

## How to Find Gap Analysis in Undergraduate User Satisfaction Through a Tracer Study

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### Abstract

Undergraduate alumni play a crucial role in shaping the educational process at higher education institutions. Therefore, it is essential to continuously assess the satisfaction of graduate users to gauge their level of contentment. This research aims to measure graduate user satisfaction through gap analysis by comparing user expectations with the actual performance of graduates based on the five dimensions of the SERVQUAL model. The study combines the Customer Satisfaction Index (CSI), which calculates satisfaction gaps, with Importance-Performance Analysis (IPA), used to map the five dimensions of service quality and prioritize improvements. The results indicate that the graduate user satisfaction index is 78%, placing it in the "satisfied" category. Satisfaction is particularly high in the dimensions of reliability and empathy. However, several variables show a gap between high user expectations and underperformance, particularly in the areas of assurance and responsiveness.



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## I. INTRODUCTION -

Human resources were a very important component in a higher education institution[1]. The need for good quality human resources was the most important thing in institutional development. Human resources had the potential to be developed to achieve certain qualities that can produce superior graduates[2]. Higher education is an institution that produces human resources in the form of graduates/alumni who are expected to have competency skills and skills that can be absorbed by the community as users (consumers)[3]. Graduates are the spearhead of a university's responsibility in the eyes of the community. This means that society will make graduates as a representation of the quality of a university[4].

The existence of graduates in the community will always be an attribute of the community's assessment of the college of origin. If alumni are well absorbed in the world of work, the university will get a positive

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assessment[5]. On the other hand, a negative assessment of alumni will reduce the credibility of the university. Based on this, each university has an interest in measuring the satisfaction of its graduates as part of the evaluation and projection of the institution[6].

Measurement of graduate user satisfaction can be reflected in user ratings of the quality of alumni services while working in an organization[7]. Measurement of alumni service quality is meant by comparing the expectations of graduate users with the quality of performance shown by graduates[8]. This is in line with the mention of Peters and Waterman [9] that equalized service quality with excellence, whereas Parasuraman et al. [10] have defined it as “the degree of discrepancy between customer's expectations and their perception of performance of a service organization. Expectation is defined as the customers wants, and their perceptions is defined as the customers evaluations of the actual provided services. There are many models that have been developed to measure service quality, most of them measure the quality of services in the industry and market organization, but few models assess educational services[11]. Samuel et al.[12] said tha the importance of introducing an appropriate model for valid and reliable assessment in the field of education. One of models that suitables to adopt was SERVQUAL model. Zafiroopoulos et al. [13] in his research conducted a review and analysis of the quality of education services. The review was conducted on 18 articles and revealed the results that the SERVQUAL model is the most effective for evaluating and measuring service quality in the educational sector. SERVQUAL offers service quality measurement in several multidimensional models through five dimensions. This multidimensional model explains as assurance, responsiveness, reliability, empathy, and tangibility. This research adopts multidimensional of SERVQUAL as follows assurance means the ability of the undergraduate to provide the correct services it promised; responsiveness means the ability of the undergraduate to help as soon as possible; reliability means the existence of knowledge and responsibility the undergraduate student to work; empathy means how the undergraduate student has the ability to concern for the work environment; and tangibility meaning having the necessary physical performance. In this study, the measurement of the service quality of undergraduate students was carried out at the graduates of the Faculty of Engineering, State University of Surabaya. Measurements were carried out using a survey method on 85 graduate users. This study focused on filling the gap in research on quality of undergraduates services. Therefore, this research time to evaluate the quality of undergraduates services using SERVQUAL models.

## **II. METHODS**

### *A. Material*

The research was conducted in Indonesia. The responden of this research consist user of undergraduate students from several program at Faculty Engineering Universitas Negeri Surabaya. User of undegraduate student are users from various companies and industries, both from educational and non-educational institutions. The data in this survey was collected from online questionnaire which was distributed to respondents voluntarily[14]. Simple random sampling is used as sampling technique which means members of the population have an equal chance of being selected into the sample. The results of the questionnaire data collection obtained as many as 35 respondents that are eligible to proceed to the data analysis process.

### *B. Method*

The instrument of survey is adopted from several previous studies that have been tested for validity and reliability. The first part is demographic information about respondents, namely user of undergraduate’s student, including gender, age, type of institution, role of job, and working time. The second part of the questionnaire measures the constructs in this research model. Data on education service quality were

collected with the SERVQUAL instrument[15]. The questionnaire consisted of 23 items constituting five dimensions (tangibles, responsiveness, reliability, empathy, and assurance). Five-point likert scale with “strongly disagree” (1) to “strongly agree” (5) is used.

The variables tested in the questionnaire instrument include tangible dimension as many as 3 questions, the assurance dimension as many as 4 questions, the Empathy dimension 4 questions, the reliability dimension as many as 7 questions, and the Responsiveness as many as 5 questions. The questionnaire items listed in Table 1.

**Tabel 1.** Questionnaire Items

Quality Dimension	Code	Item	Source
Tangibles (T)	TG1	Graduates should have an appealing appearance	(Aharony & Gazit, 2020); (Pinto et al., 2020)
	TG2	Graduates dress and appear neatly	
	TG3	Graduates have a polite and courteous attitude in behavior	
Assurance (AS)	AS1	The behavior of graduates as employees must be able to make the company's customers trust them	(Tangney et al., 2004)
	AS2	Having the ability to make enterprise customers safe and comfortable	
	AS3	Complete the job according to the job description with the skills and knowledge they have	
	AS4	Fast and responsive in solving various problems according to their capacity	
Empathy (E)	EP1	understand what company needs	(Dinev and Hart, 2004); (Malhotra et al., 2004)
	EP2	pay attention to customers regardless of customer status	
	EP3	Graduates' ability to accept criticism and suggestions	
	EP4	The sincerity of graduates in prioritizing the interests of the company	
Reliability (R)	RR1	Ability to complete work within the agreed time	Bayraktar, F., 2017
	RR2	can solve various problems in his work according to the scientific field	
	RR3	attitude of responsibility towards the process and the results of his work	
	RR4	consistency at work	
	RR5	Ability to speak foreign languages in providing services to company customers	
	RR6	flexible communication skills	
	RR7	ability to adapt to developments in information technology	
Responsiveness (SV)	SV1	Quick attitude in action	
	SV2	Self-control ability to solve problems according to capacity	

Quality Dimension	Code	Item	Source
	SV3	Ability to collaborate in a team	
	SV4	Sense of loyalty to the company	
	SV5	Willingness to continue to develop themselves according to the field of profession	

C. *Data Analysis*

The data were downloaded as a spreadsheet and analyzed using statistical tools IBM SPSS version 16[16]. The data analysis contain descriptive statistic from respondent participants like as means, standar deviations, frequencies, and percentages)

**III. RESULTS AND DISCUSSIONS**

A. *Respondents Demographic*

The total collected data are 35 respondents. As depicted in Table 2, the final sample data consist of 66% males and 34% females, which most of the respondents are 17-20 years old, that is 70%. Table 1 summarized the sample demographics of the respondents.

**Table 2.** Distribution of demographic characteristics among participants

	Items	Frequency	Percentage
Gender	Male	23	66
	Female	12	34
Age	25-35 years old	7	20
	36-45 years old	20	57
	Above 45 years old	5	14
Type of institution	Government institution	3	9
	Industries in major	32	91
Working time	Less than 5 years	11	31
	5-10 years	15	42
	11 – 20 years	6	17
	21 – 30 years	3	9
	Above 30 years	0	0
Role of job	Owner	4	11
	Head of Department	6	17
	Manager or similiar position	18	51
	Others	7	20

Tabel 3 show the mean distribution of the different items in the dimension of undergraduate service quality. The table 3 describe about attribute on quality dimension followed by average answer (using linkers scale), field type institution, dan role of the respondent job.

**Tabel 3.** Average score of perceived undergraduates service quality according to field type of institution and role of job

Attribute on Quality Dimension	Total Average	Field of Type Institution			Role of Job		
		Education Institution	Industries in Major	Owner	Head of Department	Manajer or similiar	Others
TG1	3.50	3.87	3.30	3.42	3.66	3.36	3.40
TG2	3.70	4.08	3.40	3.59	3.72	3.47	3.91
TG3	3.92	4.05	3.88	3.93	3.79	3.84	4.02
AS1	3.51	3.75	3.31	3.30	3.75	3.37	3.6
AS2	3.59	3.44	3.19	3.93	3.58	3.82	3.59
AS3	3.54	3.56	3.36	3.81	3.48	3.63	3.41
AS4	3.55	3.53	3.23	3.90	3.51	3.55	3.56
EP1	3.86	3.83	3.58	4.13	3.85	3.93	3.84
EP2	3.60	3.62	3.31	4.01	3.36	3.82	3.46
EP3	3.52	3.53	3.25	3.88	3.37	3.66	3.42
EP4	3.49	3.51	3.31	3.75	3.43	3.57	3.37
RR1	3.69	3.72	3.45	4.03	3.59	3.80	3.56
RR2	3.63	3.66	3.43	3.94	3.47	3.80	3.49
RR3	3.69	3.69	3.49	3.94	3.55	3.85	3.59
RR4	3.66	3.67	3.44	3.96	3.63	3.70	3.56
RR5	3.41	3.44	3.19	3.42	3.66	3.36	3.40
RR6	3.60	3.56	3.36	3.59	3.72	3.47	3.91
RR7	3.72	3.53	3.23	3.93	3.79	3.84	4.02
SV1	3.53	3.42	3.66	3.75	3.43	3.57	3.37
SV2	3.72	3.59	3.72	4.03	3.59	3.80	3.56
SV3	3.74	3.93	3.79	3.94	3.47	3.80	3.49
SV4	3.58	3.62	3.52	3.81	3.48	3.63	3.41
SV5	3.57	3.51	3.36	3.90	3.51	3.55	3.56

### B. Customer Satisfaction Index

The Customer Satisfaction Index (CSI) is used to determine the level of customer satisfaction with the results of service performance by looking at the level of importance of the service attributes[17]. This method is needed to determine the overall level of customer satisfaction by taking into account the level of importance of the attributes of the product or service[18]. The calculation method to get the CSI value is as follows:

The average value on the level of importance and level of quality of performance of each product attribute is used to calculate the graduate user satisfaction index. In Table 4, the results of the CSI calculations in this study are presented.

**Tabel 4.** Result of Customer Satisfaction Index

<b>Dimension of Quality</b>	<b>Performance</b>	<b>Expectation</b>	<b>Weighting Factor</b>	<b>Weighting Score</b>
Tangible	4.19	3.96	21.18	0.89
Assurance	3.89	3.69	19.73	0.77
Empathy	4.07	3.83	20.48	0.83
Reliability	3.75	3.37	18.02	0.68
Responsiveness	3.63	3.85	20.59	0.75
<b>SUM OF all DIMENSIONS</b>		18.7	100.00	3.91

The value of the weighting factor is at the average expectation of each attribute divided by the total average expectation. While the value of the weighting score is obtained by multiplying the average value on performance with the value of the weighting factors. Based on the results shown in table 4, the CSI value is 78%. This is obtained from the total weighting score divided by 5 then presented as a percentage.

*C. Importance Performance Analysis (IPA)*

Basically, every service and product quality attribute provided can affect customer satisfaction so it needs to be improved over time. The Customer Satisfaction Index shows the percentage of user of undergraduates' satisfaction with the performance services provided. Of course, there needs to be improvements to be able to achieve increased user satisfaction. Importance performance analysis is presented to provide an overview and information related to the dimensions of service quality that need to be improved[19]. Priority mapping is done by calculating the average value of the attributes in each dimension and then reflecting the results on the Cartesian diagram.

The Cartesian diagram used in the importance performance analysis method is divided into 4 quadrants bounded by two perpendicular intersecting lines. At the point (X, Y) where X is the average level of customer satisfaction of all factors or attributes and Y is the average score of the average expectations of all factors that affect customer satisfaction.

**Table 5.** Gap result between perception vs expectation using IPA

<b>Quality Dimension</b>	<b>Atribute on Quality Dimension</b>	<b>Perception</b>	<b>Expectation</b>
Tangibles (T)	Graduates should have an appealing appearance	3.85	3.35
	Graduates dress and appear neatly	3.78	3.75
	Graduates have a polite and courteous attitude in behavior	3.76	3.25
Assurance (AS)	The behavior of graduates as employees must be able to	3.51	3.37

Quality Dimension	Atribute on Quality Dimension	Perception	Expectation
	make the company's customers trust them		
	Having the ability to make enterprise customers safe and comfortable	3.78	3.44
	Complete the job according to the job description with the skills and knowledge they have	3.92	3.56
	Fast and responsive in solving various problems according to their capacity	3.65	3.53
Empathy (E)	Understand what company needs	3.86	3.35
	Pay attention to customers regardless of customer status	3.89	3.62
	Graduates' ability to accept criticism and suggestions	3.95	3.53
	The sincerity of graduates in prioritizing the interests of the company	3.87	3.51
Reliability (R)	Ability to complete work within the agreed time	3.69	3.72
	Can solve various problems in his work according to the scientific field	3.63	3.66
	Attitude of responsibility towards the process and the results of his work	3.69	3.69
	Consistency at work	3.66	3.67
	Ability to speak foreign languages in providing services to company customers	3.41	3.44
	Flexible communication skills	3.43	3.56
	Ability to adapt to developments in information technology	3.42	3.73
Responsiveness (SV)	Quick attitude in action	3.53	3.42
	Self-control ability to solve problems according to capacity	3.72	3.59
	Ability to collaborate in a team	3.84	3.63
	Sense of loyalty to the company	3.97	3.72
	Willingness to continue to develop themselves according to the field of profession	3.57	3.51

#### IV. CONCLUSIONS AND RECOMMENDATIONS

The level of customer satisfaction on service quality in terms of all aspects is included in the level of satisfied satisfaction. The result shown from the results of the calculation of the customer satisfaction index of 80% which is included in the satisfied category. The results of the analysis show that there is a high level of customer satisfaction in service quality seen from the attributes of direct evidence. This is shown from the Cartesian quadrant graph which places the attribute of direct evidence in quadrant B. This means that the basic service elements that have been successfully implemented by the company must be maintained. In addition, it is also supported by the results of the crosstab which results in the highest number of respondents scoring in the high category performance level and expectations in the high category.

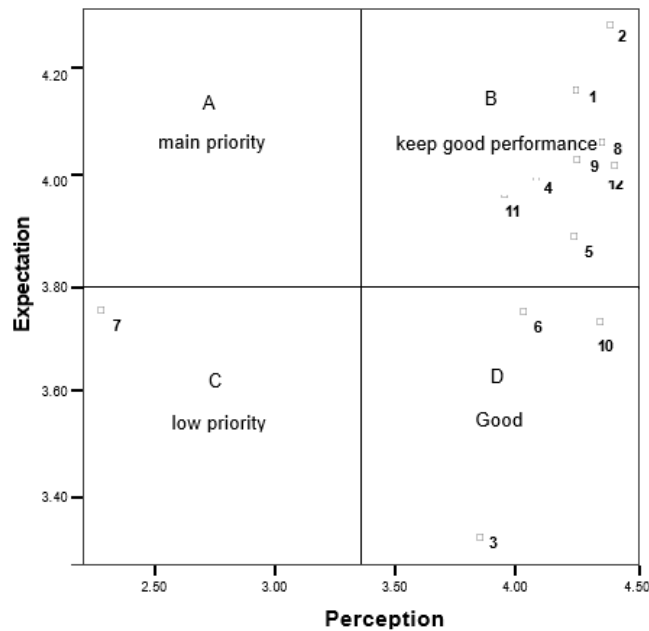


Figure 1. Cartesian Diagram Result for Service Improvement

The reliability attribute based on the results of the analysis shows that there is a high level of customer satisfaction in service quality. This is shown from the Cartesian quadrant graph which places the reliability attribute in quadrant B. In addition, it is also supported by the crosstab results which produce the most respondents' ratings in the high category of importance level and the service quality is also in the high category. The level of customer satisfaction on service quality in terms of guarantees is included in the high satisfaction category. This is shown from the Cartesian quadrant graph which places the guarantee attribute in quadrant B. In addition, it is also supported by the crosstab results which produce the most respondents' ratings in the high category of importance level and the service quality is also in the high category. Empathy attribute has a very high level of customer satisfaction rating that exceeds consumer expectations on service quality. This is shown from the Cartesian quadrant graph which places the guaranteed attribute in quadrant D.

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