

Quality Satisfaction of Academic Service Industrial Engineering in Private Higher Education KOPERTIS VII Surabaya Area

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Abstract. Higher education is always required to provide the development of Science and Technology. In order to realize the climate of quality education, higher education must actively build internal quality assurance system. To prove that the internal quality assurance system has been implemented properly and correctly, higher education should be accredited by external quality assurance BAN-PT institution. In fact from 13 technical programs of private higher education industrial Engineering in higher education accredited A by 24%, accredited higher education B by 38% and accredited higher education C by 38%. Therefore, higher education should continue to improve the quality of academic services. This study intends to determine the level of student satisfaction and know the attributes that affect service satisfaction. There are many methods used to measure the quality of service to consumers. One method is SERVQUAL and Importance Performance Analysis. Based on customer satisfaction index result, user satisfaction level on service quality at surabaya university is 54,8%, University of WR Supratman equal to 58% and institute of adhitama technology is 60%. Based on the IPA analysis there is a main priority attribute that needs to be repaired the university.

Keywords: Service Quality (SERVQUAL), Importance Performance Analysis (IPA), customer satisfaction index (CSI)

1. Introduction

Coordination of private higher education area VII is an institution that coordinates Higher Education in 7 provinces. Accreditation status in KOPERTIS Higher Education VII area of Surabaya happened imbalance, where from 13 industrial engineering majors Kopertis VII of Surabaya region there are only 3 majors of accreditation of industrial engineering A, 5 major in industrial engineering accreditation B, 5 majoring in industrial engineering accreditation C. To realize a quality climate, the university must actively build system and service quality. The importance of customer engagement in the context of higher education makes the student the main determinant of service success. Satisfying service will meet certain needs. Students will choose and buy based on their expectations of the value of products and services presented by higher education.

Leadership with service quality. Leadership in college is required to be able to create a culture of good service with high motivation so that employees have maximum performance [1]. Ongoing innovation requires academic institutions to find new ways to provide services to customers more effectively [2]. In the previous of the research i.e The importance of the analytical performance (IPA) model and its application as a management tool to assess the satisfaction of students in the HE sector is

provided. The goal is to implement new IPA and new ways, conducting analyses on three levels; Individual participants, for individual items and at a factor level. The application is practically illustrated, assessing the gaps between the important ones placed on the satisfaction attributes of certain students and the appropriate level of perceived performance students manifest. The survey was conducted from 823 students who studied at four Malaysian private universities analyzed using factor analysis and the IPA model was used to identify performance gaps – important and explore ratings as well as disconnection zones Alternative [3]. On research [4], This approach complements the knowledge of the effects of education and provides information about the process and its elements. Comparative analysis in different types of schools provides information on strengths and weaknesses of the preparatory process of graduates for the labour market, useful for schools to develop activities. The Service quality method allows to analyse the process and its elements, helping to identify strong and weak points. Based on this background then this study intends to determine the level of student satisfaction and know the attributes that affect service satisfaction. In this research use three higher education is University if WR Supratman, University of Surabaya, and Institute of adhitama technology. There are many methods in measuring the quality of service one of them is the service quality method. importance performance analysis is used to determine the attributes that need improvement. customer satisfaction index is used to determine the level of student satisfaction on services in higher education.

2. Methods

2.1. Service Quality

Service Quality is a concept that accurately represents the core of a service's performance, that is, the comparison of the reliability in the service encounter performed by the consumer. In service quality have 5 attributes, namely tangibles, responsiveness, reliability, assurance, empathy[4]. Service Quality can be recognized by comparing the customers' perceptions of the service received or obtained with the expected service. If the reality is more than expected, then the service can be said to be qualified whereas if the reality is less than what is expected, then the service can be said not qualified and if the fact is equal to expectations then the service is called satisfactory [5].

$$GS = PS - ES \quad (1)$$

Description:

GS = Gap Score
 PS = Perception Score
 ES = Expectation Score

The value of the positive gap will indicate that service quality meets expectations. While the negative gap value indicates that the expectation is not met

2.2. Importance Performance Analysis

Importance-Performance Analysis (IPA) is a technique for measuring customer satisfaction with an organization's product or service. Customer satisfaction is a function of customer perception, involving the quality of a product or service and an organization's customers. Therefore, IPA measures satisfaction from customer satisfaction surveys based on two components of the product or service attribute: the importance of the product or service for the customer and the organization's performance in providing the product or service [6].

$$Tki = \frac{Xi}{Yi} \times 100\% \quad (2)$$

Description:

Tki = Respondent conformity level
 Xi = Performance scores
 Yi = Rating expectation score

Calculation of X performance average and Y expectation of all students

$$\bar{X} = \frac{\sum Xi}{n}, \bar{Y} = \frac{\sum Yi}{n} \tag{3}$$

Description:

- \bar{X} = Score average level performance
- \bar{Y} = Student's average expectation level
- $\sum Xi$ = Number of performance level scores
- $\sum Yi$ = Number of expectation level scores
- n = Number of respondents

Calculation of average performance and expectation of all attributes

$$\bar{X} = \frac{\sum_{i=1}^N Xi}{k}, \bar{Y} = \frac{\sum_{i=1}^N Yi}{k} \tag{4}$$

Description:

- K = Number of attributes that can affect Student satisfaction

2.3. Customer Satisfaction Index

Customer Satisfaction Index is a measurement scale that describes the level of customer satisfaction of a product. Consumer satisfaction is something important to continue the consistency of a product. an insignificant decrease in satisfaction can lead to a huge decrease in loyalty [7]. The following is a step in knowing student satisfaction:

- Calculate the Mean Importance Score using a formula :

$$MIS = \frac{(\sum_{i=1}^n yi)}{n} \tag{5}$$

Description:

- MIS = Mean Importance Score
- N = Number of Respondents

- Calculating Weighting Factor (WF), this weight is the percentage of MIS values per attribute to the total MIS of all attributes :

$$WF = \frac{MISi}{(\sum_{i=1}^p MISi)} \times 100\% \tag{6}$$

Description:

- p = Number of attributes
- MISi = Mean Importance Score attributes i

- Calculating Weighted Score (WS), this weight is the multiplication of WF with the average level of satisfaction :

$$Wsi = WFi \times MSS \tag{7}$$

Description:

- MSS = Mean Satisfaction Score

- Calculate the Customer Satisfaction Index using the formula :

$$CSI = \frac{\sum_{i=1}^p WSi}{HS} \times 100\% \tag{8}$$

Description:

- CSI = Customer Satisfaction Index (%)
- p = Number of attributes
- HS = Maximum scale used

2.4. Flow This Research

The flow of this research is as follows:

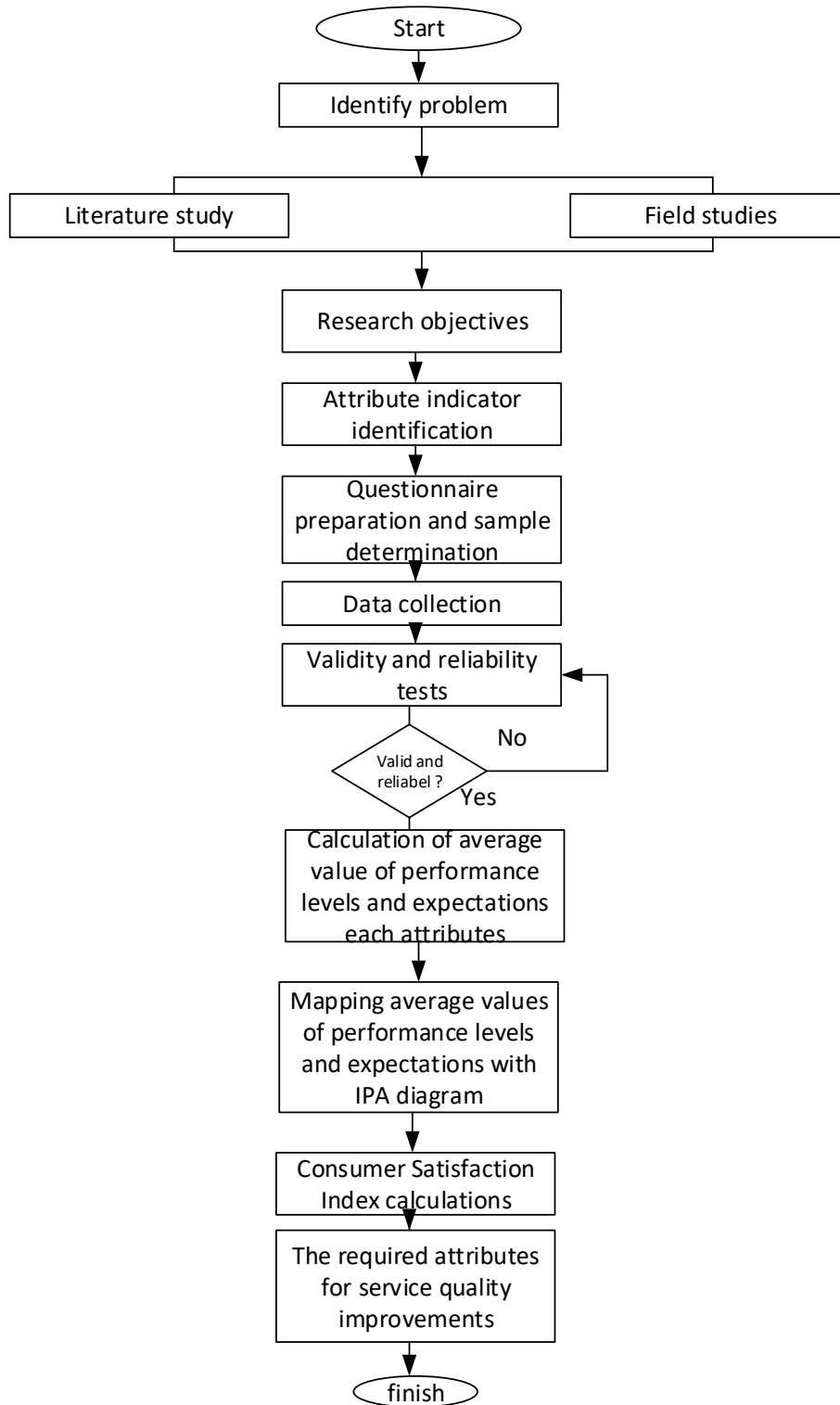


Figure 1. Flow of this research

In Figure 1 can be described for the research flow begins taking samples on accreditation of higher education, then knowing the quality of service in higher education using the service quality method to determine the value of expectations and performance of each college. knowing the attributes that need improvement by using the importance performance analysis method and then knowing the index of student satisfaction in each higher education.

2.5. Attributes and indicators

Following are the attributes and indicators in the research:

Table 1. Tangible

Tangible	
1	Classroom lecture Media (seats, AC, LCD, WIFI)
2	Laboratory facility completeness
3	Collection of books and library reading Room
4	Park presence and public space
5	Bathroom facilities and Musola are clean, comfortable and adequate
6	Availability of sports facilities, parking area, student room and cafeteria

Table 2. Reliability

Reliability	
1	Clarity of information on academic services (lecture schedule, course registration, SPP payment, practice, PKL, KKN etc)
2	Discipline and ability of lecturers and officers to serve students
3	Timeliness of academic services
4	Syllabus/SAP availability that supports the learning process
5	The curriculum is well organized, structured and suitable for employment

Table 3. Responsiveness

Responsiveness	
1	Lecturer and employee responses in response to student criticism and advice
2	Speed in administration services
3	Responsiveness in student counseling and counselling activities

Table 4. Assurance

Assurance	
1	Accreditation of courses
2	Faculty skills in delivering coursework
3	Employees ' ability to serve students
4	Campus readiness in Emergency response (example: Fire, earthquake)

Table 5. Empathy

Empathy	
1	Lecturer in guiding/counseling for student activities
2	Officers and lecturers motivate students to improve academic achievement
3	Employee care and friendliness (giving full attention) when providing service.
4	Alumni participation in supporting academic and non-academic development

3. Result and Discussion

3.1. Data Collection

On the research of high-education objects used to represent from the College accreditation status of Industrial engineering courses A, B and C. For the accreditation of Industrial Engineering courses A is represented by the University of Surabaya, accreditation B is represented by the Institute of Technology Adhi Tama Surabaya. Accreditation of C is represented by University of WR.Supratman. Objects are taken based on distance and place and ease with the researcher's place. Samples taken using the Slovin formula and error is 5%. Samples are active students of each of these colleges. Sample for university Surabaya students is 169, Institute of Technology Adhi Tama Surabaya is 157, University of WR.Supratman is 57, So the total sample is 383.

3.2. Diagram IPA of Quadrant Expectation and Performance University of WR Supratman

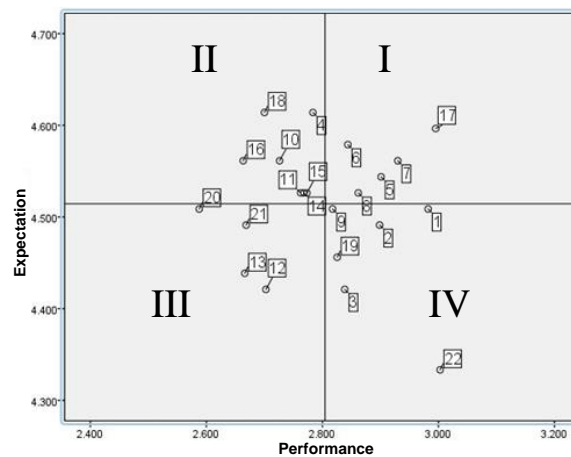


Figure 2. Diagram IPA of Quadrant Expectation and Performance University of WR Supratman

In Figure 2 explains about the attributes that exist on the four quadrants. The first quadrant attribute is considered important and the service provided is good. While the attributes in the third and fourth quadrants are attributes that are considered unimportant. The attributes on the two quadrants are considered important but the performance of the service is low so it needs improvement, these attributes are:

- a. Attribute number four on the tangible indicator is park and public space
- b. Attribute number ten, eleven and fourteen on the responsiveness indicator is the presence of syllabus to support the learning, curriculum is good and structured and suitable for employment and ease in guidance activities
- c. Attribute number fifteen, sixteen and eighteen on the assurance indicator is accreditation of courses, skills of lecturers in delivering coursework, and readiness of the campus in emergency response activities

3.3. Diagram IPA of Quadrant Expectation and Performance ITATS

The attributes on the two quadrants are considered important but the performance of the service is low so it needs improvement, these attributes are:

- a. Attribute number three on the tangible indicator is library of books and reading rooms
- b. Attribute number nine, ten and eleven on the responsiveness indicator is timeliness of academic services, presence of syllabus to support the learning, curriculum is good and structured.

- c. Attribute number nineteen, twenty and twenty one on the empathy indicator is easy contact lecturer for guidance, officers and lecturers motivate students to improve academic achievement and Employee care and friendliness at the time of the establishment.

3.4. Diagram IPA of Quadrant Expectation and Performance University of Surabaya

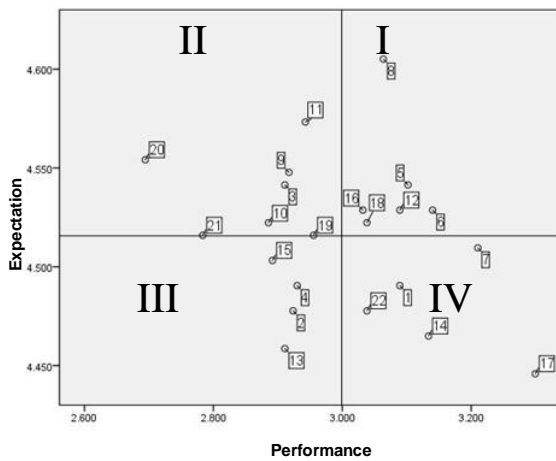


Figure 3. Diagram IPA of Quadrant Expectation and Performance ITATS

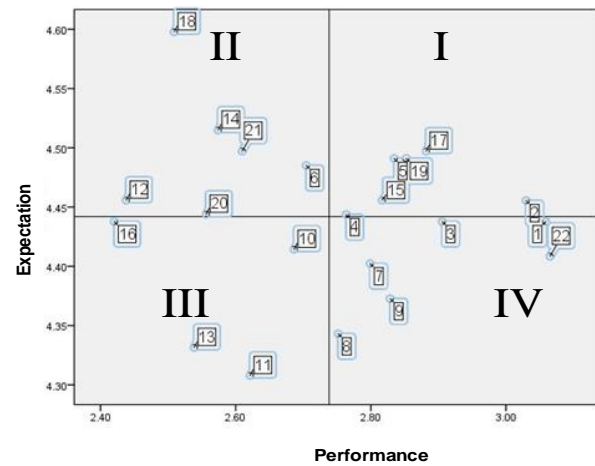


Figure 4. Diagram IPA of Quadrant Expectation and Performance University of Surabaya

The attributes on the two quadrants are considered important but the performance of the service is low so it needs improvement, these attributes are:

- a. Attribute number six on the tangible indicator is availability of sports facilities, parking area, student room and cafeteria
- b. Attribute number twelve and fourteen on the responsiveness indicator is lecturer and employee responses in response to student criticism and advice, ease of student guidance and counseling activities.
- c. Attribute number eighteen on assurance indicator is campus readiness in emergency response activities.
- d. Attribute number twenty and twenty one on empathy indicator is officers and lecturers motivate students to improve academic achievement and Employee care and friendliness at the time of the establishment

3.5. Customer Satisfaction Index

The following are calculation results of customer Satisfaction Index:

Table 6. Customer Satisfaction Index

Higher Education	CSI
University of Surabaya	54,8%
Institute of Technology Adhi Tama Surabaya	60%
University of WR Supratman	56%

Based on Table 1 it can be seen that the value of CSI in the three universities has a value of 54% to 60%. the value of CSI which is in the interval of 51-65% represents that consumers are quite satisfied with the services provided

4. Conclusion

Attributes need improvement in University WR Supratman is park and public space, presence of syllabus to support the learning, curriculum is good and structured and suitable for employment and ease in guidance activities, accreditation of courses, skills of lecturers in delivering coursework, and readiness of the campus in emergency response activities. Attributes need improvement in ITATS is library of books and reading rooms, timeliness of academic services, presence of syllabus to support the learning, curriculum is good and structured, easy contact lecturer for guidance, officers and lecturers motivate students to improve academic achievement and Employee care and friendliness at the time of the establishment

Attributes need improvement in University of Surabaya is availability of sports facilities, parking area, student room and cafeteria, lecturer and employee responses in response to student criticism and advice, ease of student guidance and counseling activities, campus readiness in emergency response activities, officers and lecturers motivate students to improve academic achievement and Employee care and friendliness at the time of the establishment. The percentage of student satisfaction level of college in Kopertis VII area of University of Surabaya in industrial engineering is 54.8%, which means that the students feel quite satisfied. Percentage of satisfaction level of college students in Kopertis VII Surabaya area of ITATS in industrial engineering at 60% means that students feel quite satisfied. Percentage of satisfaction level of college students in Kopertis VII Surabaya area in Industrial Engineering of University WR Supratman is 56.1% meaning that students feel quite satisfied with academic services. For further research should define a wider scale of research in faculty scope and additional attributes.

5. References

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