

MEASUREMENT OF HIGHER EDUCATION SERVICE QUALITY USING HEDPERF AND HIEDQUAL IMPORTANCE PERFORMANCE ANALYSIS METHODS

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ABSTRACT

The image of a tertiary institution is indicated by the quality of service perceived by students because the quality of service can also reflect the academic and non-academic quality of a tertiary institution. There have been many studies focusing on measuring the quality of services in higher education (using the Serqual measurement), therefore, this study aims to measure quality services by combining other approaches, namely HEDPERF and HIEDQUAL. Bung Hatta University was used as the research object (n=370 students). The university was selected because it is a reputable private university which was founded under the name one of the nation's proclamer with significant influence. Based on the results of data analysis using the Importance Performance Analysis (IPA) technique, it can be concluded that aspects of academic facilities and support services are in the quadrant that exceeds student expectations. On the other hand, the campus infrastructure aspect should be the main priority that must receive immediate attention, followed by the reputation, academic and program aspects which are quadrant positions that must be maintained while the administrative service aspect is in low priority position.

Keywords: *Service Quality, Higher Education, IPA (Importance-Performance Analysis), HedPERF, HIEDQUAL*

INTRODUCTION

The growing public interest in pursuing their education at tertiary institutions (PT) has resulted in the proliferation of private universities in Indonesia. The rapid growth has resulted in increasingly intense competition between the universities to attract prospective students. Competition for higher education services has entered a new phase where state or private status is no longer become the main indicator of the quality of a tertiary institution. Various factors play a role in forming quality indicators such as facilities and infrastructure and an increase in teaching staff. This reinforces the reality that what is needed is the quality of educational services (Sumarmi & Wahyuni, 2016). Students as stakeholders receive direct services from tertiary institutions when actively participating in the lecture process. When the students receive proper service, they will become promoter agents to other stakeholders. Student satisfaction can increase public trust in tertiary institutions. The benchmark for university competitiveness is student satisfaction, whether students get what is expected (Simbolon et al., 2022)

Bung Hatta University was founded in 1981 with the idea of assisting the government in the

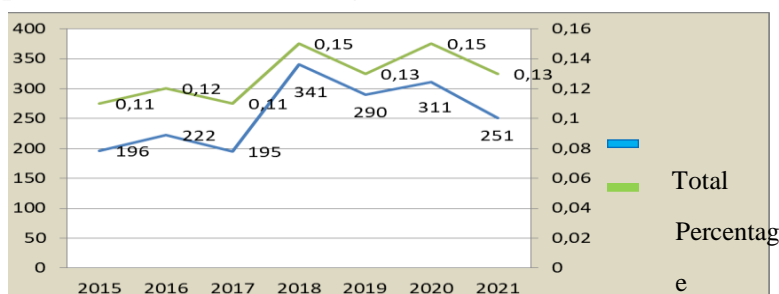
success of the higher education sector in West Sumatra. As one of the largest universities in West Sumatra named after one of the nation's proclamer, namely Mr. Muhammad Hatta, Bung Hatta University continues to carry out transformations in improving the quality of learning and its graduates. Optimization of various infrastructure facilities continues to be pursued so that student satisfaction continues to increase. However, the quality of services provided should be continuously monitored and evaluated so as to reduce the percentage of students interested in leaving, being inactive, and dropping out each semester (drop out).

Based on the data collected, Graph 1 shows a trend of increasing number of inactive students from 2015 to 2021. On average, the percentage of inactive students in each semester reaches 13%. It can be seen that in 2015 that there were 196 students (11%) and in 2021 there were 251 students (13%). Several surveys have been conducted on students including by distributing questionnaires at the end of each semester. Previous research used the SERVQUAL approach to measure student satisfaction with the quality of educational services at Bung Hatta University (Wati et al., 2018). Several studies have used the

Servqual approach in measuring service quality, including universities. Research conducted by (Sumarmi & Wahyuni, 2016), (Ariani et al., 2017), (Kurniati & Kadarsih, 2017) focused on service

quality in Higher Education with the measurement of service quality model SERVQUAL (Tangible, reliability, responsiveness, assurance and empathy).

Graph 1. Number and Percentage of Inactive Students from 2015 – 2021



Source: Processed Data (2023)

Some critics state that SERVQUAL is not suitable for use in the education sector. To counter these criticisms, (Abdullah, 2006a) developed Higher Education Performance (HEdPERF) approach to measure the quality of special education services. According to (Abdullah, 2006a) HEdPERF consists of 5 (five) dimensions or aspects, namely non-academic, academic, reputation, access and planning. This method is useful for universities in improving service performance to better compete with other universities. Research conducted by (Ahmad & Nikmah, 2017), (Febriani et al., 2022), (Yusuf, 2017), (Purwanto et al., 2022), (Ardhyani & Singgih, 2017), (Martono, 2021) used the Higher Education Performance (HEdPERF) method in measuring the level of student satisfaction with the quality of services in Higher Education from academic, non-academic and other supporting aspects. Several studies also measure student satisfaction with service performance in tertiary institutions using the HEdPERF approach (Khalid et al., 2019), (Danjuma et al., 2018) and (Mang'unyi & Govender, 2017).

In addition to the HEdPERF method, several researchers have also tried to develop a method for measuring service quality in Higher Education. Research conducted by (Annamdevula, 2012), (Annamdevula & Raja Shekhar, 2016) has developed a service quality measurement for Higher Education called HiEDQUAL (High Education Quality). This measurement is more in its approach to students as the main customers involved as a product of a process, internal customers of campus facilities, involved in the learning process and internal customers in delivering lecture material.

Research conducted by (Tjahyadi et al., 2018), (Febriani et al., 2022) and (Oladipupo et al., 2021) using the HiEDQUAL (High Education

Quality) approach found that service quality is an important concept in the higher education context which can affect student satisfaction with the services provided. In contrast to previous research, this study measures the level of student satisfaction with the quality of service at Bung Hatta University using the Importance Performance Analysis method by combining the HEdPERF and HiEDQUAL approaches.

HEdPerf and HiEdqual are the methods used to measure satisfaction in higher education and the factors affecting satisfaction (Annamdevula & Shekhar, 2016). This method is based on the SERVQUAL concept, which measures the gap between perception and expectation. HedPerf and HiEdQual have been used in various studies to assess student satisfaction and other stakeholders in higher education institutions (Rodríguez et al., 2022). The strengths of these methods include their ability to identify attributes that affect satisfaction and give advice to improve service quality. HedPerf and HiEdqual use a variety of criteria and attributes to evaluate the quality of education, taking into account both tangible and intangible factors. (Febriani et al., 2022).

LITERATURE REVIEW

Service Quality

Service quality is achieved when the needs and desires of customers and the accuracy of delivery are properly met. Service quality is influenced by 2 (two) important factors, namely the service expected and the service experienced (Kotler and Keller 2013) Measuring the quality of tertiary institutions in Indonesia is quite challenging as the indicators are very complex. Verification of the BAN-PT certification which is used as a reference for quality measurement is still

untested because the level of open verification to predictive measurement instruments is unknown. The most basic activity of every tertiary institution is related to the issue of quality, specifically internal quality assurance system, namely quality planning based on university performance indicators that are determined and evaluated periodically.

Satisfaction is the idea that everyone is happy or depressed, manifested by comparing perceived performance with expectations (Kotler and Keller 2013). Service quality depends on consumer perceptions of service quality, meaning that the result of the service process can be in the form of how the service is delivered. Customer satisfaction plays a mediating role in the relationship between service quality and behavioral intentions (Tjiptono, 2016) on the other hand, the main customers of education services are students while there is also a strong underlying assumption that the "customers" of education also include industry, parents, government, and even the wider community.

Higher Education Performance (HEdPERF)

The concept of Higher Education Performance (HEdPERF) was proposed by (Abdullah, 2006b) in response to his criticism toward the concept of SERVQUAL (service quality) to measure the quality of higher education services. The HEdPERF concept has 5 (five) dimensions or aspects namely; non-academic, academic; reputation; access; planning which will be explained as follows:

1. Non-academic

This aspect includes very substantial elements in enabling students to fulfill their learning obligations and is related to tasks carried out by non-academic staff.

2. Academic

This aspect includes factors related to only academic responsibility.

3. Reputation.

This aspect includes factors that reflect the importance of a higher education's professional image.

4. Access

This aspect consists of factors related to issues of approachability, ease of contact, availability, and convenience.

5. Planning

This aspect emphasizes the importance of offering a variety of well-known academic programs or majors with a flexible structure and syllabus.

Annamdevula (2012) has conducted an empirical study on a new measurement of the

quality of higher education services. The results of his study show that the Higher Education service quality model— HiEDQUAL (High Education QUALITY). It consists of five dimensions that determine service quality from various service aspects, namely lecture and teaching content; administration services; academic facilities, campus infrastructure; and service support. The model considers both academic and non-academic aspects of the entire student experience.

1. Teaching and Course Content.

This aspect consists of the quality of lecturers in the learning process, curriculum, course unit, lecture content, academic information, study program academic staff, relevance of lectures and syllabus

2. Administrative Services

This aspect describes the services of administrative staff in serving students.

3. Academic Facilities.

This aspect describes the facilities and infrastructure in the learning process.

4. Campus Infrastructure.

This factor includes the facilities provided by the university.

5. Support Service

This aspect includes supporting facilities

Importance-Performance Analysis/IPA with CARTESIUS DIAGRAM

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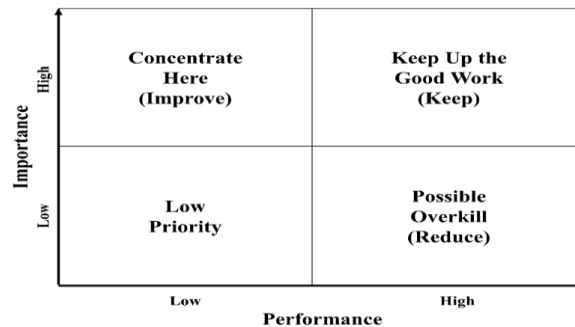
Importance-Performance Analysis/IPA with CARTESIUS DIAGRAM

IPA was first introduced by Martilla and James (1977) in (Buchari, 2013) aiming to measure the relationship between consumer perceptions and priorities for improving the quality of products/services. The IPA method is also called a quadrant analysis which combines factor measurements of the level of importance or level of expectation with the level of satisfaction in a two-

dimensional graph that makes it easy to explain the results of data analysis and obtain practical recommendations for the conditions found. IPA has been widely used in various fields of study because of its ease in applying and displaying the results of the analysis, making it easier for researchers to provide recommendations for performance improvement. The results of the science analysis

can easily and quickly display information related to the dimensions or attributes that are a source of student satisfaction and dissatisfaction. This policy makers can immediately identify which factors/dimensions must be addressed immediately, or which can be prioritized later as can be seen in the following figure:

Graph 2. IPA Diagram



- a) **Quadrant A (Concentration on Top Priority)**
 This quadrant contains factors considered important by visitors or where students have high expectations of an attribute, but in reality these attributes are not yet available as expected. Attributes included in this quadrant must be addressed immediately. Improvement efforts must be made immediately, because students consider these attributes important and urgent to be fulfilled immediately.
- b) **Quadrant B (Maintain Achievement)**
 This quadrant contains attributes that are considered important or expected by students and these attributes have been felt to satisfy or meet student expectations. The attributes included in this quadrant must be maintained because all of these attributes are a source of student satisfaction.
- c) **Quadrant C (Low Priority)**
 This quadrant contains attributes that are considered less important or not something expected by students and in fact these attributes are not important and can bring student satisfaction. Thus efforts to improve the attributes included in this quadrant do not need to be prioritized because the effect on student satisfaction is very small.
- d) **Quadrant D (Excessive)**
 This quadrant shows attributes that are not so important, but the performance is excessive. Attributes in this quadrant can be slightly reduced attention to maximizing the attributes that are in quadrant one. This quadrant also needs to be addressed, but it is not a top priority.

students at Bung Hatta University in the 2020 - 2023 academic year, consisting of the classes of 2018, 2019, 2020, and 2021. Because it is impossible to enumerate all elements of the population, this research will use sampling. The sample for this research is students from 7 (seven) faculties, namely: Faculty of Economics and Business (FEB), Faculty of Teacher Training and Education (FKIP), Faculty of Law, Faculty of Cultural Sciences (FIB), Faculty of Fisheries and Maritime Affairs (FIK), Faculty of Civil and Planning, and Faculty of Industrial Technology. Each faculty will take a sample of 10% of the total population. It is estimated that overall this research requires a sample of 350 students.

The Definition of Operational Variables The variables used in this study are the combination of the Higher Education Performance (HEdPERF) method (Abdullah, 2006b) and Higher Education Service Quality (HIEDQUAL) (Annamdevula, 2012), covering aspects of:

1. **Academic**
 This aspect is the responsibility of academics and the main attributes such as the lecturer having a positive attitude, the lecturer's communication skills and being able to provide regular feedback to students.
2. **Administration Services**
 This aspect describes administrative staff services in serving students such as: administrative staff showing willingness and courtesy in assisting students.
3. **Reputation**
 This aspect is related to the reputation or image of the University. This factor emphasizes the importance of higher education in focusing on

RESEARCH METHODS

Research Object

The population of this research is all active

professional image

4. Programs

This aspect include various excellent programs offered by the campus in a structured manner.

5. Academic Facilities

This aspect includes the facilities and infrastructure in the ongoing learning process.

6. Campus Infrastructure

This aspect includes the facilities provided by the University such as the campus having sports facilities and adequate infrastructure.

7. Supporting Services

This aspect includes services that support student continuity while in the college.

Analysis Method

This study adopts the measurement of the concept of Higher Education Performance (HEdPERF) and Higher Education Service Quality (HiEDQUAL) using 7 dimensions by developing 38 (thirty eight) pirically tested question items.

Service quality is assessed with a Five (5) point Liker scale.

The scale of importance is : 1 = very unimportant, 2 = unimportant, 3 = somewhat important, 4 = important, 5 = very important. For the level of satisfaction, scale 1= very dissatisfied, 2 = not satisfied, 3 = somewhat satisfied, 4 = satisfied, 5 = verysatisfied.

In this study, the Importance Analysis method was used to determine student satisfaction with the quality of service at Bung Hatta University. The level of suitabilityreferred to in the implementation of the research is the result of a

comparison of the expected service value scores (student interests) with the perceived service value scores (Higher Education performance). The formula used for assessing the level of suitability is: (Supranto, 1999)

$$T_k i = \frac{X_i}{Y_i} \times 100\%$$

Y_i

Description:

T_{ki} = Conformity level

X_i = Perceived service rating score

Y_i = Expected service rating score

The Cartesian diagram is used to determine the level of service importance according to students and the level of student satisfaction with the services provided by Higher Education Cartesian diagram.

RESULTS

Characteristics of Respondents

The survey involved 370 respondents from 7 Faculties consisting of 4 batches, namely: 2018, 2019, 2020 and 2021. The largest proportion of respondents is from the Faculty of Economics & Business (34%), while the smallest proportion is from the Faculty of Fisheries and Marine Sciences (3%). Based on class, respondents were dominated by class 2020 (37%) while the smallest proportion was in class 2018 (14%). Female respondents dominated 61% of all respondents. Complete information on the characteristics of the respondents can be seen in Table 1.

Table 1. Characteristic of Respondents

Faculty	Gender and bathces									
	2018		2019		2020		2021		Total	
	M	F	M	F	M	F	M	F	M	F
FEB	17	19	9	35	6	8	12	19	44	81
FH			2		16	34	7	18	25	52
FIB	1		1	5	1	12	2	2	5	19
FKIP		5	3	8	2	18		6	5	37
FPIK				1	1	5	3	2	4	8
FTI		1	3	2	8	3	14	8	25	14
FTSP	6	2	12	2	12	10	6	1	36	15
Total	24	27	30	53	46	90	44	56	144	226

Source: Processed Questionnaire Data (2023)

The highest construct validity was found in the infrastructure aspect which was reflected through 3 question items (AVE=0.87), while the lowest construct validity was found in the academic aspect which was reflected through 11 question items (AVE=0.71). Construct reliability calculations obtain that all aspects have a

composite reliability exceeding 0.9. Aspects of administrative services and Academic Facilities which are reflected through 7 question items, get the highest Composite Reliability reaching 0.97. The program aspects reflected through the 2 question items get the lowest Composite Reliability of only 0.93.

Description of Measurement Results

The measurement of each aspect is described with the mean and standard deviation (SD) because each is distinguished according to the dimensions of expectation and satisfaction. A two-sample *t* test was also carried out to ensure

that the differences in each aspect based on dimensions were significant. Overall, respondents' satisfaction (mean: 3.65) was lower than expectations (mean: 4.32) and overall performance (Tki) reached 84.42%. A complete description of the measurement results can be seen in Table 2 :

Table 2. Description of the Aspects of the Measurement Results in the Two Groups

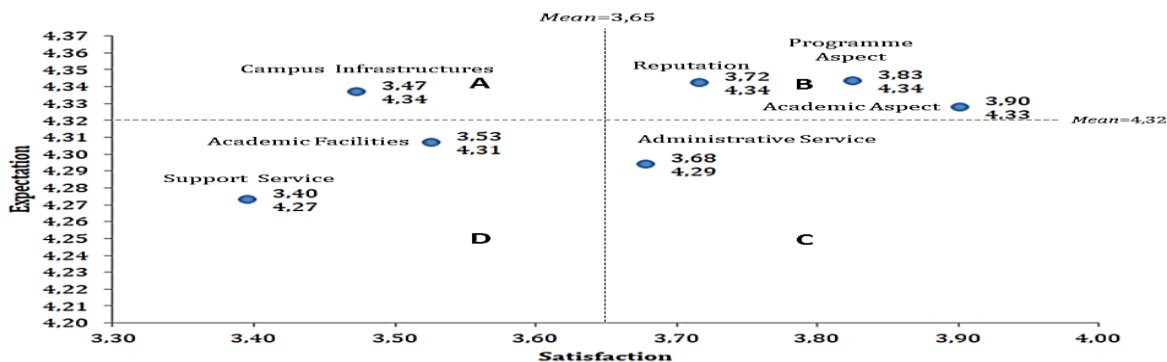
Aspects	Item	Factor			AVE	CR
		Minimum	Maximum	Average		
Academic	11	0,76	0,96	0,84	0,71	0,96
Administrative Service	7	0,88	0,93	0,91	0,83	0,97
Reputation	5	0,88	0,94	0,91	0,83	0,96
Program	2	0,93	0,94	0,93	0,87	0,93
Academic Faciltiy	7	0,89	0,94	0,92	0,84	0,97
Infrastructures	3	0,92	0,95	0,93	0,87	0,95
Support Services	3	0,88	0,95	0,91	0,84	0,94

Source: Processed Questionnaire Data (2023)

Identification of Service Improvement Priorities According to Dimensions (IPA Analysis)

In order to identify the priority aspects for improvement, the measurement results for each aspect are visualized using the IPA 4 quadrant graph. The quadrants are determined through the intersection points of the average value of all aspects for each axis of the two dimensions. The average value (mean: 4.32) is the intersection of the vertical axis (expectation dimension), while the average value (mean:3.65) is the intersection of the horizontal axis (satisfaction/performance). Aspects with values above the average dimension indicate a high level, while below the average indicates a low level. Visualization of the measurement results for each aspect based on the full dimensions can be seen in Figure1

Figure 1. Grafik Importance-Performance Analysis



Source : Processed Questionnaire Data (2023)

DISCUSSION

Quadrant A located on the upper left contains aspects considered important but have not met expectations. The aspects contained in quadrant A are infrastructure with a high level of expectation (mean: 4.34; sd: 0.87) and a low level of satisfaction (mean : 3.47; sd: 1.00). The average difference in both dimensions (diff mean: 0.86) is significant (sig. 0.00 <0.05). This infrastructure aspect gets a performance value (Tki) of 90.10%. This quadrant is in top priority for improvement.

This quadrant explains that the performance of the tertiary institution is low but the level of student expectations is high. This shows that the prioritized attributes must be improved, because the attributes in this section are considered very important but are still considered unsatisfactory by students.

These results indicate the need for improvement efforts for the attributes in quadrant A, including canteen facilities, praying area, and parking facilities and well- maintained facilities. Research conducted by (Icli & Anil, 2014) found that aspects of support services and facilities important in producing student satisfaction.

Quadrant B is located on the top-right containing aspects of high expectations and perceived high satisfaction. This quadrant consists of three aspects, namely: reputation, academic and program aspects. On the expectation dimension, the three aspects obtain an average value exceeding 3.65. Reputation aspect gets the highest expectation dimension (mean: 4.34; sd: 0.79), followed by program aspect (mean: 4.34; sd: 0.84) and academic aspect (mean: 4.33; sd: 0, 71). The highest performance lies in the academic aspect (Tki: 90.14% mean: 3.90; sd: 0.84) followed by the program aspect (Tki: 88.08%; mean: 3.83; sd: 0.96) and reputation aspect (Tki: 85.60%; mean: 3.72; sd: 0.94).

Quadrant B shows the university's performance in terms of reputation, academic aspects and program aspects is high and student expectations for campus performance are also high. This shows that these attributes need improvement, because this section is considered very important and considered satisfactory by students. The attributes in this quadrant are the strengths of the campus and these attributes must be an advantage and must be maintained. The results of the study (Purwanto et al., 2022) found that reputation is a priority factor that must be considered.

Quadrant C located at the bottom-right position has a low level of expectation and high satisfaction. Administrative services are the only aspect included in this quadrant with low expectations (mean: 4.29; sd: 0.81) and high satisfaction (mean: 3.68; sd: 0.09) with performance (Tki) reached 85.68%. In quadrant C, university performance is low and student expectation is also low. This indicates an attribute considered unsatisfactory to students, but in this quadrant it is not considered important therefore there is no need to pay more attention. The university needs to evaluate it because it also affects student satisfaction though it is not a top priority for improvement.

Quadrant D occupies the lower left position, which is a low priority because the expectations and satisfaction dimensions have a low level. Two aspects, namely: academic facilities and support services are in this position. Aspects of academic facilities obtain a higher level of expectation (mean: 4.31; sd: 0.88) compared to support services (mean: 4.27; sd: 0.89). On the satisfaction dimension, aspects of academic facilities obtain a higher level of satisfaction (mean: 3.53; sd: 0.96) compared to support services (mean: 3.40; sd: 1.00). From all aspects, support services have the lowest performance (Tki), namely 79.49%.

Quadrant D shows that the university performance is high and student expectation is low. This shows the attributes on aspects of academic facilities and support services that are not considered so important by students, but their performance is excessive. Attributes in this quadrant can be slightly reduced attention to maximize the attributes that are in quadrant one. Attributes in this quadrant also need to be addressed, despite its low priority.

The researchers used HedPerf and HIEDQual to measure student satisfaction with the PREMIUM-SECURITY program at XYZ University. They identified 20 attributes with negative gaps, indicating areas for improvement in the program (Febriani et al., 2022). Research by (Purwanto et al. 2022) using Hedperf and HIEDQUAL to measuring the quality of services at the University showed that items in this study did not meet customer expectations, as demonstrated by negative scores in SERVQUAL analysis. The use of this method allows a comprehensive assessment of education quality, taking into account factors such as teaching, facilities, extracurricular activities, and social contexts. HIEDQual has been used to check determinants of student satisfaction, including the role of university reputation as a moderator variable (Tjahyadi et al., 2018). This scale of measurements provides valuable insights to improve the quality of service and increase student satisfaction in higher education institutions by applying this measurement approach. HiedQual, on the other hand, focuses on five aspects of service quality: teaching and course content, administrative services, academic facilities, university facilities, and service support (Ardhyani & Singgih, 2017). Both scales aim to identify areas for improvement and prioritize service quality factors.

CONCLUSION

Based on the results of the Importance Performance Analysis (IPA), it can be concluded that the level of interest or student satisfaction is lower than the expectations or performance of the University (mean: 4.32). The average yield level of conformity between performance (performance) and importance (importance) reaches 84.42%.

The main priority in quadrant A is the aspect of University infrastructure, meanwhile, in B quadrant, there are three aspects that need improvement, namely: reputation, academic and program aspects. Quadrant C is a low priority consisting of aspects of administrative services while in quadrant D, the aspects of academic

facilities and support services exceed student expectations.

Based on the research results, it is suggested that this research can be input and guidance for Bung Hatta University in improving the quality of service to its students as service users. The main priority to be considered is the improvement of campus infrastructure such as classrooms, buildings, canteen facilities, praying area, health service.

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