception score and Y$_i$ is the expectation score.

$$\sum Tki = \frac{\sum Xi}{\sum Yi}X100\% \qquad (4)$$

Equation 4 where Tk$_i$ is the total conformity level, $\sum$X$_i$ is *mean* score of perception and $\sum$Y$_i$ is the *sum* of the expectation scores.

Criteria for assessing user conformity level: User suitability level > 100%, Very satisfactory service meant the quality of service exceeded what was considered important by the user; User suitability level = 100%, Satisfying service meant the quality of service met what was considered important by the customer; Conformity level < 100% Unsatisfactory service meant that the quality of service was lacking/did not fulfill what was considered important by the user [22] [23] .

The second analysis was gap analysis. Gap analysis was used to assess the difference between the satisfaction level and the performance level of a website, if the total gap was positive then the user was considered satisfied with the company's services. Conversely, if not, the gap was negative, then the customer was less/dissatisfied with the service [23] [24] [25].

G. AIS Quality Classification

There were three quality classifications, good, moderate, and poor. To determine the classification, the authors determine the range of values as follows:

If the value of the analysis result was 0% - 55%, then the quality of the AIS was poor, if the value of the analysis was 56% – 75%, then the quality of the AIS was moderate and if the value of the analysis was 76% – 100%, then the quality of the AIS was good.

Results and Discussion

The results and discussion of this study were in the data analysis process, which displayed the results of the instrument's feasibility test to be used in research using validity tests, reliability tests and results of data analysis using IPA.

A. Validity Test

The results of the collected questionnaires were then tested for validity. Validity test had to be conducted to find out whether the questionnaire results were valid or not, testing was done using the SPSS application on the answers to expectations and performance. From the results of the validity test using SPSS by comparing the value of *rcount* (Pearson correlation) with *rtable*, it was found that all the question items on the questionnaire were valid.

The basis for the decisions taken can been seen as follows:

1. If the rcount value was > the rtable value, then the questionnaire was declared valid

2. If the rcount value was < than the rtable value, then the questionnaire was declared invalid.

Table 4 are the results of the validity test of the respondents' answers to this research questionnaire.

Table 4. Results of Perception/Performance and expectation Level Validity Test

No	Item	Perception/Performance			Expectation		
		rcount	*rtable*	*status*	*rcount*	*rtable*	*status*
1	UQ-1	0,912	0,1966	Valid	0,967	0,1966	Valid
2	UQ-2	0,933	0,1966	Valid	0,969	0,1966	Valid
3	UQ-3	0,877	0,1966	Valid	0,953	0,1966	Valid
4	UQ-4	0,890	0,1966	Valid	0,959	0,1966	Valid
5	UQ-5	0,869	0,1966	Valid	0,931	0,1966	Valid
6	UQ-6	0,864	0,1966	Valid	0,945	0,1966	Valid
7	UQ-7	0,910	0,1966	Valid	0,943	0,1966	Valid
8	UQ-8	0,896	0,1966	Valid	0,968	0,1966	Valid
9	IQ-1	0,912	0,1966	Valid	0,960	0,1966	Valid
10	IQ-2	0,922	0,1966	Valid	0,941	0,1966	Valid

No	Item	Perception/Performance			Expectation		
		rcount	rtable	status	rcount	rtable	status
11	IQ-3	0,907	0,1966	Valid	0,955	0,1966	Valid
12	IQ-4	0,895	0,1966	Valid	0,943	0,1966	Valid
13	IQ-5	0,941	0,1966	Valid	0,951	0,1966	Valid
14	IQ-6	0,911	0,1966	Valid	0,951	0,1966	Valid
15	IQ-7	0,908	0,1966	Valid	0,975	0,1966	Valid
16	SIQ-1	0,923	0,1966	Valid	0,974	0,1966	Valid
17	SIQ-2	0,909	0,1966	Valid	0,955	0,1966	Valid
18	SIQ-3	0,887	0,1966	Valid	0,965	0,1966	Valid
19	SIQ-4	0,897	0,1966	Valid	0,954	0,1966	Valid
20	SIQ-5	0,868	0,1966	Valid	0,949	0,1966	Valid
21	SIQ-6	0,869	0,1966	Valid	0,945	0,1966	Valid
22	SIQ-7	0,914	0,1966	Valid	0,966	0,1966	Valid
23	UIQ-1	0,887	0,1966	Valid	0,968	0,1966	Valid
24	UIQ-2	0,882	0,1966	Valid	0,963	0,1966	Valid
25	UIQ-3	0,866	0,1966	Valid	0,955	0,1966	Valid
26	UIQ-4	0,884	0,1966	Valid	0,969	0,1966	Valid
27	UIQ-5	0,902	0,1966	Valid	0,952	0,1966	Valid
28	UIQ-6	0,830	0,1966	Valid	0,918	0,1966	Valid
29	OI-1	0,887	0,1966	Valid	0,967	0,1966	Valid

Table 4 shows the results of the validity test of the answers to the questionnaire questions on perception/performance and expectation. The perception/performance and expectation columns can be seen that the r-table value was sought at a significance of 0.05 with 2-sided test and the amount of data (n) = 100 so that df=n-2 (100-2)=98, then the r-table was 0.1966.

While the correlation for items UQ-1 until OI-1 both in the perception/performance column and expectations of all values was more than 0.1966, if r-count > r-table then it can be concluded that these items were significantly correlated with the total score (declared valid) so that it can be concluded that the instrument items were valid

B. Reliability Test

The next research instrument test was the reliability test. Testing the results of the questionnaire on the level of expectations and the level of performance of the AIS website was based on user's perceptions. The results of the reliability test showed that the level of expectation and the level of performance were reliable for further use. Table 5 was the result of the reliability test of the respondents' answers to this research questionnaire.

Table 5. Reliability Test Results Perception/Performance Level and Expectations

No	Level	Cronbach's Alpha	Status
1	Perception/Performance	0.991	Reliable
2	Expectation	0.997	Reliable

Based on Table 5, the results of the reliability test at the level of perception/performance and expectations were reliable, because all Cronbach's alpha values were greater than 0.70 [26]. From the results of the instrument test on the validity test and reliability test, the questionnaire in this study deserved to be used as research material.

C. Importance Performance Analysis

Tables 6, 7, 8, 9 and 10 show the calculation of the level of conformity analysis in each dimension.

Table 6. Level of Conformity of Quality Usability Dimensions

No	Item	Perception Score	Expectation Score	Tk_i
1	UQ-1	338	363	93,11%
2	UQ-2	333	364	91,48%
3	UQ-3	321	357	89,92%
4	UQ-4	335	367	91,28%
5	UQ-5	321	359	89,42%
6	UQ-6	322	357	90,20%
7	UQ-7	331	360	91,94%
8	UQ-8	333	361	92,24%
Total		2634	2888	91,20%

Table 6 is a calculation of the level of conformity on the dimensions of usability quality.

Table 7. Level of Conformity of Information Quality Dimensions

No	Item	Perception Score	Expectation Score	Tki
1	IQ-1	329	361	91,14%
2	IQ-2	327	359	91,09%
3	IQ-3	324	360	90,00%
4	IQ-4	328	359	91,36%
5	IQ-5	334	363	92,01%
6	IQ-6	329	361	91,14%
7	IQ-7	329	364	90,38%
Total		2300	2527	91,02%

Table 7 is a calculation of the level of conformity on the dimensions of information quality.

Table 8. Level of Conformity of Service Interaction Quality Dimensions

No	Item	Perception Score	Expectation Score	Tki
1	SIQ-1	335	362	92,54%
2	SIQ-2	327	360	90,83%
3	SIQ-3	331	364	90,93%
4	SIQ-4	323	358	90,22%
5	SIQ-5	314	355	88,45%
6	SIQ-6	315	357	88,24%
7	SIQ-7	323	361	89,47%
Total		2268	2517	90,11%

Table 8 is a calculation of the level of conformity on the dimensions of service interaction quality.

Table 9. Level of Conformity of Interface Quality Dimensions

No	Item	Perception Score	Expectation Score	Tki
1	UIQ-1	325	359	90,53%
2	UIQ-2	336	360	93,33%
3	UIQ-3	333	365	91,23%
4	UIQ-4	334	362	92,27%
5	UIQ-5	330	362	91,16%
6	UIQ-6	319	358	89,11%
Total		1977	2166	91,27%

Table 9 is a calculation of the level of conformity on the dimensions of interface quality.

Table 10. Total Conformity Level

Perception Score	Expectation Score	∑ Tki
9179	10098	90,90%

Table 10 is a calculation of the overall level of conformity.

Based on **Tables 6**, **7**, **8**, and **9**, it was known that the value of the level of conformity on the usability quality dimension was 91.20%, the information quality dimension is 91.02%, the service interaction quality dimension was 90.11% and the user interface quality dimension was 91, 27%. While **Table 10** was the value of the total conformity level of 90.90%. From the results of the level of suitability of the dimensions and the level of total conformity, it can be concluded that user was not satisfied with AIK services.

After the analysis of the level of conformity was complete, the next analysis was the analysis of the level of the gap, which was to calculate the value of the gap. It was done by calculating the average performance minus the average expectation. The following was the result of calculating the gap value in this study.

Tables 11, 12, 13, 14, and 15 show the calculation of the gap level analysis in each dimension.

Table 11. Gap Level of Usability Quality Dimension

No	Item	Average Perception	Average Expectations	Gap
1	UQ-1	3,38	3,63	-0,25
2	UQ-2	3,33	3,64	-0,31
3	UQ-3	3,21	3,57	-0,36
4	UQ-4	3,35	3,67	-0,32
5	UQ-5	3,21	3,59	-0,38
6	UQ-6	3,22	3,57	-0,35
7	UQ-7	3,31	3,6	-0,29
8	UQ-8	3,33	3,61	-0,28
Average		32,925	36,100	-0,3175

Table 11 is the calculation of the gap level on the usability quality dimension.

Table 12. Gap Level of Information Quality Dimension

No	Item	Average Perception	Average Expectations	Gap
1	IQ-1	3,29	3,61	-0,32
2	IQ-2	3,27	3,59	-0,32
3	IQ-3	3,24	3,6	-0,36
4	IQ-4	3,28	3,59	-0,31
5	IQ-5	3,34	3,63	-0,29
6	IQ-6	3,29	3,61	-0,32
7	IQ-7	3,29	3,64	-0,35
Average		32,857	36,100	-0,3242

Table 12 is a calculation of the level of gap in the dimensions of information quality.

Table 13. Gap Level of Service Interaction Quality Dimension

No	Item	Average Perception	Average Expectations	Gap
1	SIQ-1	3,35	3,62	-0,27
2	SIQ-2	3,27	3,6	-0,33
3	SIQ-3	3,31	3,64	-0,33
4	SIQ-4	3,23	3,58	-0,35
5	SIQ-5	3,14	3,55	-0,41
6	SIQ-6	3,15	3,57	-0,42
7	SIQ-7	3,23	3,61	-0,38
Average		3,24	35,957	-0,3557

Table 13 is the calculation of the gap level on the dimensions of service interaction quality.

Table 14. Gap Level of Interface Quality Dimension

No	Item	Average Perception	Average Expectations	Gap
1	UIQ-1	3,25	3,59	-0,34
2	UIQ-2	3,36	3,60	-0,24
3	UIQ-3	3,33	3,65	-0,32
4	UIQ-4	3,34	3,62	-0,28
5	UIQ-5	3,30	3,62	-0,32
6	UIQ-6	3,19	3,58	-0,39
Average		32,950	36,100	-0,3150

Table 14 is the calculation of the gap level on the interface quality dimension.

Table 15. Total Gap Level

Average Perception	Average Expectations	∑ *gap*
3,2783	3,6064	-0,3281

In **Table 15** is the calculation of the overall level of inequality.

Based on **Tables 11**, **12**, **13**, **14**, and **15**, it was known that all gaps were negative (–), with an average gap value of –0.3281. From these calculations, it was known that all current dimensions cannot meet user satisfaction, because expectations users was higher than the perception of AIK services.

D. Cartesian Diagram Analysis

After the gap level analysis was complete, the next analysis was a cartesian diagram analysis which was needed for the division of the quadrant region to the items that had been calculated, namely the level of expectations and the level of performance of the service.
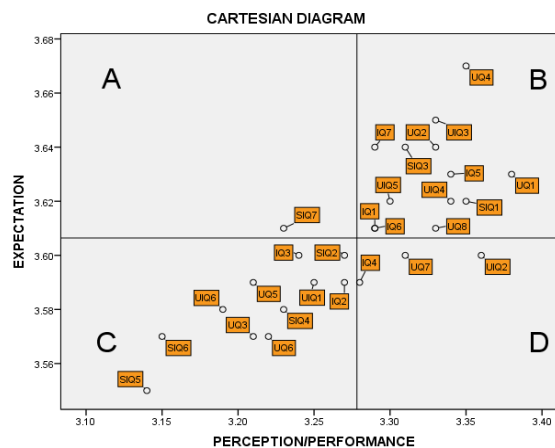

Figure 2. Cartesian Diagram

Figure 2 shows a Cartesian diagram which is the division of the quadrant region to items that have been calculated between the level of performance and expectations. Based on **Figure 2** it can be concluded that the SIQ7 item was in quadrant A, which meant it was in the top priority area, because expectations were high. but perception/performance was low, while items UQ4, UIQ3, UQ2, IQ7, SIQ3, IQ5, UQ1, SIQ1, UIQ4, UIQ5, UQ8, IQ1, IQ6 were in quadrant B which meant it was in the priority area of achievement so it must be maintained because expectations were high and performance was also high, while the items IQ3, SIQ2, IQ2, UIQ1, UQ5, UIQ6, SIQ4, UQ3, UQ6, SIQ6, SIQ5 were in quadrant C meaning that they were in the low priority area, because expectations were low and performance was also low, and items IQ4, UQ7, UIQ2 was in quadrant D, meaning that it was in the redundant area because expectations were low but performance was high.

Based on the results of research using IPA, it was known that the level of conformity of the usability quality dimension (usability quality) was 91.20%, the information quality dimension (information quality) was 91.02%, the Service Interaction Quality dimension (service interaction quality) was 90.11% and the dimension of user interface quality (user interface quality) was 91.27%. From these results, it can be concluded that the dimension with the highest level of conformity was the user interface quality dimension and the lowest was the information quality dimension.

And the result of the total conformity rate was 90.90%. It meant that users were not satisfied with AIS services. The results of calculating the gap level, it was known that the usability quality dimension gap was -0.3175, the information quality dimension (information quality) was -0.3242, the service interaction quality dimension was -0.3557 and the user interface dimension was quality (user interface quality) of -0.3150. From these results, it can be concluded that the dimension with the largest gap value was the service interaction quality dimension, and the dimension with the lowest gap value was the user interface quality dimension. The average gap value was -0.3281, which meant that users were less satisfied with using AIS services because expectations were higher than AIS Perception.

E. Quality Classification Analysis

After the data analysis was completed, then the results of the study was entered to be classified against the quality of AIS.

From the value of the total conformity level of 90.90%, the results of the analysis using importance performance analysis (IPA) indicated the quality of AIS was of "good" quality.

Based on the results between the total conformity level and quality classification, which stated that the total conformity level of users was dissatisfied with SIMAK services but in the Quality Classification Analysis section showed that SIMAK was good in quality. This was because the Cartesian diagram analysis showed that there was one factor in the top priority (quadrant A), namely high expectations but low performance. However, there were more other factors in the high priority achievements that must be maintained (quadrant B), namely high expectations and high performance.

Conclusion

The conclusion of this study was that an analysis using importance-performance analysis (IPA) obtained a total conformity level value of 90.90%. Based on the quality classification analysis, the service quality of the SIMAK system used by Universitas Muhammadiyah Gombong was in the good classification, or good quality but the average result indicated that the average gap value was -0.3281. This meant that expectations were higher than perceptions of SIMAK so that users were not satisfied in using SIMAK services. It was because based on the Cartesian diagram in quadrant A the factors that caused users to feel dissatisfied were users feel unsure that the service received was in accordance with promises. It was this factor that can be used as reference material and evaluation of future SIMAK system services for the purposes of repairing or improving referencing system services.

The conclusion of this study was that the analysis using importance-performance analysis (IPA) in the service quality of the AIS used by the Universitas Muhammadiyah Gombong was in good classification or good quality.

Analysis of the use of IPA obtained a total conformity level of 90.90%. An average gap value was -0.3281 which meant users were less satisfied with using AIS services because their expectations were higher than AIS perceptions.

Suggestions for future researchers with the same case study, the authors suggest adding variables in their research or using different methods, to get more coplete and detailed results.

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