

Measurement of Student Satisfaction Using Customer Satisfaction Index (CSI)

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Abstract

This study will measure the level of student satisfaction at a university in Bandung using a service quality model and student satisfactory inventory model. The measuring instrument used was a questionnaire with a sample of 100 respondents. Testing of measuring instruments by comparing the calculated r value (corrected item total correlation) with the r table. Reliability testing uses alpha values with table alpha values. Measuring the level of satisfaction using the customer satisfaction index (CSI). The results showed a CSI score of 94.04, which means that student satisfaction with campus services is very satisfied.

Keywords: Student Satisfaction, Service Quality, Customer Satisfaction Index (CSI).

1. Introduction

Customer satisfaction is a very important concept for many industries, especially service organizations (Neupane [1]). According to Kotler et al in Pardiyono [2], consumer satisfaction is the level of a person's feelings after comparing the performance or results he feels compared to his expectations. In higher education students are considered the "main customers" (Hill [3]). Measurement of student satisfaction related to campus services is rarely carried out so it is not known the level of student satisfaction, in this case the customer, to the services provided by the college.

Universities often focus on developing programs but are often less effective in measuring program outcomes. Measuring program results can be done efficiently and effectively through the use of survey research. Higher education is a service industry and service quality or student satisfaction is an important determinant of the success of higher education institutions (Landrum et [4]). Student satisfaction is important in evaluating educational programs because it is related to program quality and performance (Kuo, et al [9]). Based on this, this study will measure the level of student satisfaction using the service quality service quality model and the student satisfaction inventory model.

2. Methodology

The quality of a college is very much determined by the quality of service provided, quality service can be identified through customer satisfaction, in this case, students. Higher education as a service industry must focus on the importance of customer service, because customer service and satisfaction are vital aspects in order to survive in winning the competition (Tjiptono [5]). According to Parasuraman in Indrayani and Pardiyono [6], service quality is based on a multi-item scale designed

to measure customer expectations and perceptions, as well as the gap between the two. The five main dimensions of service quality are reliability (the company's ability to provide services to customers), responsiveness (help and provide services to students quickly), assurance (ability and politeness as well as trustworthiness possessed by employees), empathy (employee attention and understanding of student needs), tangible (physical appearance, equipment, employees and means of communication).

The model of higher education service quality used is the student satisfaction inventory model. According to Obiekwe in Pardiyono [7] This model consists of several dimensions; Academic Services (services provided to students in order to achieve student academic goals. These services include libraries, computer laboratories, tutorials and study rooms). Admissions and Financial Aid Effectiveness (the ability of the campus to propose and provide financial assistance programs for students). Campus Climate (campuses can foster a sense of pride and ownership and assess the effectiveness of campus and student communication). Campus Support Services (quality of service and student support programs). Registration Effectiveness (registration and billing of SPP). Responsiveness to Diverse Populations (higher education commitment to specific groups of students, for example students with disabilities and part-time students). Safety and Security (the responsiveness of the university to maintain personal security and the campus environment). Service Excellence (staff attitude towards students (front-line staff, library, laboratory, etc.)). Student Centeredness. (the college's efforts to reward and place students on an important part of the campus).

Customer Satisfaction Index (CSI)

Method of customer satisfaction index (Customer Satisfaction Index) is an index to measure the level of customer satisfaction based on certain attributes. There are five steps in calculating the Customer Satisfaction Index (CSI), namely: Scaled value of the average level of importance and performance

$$MIS = (\sum_{i=1}^n Y_i) / n \quad (1)$$

$$MSS = (\sum_{i=1}^n X_i) / n \quad (2)$$

Information n = number of respondents

Y_i = Importance value of i - attribute

X_i = The performance value of the i th attribute

Make Weight Factors (WF). This weight is the percentage of the MIS value per attribute to the total MIS of all attributes. Make a Weight Score (WS). This weight is the multiplication of the Weight Factor (WF) and the average level of satisfaction (Mean Satisfaction = MSS)

$$WS_i = WF_i \times MSS \quad (3)$$

Calculating the Weighted Total (WT), which is adding the weighted score of all variables. Determining the Customer Satisfaction Index (CSI), dividing the total weighted by the nominal scale used then multiplied by 100 percent. The CSI formula is as follows:

$$CSI = (\sum_{i=1}^n WS_i) / 5 \times 100\% \quad (4)$$

Information:

P = number of attributes of interest

5 = number of scale

Table 1. Criteria for the Value of the Customer Satisfaction Index (CSI)

| No | Index (100%) | Criteria |
|----|---------------------------------|-----------------|
| 1 | 80% < satisfaction index ≤ 100% | Very satisfied |
| 2 | 60% < satisfaction index ≤ 80% | Satisfied |
| 3 | 40% < satisfaction index ≤ 60% | Quite satisfied |
| 4 | 20% < satisfaction index ≤ 40% | Less satisfied |
| 5 | 0% < satisfaction index ≤ 20% | Not satisfied |

3. Result and Discussion

This research was conducted at one of the universities in the city of Bandung by determining the number of samples according to the rules of Hair et al [8] is a minimum of 100. The data collection tool uses a Likert scale questionnaire, which is a list of questions according to the variables to be studied (Jogiyanto in Pardiyono [2]). According to Gunawan in Pardiyono and Nugrahati [9] Likert scale is often used for questionnaires that reveal a person's attitudes and opinions towards a phenomenon.

Validity and Reliability Test

According to Sitinjak and Sugiarto in Pardiyono and Indrayani [10], a questionnaire will be valid if it is able to measure what you want to measure accurately. Validity test is done by comparing the calculated r value (corrected item total correlation) with the r table. Based on the results of the calculation, it is obtained that all the questions, the value of r count is greater than r table, so all questions are valid.

Table 2. Validity Test Results

| Code | Item | R Value | | Conclusion |
|-----------------------|---|---------------------|-------------------|------------|
| | | Level of importance | Performance Level | |
| <i>Responsiveness</i> | | | | |
| Res 1 | Officers are fast and responsive in solving problems | 0,868 | 0,926 | Valid |
| Res 2 | Officers are always ready to serve student needs | 0,946 | 0,909 | Valid |
| <i>Assurance</i> | | | | |
| Ass 1 | The officer has a good and precise understanding | 0,811 | 0,917 | Valid |
| Ass 2 | Officers have the ability to solve problems | 0,861 | 0,897 | Valid |
| Ass 3 | Officers have good communication skills | 0,875 | 0,847 | Valid |
| Ass 4 | There is a sense of security and comfort on campus | 0,892 | 0,915 | Valid |
| Ass 5 | There is information on job vacancies | 0,861 | 0,912 | Valid |
| <i>Empathy</i> | | | | |
| Ep 1 | Guarantee of follow-up on every complaint | 0,936 | 0,888 | Valid |
| Ep 2 | Officers are always ready to help students | 0,761 | 0,821 | Valid |
| Ep 3 | Officers intend to solve the problem | 0,860 | 0,887 | Valid |
| Ep 4 | The clerk gave the impression of understanding the complaint | 0,895 | 0,854 | Valid |
| <i>Tangible</i> | | | | |
| Tg 1 | The lecturer provides Handout of the courses being taught | 0,921 | 0,919 | Valid |
| Tg 2 | The teaching and learning process, the lecturer refers to the Text Book | 0,867 | 0,812 | Valid |
| Tg 3 | Ease of accessing and obtaining scientific journals | 0,890 | 0,923 | Valid |
| Tg 4 | Clean and comfortable study room | 0,914 | 0,902 | Valid |

| Code | Item | R Value | | Conclusion |
|---|---|---------------------|-------------------|------------|
| | | Level of importance | Performance Level | |
| Tg 5 | The study room is equipped with LCD projector facilities | 0,934 | 0,878 | Valid |
| Academic Services | | | | |
| AS 1 | The Head of the Department is easy to contact | 0,849 | 0,885 | Valid |
| AS 2 | The head of the department always helps students complete their education | 0,947 | 0,809 | Valid |
| AS 3 | Technical assistants are always available to help students | 0,860 | 0,902 | Valid |
| AS 4 | Availability of on line library services | 0,961 | 0,832 | Valid |
| Admissions and Financial Aid Effectiveness | | | | |
| AF 1 | Easy payment procedures and methods | 0,825 | 0,920 | Valid |
| AF 2 | The campus provides scholarships for its students | 0,887 | 0,854 | Valid |
| AF 3 | The campus always informs about scholarships from outside the campus | 0,900 | 0,772 | Valid |
| Campus Climate | | | | |
| CC 1 | Campus provides freedom of expression in extracurricular activities | 0,933 | 0,892 | Valid |
| CC 2 | The campus staff is always attentive and helpful to serve student needs | 0,865 | 0,813 | Valid |
| CC 3 | The campus provides a place to submit complaints | 0,883 | 0,940 | Valid |
| CC 4 | Campus commitment to always maintain academic quality | 0,886 | 0,912 | Valid |
| CC 5 | The campus has a good reputation in the community | 0,909 | 0,819 | Valid |
| CC 6 | Ease of getting updated information about campus | 0,864 | 0,923 | Valid |
| Campus Support Services | | | | |
| CS 1 | The campus has always been committed to harmonizing racial differences | 0,873 | 0,805 | Valid |
| CS 2 | Librarian always helps students | 0,899 | 0,866 | Valid |
| CS 3 | Adequate library resources and services | 0,863 | 0,811 | Valid |
| CS 4 | Computer laboratory adequate and easily accessible | 0,946 | 0,862 | Valid |
| CS 5 | The campus provides tutoring / tutorial services | 0,811 | 0,891 | Valid |
| CS 6 | Academic support services are adequate for student needs | 0,861 | 0,897 | Valid |
| Registration Effectiveness | | | | |
| RE 1 | The campus provides registration on line | 0,875 | 0,847 | Valid |
| RE 2 | Campus service hours are listed in the administration room | 0,864 | 0,882 | Valid |
| RE 3 | Registration officers are friendly and very helpful to students | 0,861 | 0,912 | Valid |
| RE 4 | Ease of time guardianship | 0,936 | 0,888 | Valid |
| Responsiveness to Diverse Populations | | | | |
| RD 1 | The campus provides assistance for underprivileged students | 0,761 | 0,821 | Valid |
| RD 2 | Campus helps students who are working in completing their studies. | 0,860 | 0,887 | Valid |
| RD 3 | The campus assists students with disabilities | 0,895 | 0,854 | Valid |
| Safety and Security | | | | |
| SS 1 | Conducive campus conditions | 0,921 | 0,919 | Valid |
| SS 2 | Adequate parking space | 0,869 | 0,923 | Valid |
| SS 3 | Security guards always guard the campus environment | 0,890 | 0,906 | Valid |
| Service Excellence | | | | |
| SE 1 | Friendly campus staff in serving students | 0,914 | 0,812 | Valid |
| SE 2 | Friendly campus staff in serving students | 0,934 | 0,878 | Valid |
| SE 3 | The existence of campus health services | 0,849 | 0,885 | Valid |
| SE 4 | There is a counseling officer | 0,947 | 0,809 | Valid |
| SC 1 | Student Centeredness | 0,866 | 0,803 | Valid |

| Code | Item | R Value | | Conclusion |
|------|---|---------------------|-------------------|------------|
| | | Level of importance | Performance Level | |
| | The campus always responds to student information needs | | | |
| SC 2 | The campus provides officers to respond to student complaints | 0,961 | 0,881 | Valid |
| SC 3 | There are online operators ready to help students | 0,825 | 0,809 | Valid |
| SC 4 | There is a bookstore on campus | 0,887 | 0,854 | Valid |

Reliability testing, the results obtained from data processing the alpha quantity of each attribute is greater than the alpha table, so all the attributes / items used in this study are reliable.

Table 3. Reliability Test

| Attribute | Alpha | | Conclusion |
|---|---------------------|-------------------|------------|
| | Level of Importance | Performance Level | |
| <i>Reliability</i> | 0,784 | 0,805 | Reliable |
| <i>Responsiveness</i> | 0,884 | 0,812 | Reliable |
| <i>Assurance</i> | 0,912 | 0,878 | Reliable |
| <i>Empathy</i> | 0,894 | 0,885 | Reliable |
| <i>Tangible</i> | 0,911 | 0,809 | Reliable |
| <i>Academic Services</i> | 0,908 | 0,911 | Reliable |
| <i>Admissions and Financial Aid Effectiveness</i> | 0,914 | 0,890 | Reliable |
| <i>Campus Climate</i> | 0,849 | 0,851 | Reliable |
| <i>Campus Support Services</i> | 0,875 | 0,888 | Reliable |
| <i>Registration Effectiveness</i> | 0,872 | 0,836 | Reliable |
| <i>Responsiveness to Diverse Populations</i> | 0,805 | 0,846 | Reliable |
| <i>Safety and Security</i> | 0,860 | 0,816 | Reliable |
| <i>Service Excellence</i> | 0,882 | 0,819 | Reliable |
| <i>Student Centeredness</i> | 0,819 | 0,864 | Reliable |

Customer Satisfaction Index (CSI)

Determine the Mean Importance Score (MIS) and Mean Satisfaction Score (MSS). The average value of the level of importance and performance is obtained by adding up each respondent's answer to the questionnaire question with the sum as follows:

Table 5. Mean Importance Score (MIS) and Mean Satisfaction Score (MSS)

| Code | MIS | MSS | Code | MIS | MSS | Code | MIS | MSS |
|-------|------|------|------|------|------|------|------|------|
| Res 1 | 5,14 | 4,10 | AS 3 | 5,33 | 4,91 | RE 3 | 5,21 | 4,88 |
| Res 2 | 5,10 | 4,65 | AS 4 | 5,22 | 4,75 | RE 4 | 5,11 | 4,67 |
| Ass 1 | 5,02 | 5,11 | AF 1 | 5,25 | 4,84 | RD 1 | 5,20 | 4,90 |
| Ass 2 | 5,25 | 5,37 | AF 2 | 5,23 | 4,76 | RD 2 | 5,33 | 5,05 |
| Ass 3 | 5,22 | 4,72 | AF 3 | 5,30 | 4,85 | RD 3 | 5,22 | 4,66 |
| Ass 4 | 5,40 | 5,17 | CC 1 | 5,23 | 4,70 | SS 1 | 5,19 | 4,79 |
| Ass 5 | 5,44 | 5,01 | CC 2 | 5,23 | 4,58 | SS 2 | 5,14 | 4,76 |
| Ep 1 | 5,42 | 5,07 | CC 3 | 5,24 | 4,52 | SS 3 | 5,18 | 4,99 |
| Ep 2 | 4,73 | 4,31 | CC 4 | 5,19 | 4,86 | SE 1 | 5,00 | 4,53 |
| Ep 3 | 4,62 | 4,21 | CC 5 | 5,34 | 5,03 | SE 2 | 5,36 | 5,09 |
| Ep 4 | 4,76 | 4,71 | CC 6 | 5,34 | 5,32 | SE 3 | 5,28 | 4,96 |

| Code | MIS | MSS | Code | MIS | MSS | Code | MIS | MSS |
|------|------|------|------|------|------|-------|--------|--------|
| Tg 1 | 4,84 | 4,49 | CS 1 | 5,27 | 4,88 | SE 4 | 5,25 | 5,04 |
| Tg 2 | 4,76 | 4,52 | CS 2 | 5,31 | 4,69 | SC 1 | 4,89 | 4,83 |
| Tg 3 | 4,96 | 4,68 | CS 3 | 5,35 | 4,83 | SC 2 | 4,78 | 4,80 |
| Tg 4 | 4,90 | 4,92 | CS 4 | 5,27 | 4,83 | SC 3 | 4,96 | 4,92 |
| Tg 5 | 4,75 | 3,78 | CS 5 | 5,28 | 4,83 | SC 4 | 5,00 | 4,70 |
| AS 1 | 5,11 | 4,60 | RE 1 | 5,49 | 5,10 | Total | 268,04 | 249,33 |
| AS 2 | 5,42 | 5,08 | RE 2 | 5,23 | 4,98 | | | |

Then calculate Weight Factors (WF), which is the percentage of the MIS value per attribute to the total MIS of all attributes. Next, calculate the Weight Score (WS) which is the multiplication of Weight Factor (WF) and Mean Satisfaction (MSS). The complete calculation results of Weight Factors (WF) and Weight Score (WS) are presented in the following table.

Table 6. Weight Factors (WF) and Weight Score (WS)

| Code | WF | WS | Code | WF | WS | Code | WF | WS |
|-------|-------|------|------|-------|------|---------------------------------|-------------|------|
| Res 1 | 0,019 | 0,08 | AS 3 | 0,020 | 0,10 | RE 3 | 0,019 | 0,09 |
| Res 2 | 0,019 | 0,09 | AS 4 | 0,019 | 0,09 | RE 4 | 0,019 | 0,09 |
| Ass 1 | 0,019 | 0,10 | AF 1 | 0,020 | 0,09 | RD 1 | 0,019 | 0,10 |
| Ass 2 | 0,020 | 0,11 | AF 2 | 0,020 | 0,09 | RD 2 | 0,020 | 0,10 |
| Ass 3 | 0,019 | 0,09 | AF 3 | 0,020 | 0,10 | RD 3 | 0,019 | 0,09 |
| Ass 4 | 0,020 | 0,10 | CC 1 | 0,020 | 0,09 | SS 1 | 0,019 | 0,09 |
| Ass 5 | 0,020 | 0,10 | CC 2 | 0,020 | 0,09 | SS 2 | 0,019 | 0,09 |
| Ep 1 | 0,020 | 0,10 | CC 3 | 0,020 | 0,09 | SS 3 | 0,019 | 0,10 |
| Ep 2 | 0,018 | 0,08 | CC 4 | 0,019 | 0,09 | SE 1 | 0,019 | 0,08 |
| Ep 3 | 0,017 | 0,07 | CC 5 | 0,020 | 0,10 | SE 2 | 0,020 | 0,10 |
| Ep 4 | 0,018 | 0,08 | CC 6 | 0,020 | 0,11 | SE 3 | 0,020 | 0,10 |
| Tg 1 | 0,018 | 0,08 | CS 1 | 0,020 | 0,10 | SE 4 | 0,020 | 0,10 |
| Tg 2 | 0,018 | 0,08 | CS 2 | 0,020 | 0,09 | SC 1 | 0,018 | 0,09 |
| Tg 3 | 0,019 | 0,09 | CS 3 | 0,020 | 0,10 | SC 2 | 0,018 | 0,09 |
| Tg 4 | 0,018 | 0,09 | CS 4 | 0,020 | 0,09 | SC 3 | 0,019 | 0,09 |
| Tg 5 | 0,018 | 0,07 | CS 5 | 0,020 | 0,10 | SC 4 | 0,019 | 0,09 |
| AS 1 | 0,019 | 0,09 | RE 1 | 0,020 | 0,10 | Weighted Total (WT), | 4,80 | |
| AS 2 | 0,020 | 0,10 | RE 2 | 0,020 | 0,10 | | | |

Determining the Customer Satisfaction Index (CSI), dividing the total weighted by the nominal scale used then multiplied by 100 percent as calculated below.

$$CSI = \frac{4,80}{5} \times 100\% = 96,04 \text{ which means Very Satisfied}$$

4. Conclusion

Based on the results of data processing and discussion, it can be concluded that the quality of campus services felt by students is very satisfying which includes Responsiveness, Assurance, Emphaty, Tangible, Academic Services, Admissions and Financial Aid Effectiveness, Campus Climate, Campus Support Services, Registration Effectiveness, Responsiveness to Diverse Populations, Safety and Security, Service Excellence, and Student Centeredness.

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