



## Applying cartesian gap analysis in determining internal and external service quality of educational provisions

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### Abstract

One of the efforts that must be made in the improvement of public services is to conduct Community Satisfaction Survey to users of the service. The quality of educational services must be oriented towards the needs of the client or the service recipient parties. The purpose of this study was to analyze the level of internal customer satisfaction include Students, Lecturer, Staff, and stakeholders to organize Ministry of Health Polytechnic of Semarang service.

This study is a descriptive study, the conclusive type design that aims to describe the character or function of the research group. Frequency and descriptive analysis were performed to illustrate the gap between the interests and expectations to performance and customer satisfaction on Ministry of Health Polytechnic Semarang service. To determine the level of customer service satisfaction, Cartesian Gap Analysis was used.

The result in the view of students is that the best satisfaction levels on service delivery of education at the Ministry of Health Polytechnic Semarang are lecturers services, administrative services, and laboratory services. As for lecturers are reliability and empathy. According to employees, the best is the reliability, security/assurance and empathy aspects. However, stakeholders request the graduates from polytechnic Ministry of Health Semarang to improve integrity, skills, knowledge, leadership, cooperation, foreign language skills communication skills, the ability to use IT, discipline, honesty, motivation, work ethic, innovation, and ability to solve the problem.

**Keywords:** satisfaction, education, service quality, gap

### 1. Introduction

One of the efforts that must be made in the improvement of public services is to conduct Satisfaction Survey society to end users [1]. To determine the state of education services, it is necessary to measure the public's assessment and customers. The quality of a university is determined by the quality of services delivered, where quality services can be identified through customer satisfaction, in this case, is a student [2, 3]. At this time, improving the quality of educational services is the government's primary program to prepare qualified human resources, including human resources in the health sector to be health professionals [4, 5, 6]. As the health education institution, Health Polytechnic of Health Ministry Semarang, Indonesia is committed to produce graduates with international standards and adhere to local wisdom. The school needs to conduct in-depth analysis in the evaluation of the marketing strategy and the quality of services that run primarily on the attitudes and behavior of customers which include: students, lecturer, staff,

and stakeholders in improving the quality of service.

### 2. Materials and Methods

This study is an observational study then analyzed the data frequency and description to illustrate the gap between the interests and expectations and performance/customer satisfaction on Minister of Health Polytechnic Semarang service [7]. To determine the level of customer service satisfaction, Cartesian Gap Analysis and diagram were used [8].

### 3. Results & Discussion

In this study, respondents were asked to judge the importance and performance of the Ministry of Health Polytechnic of Semarang in the provision of educational services which include: the services of lecturers, administrative services, library services, laboratory services, counseling services, career development services, infrastructure, and financing.

**Table 1:** Customer satisfaction level to implementation of educational services

No	Component	Quality of Service	Category	Level of Satisfaction	Category	Level of Conformity (%)
1	lecturers service	4.65	Very important	3.82	Satisfied	82.11
2	administrative services	4.59	very important	3.77	Satisfied	82.24
3	library services	4.56	very important	3.87	Satisfied	84.90
4	laboratory services	4.62	imperative	3.84	Satisfied	83.13
5	guidance counseling	4.58	very important	3.83	Satisfied	83.55
6	service career development	4.57	very important	3.77	Satisfied	82.55
7	infrastructures	4.57	very important	3.62	satisfied	79.09
8	financing	4.55	very important	3.51	satisfied	77.31
9	average	4.59	very important	3.75	satisfied	81.87

Subsequently, the average value and performance levels of interest are analyzed in *importance-performance* Matrix, in

which the x-axis is implementation while the y-axis represents the expectation.

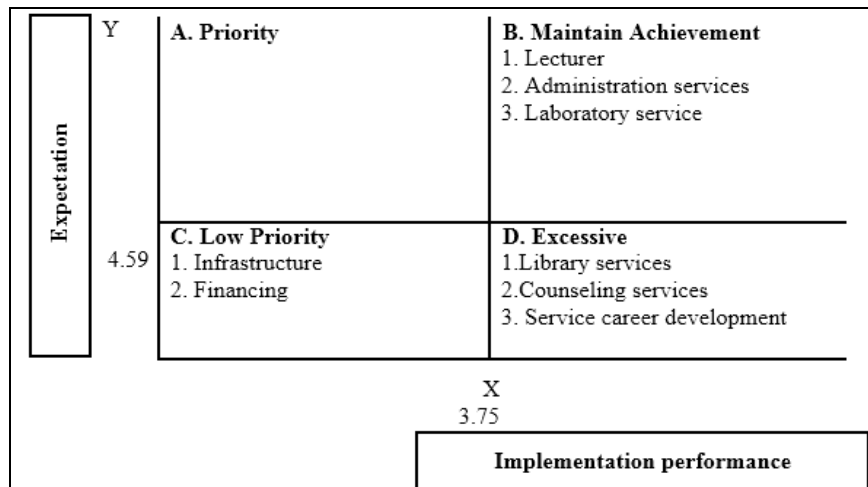


Fig 1: Cartesian diagram on Quality of Service and Performance

Based on customer satisfaction score calculation (students) that we can know the best three items namely lecturers services, administrative services and laboratory services performed for the Ministry of Health polytechnic Semarang Implementation of educational services. By analysis *Importance-Performance Analysis* (IPA) it is known there are things to be improved in the future. In determining the actual performance and expectations

respondents (lecturer) on performance at the health polytechnic Semarang, respondents were asked to assess the level of interest and performance Ministry of Health polytechnic Semarang include: reliability (reliability), responsiveness (responsiveness), Security (assurance), empathy, and physical evidence (tangibility) in the form of infrastructure in an effort to the provision of educational services.

Table 2: Analysis of internal customer satisfaction (lecturer) of the implementation of educational services

No	Component	Quality of Service	Category	Level of Satisfaction	Category	Suitability (%)
1	The ability to provide services (reliability)	4.68	Very Important	4:05	Satisfied	86.57
2	The desire to help customers (responsiveness)	4:55	Very Important	3.88	Satisfied	85.28
3	Knowledge, ability, and politeness (assurance)	4.66	Very Important	3.66	Satisfied	78.49
4	Ease of interaction (empathy)	4.73	Very Important	3.89	Satisfied	82.41
5	Physical infrastructure (direct evidence /Tangibility)	4.70	Very Important	3.81	Satisfied	80.98
6	Average	4.66	Very Important	3.86	Satisfied	82.73

Furthermore, the average value of the level of interest and the performance is analyzed on Importance-performance Matrix, in which the x-axis represents the perception while the axis y

represents hope. Then the results obtained in the form of drawings as follows:

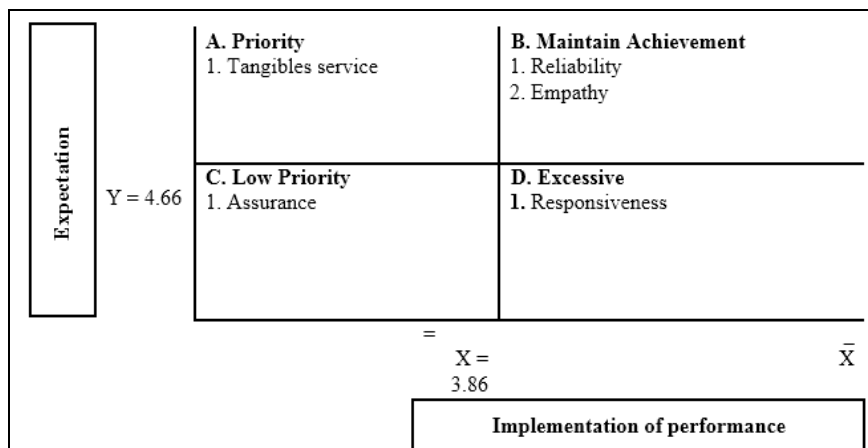


Fig 2: Cartesian diagram of Quality of Service and Performance / Student Satisfaction of the Education Service Provision

Based on score calculation that have been made, variables of reliability, responsiveness, assurance, empathy, and tangible, two best items are revealed that is the ability of health polytechnic Semarang in providing services reliability and ease of interaction (empathy) conducted by the ministry of Health Polytechnic of Semarang for the provision of educational services. By analysis of Importance-Performance

Analysis (IPA) it can be seen, there are things that must be improved in the future, namely: Physical Infrastructure (Direct evidence /Tangibility).

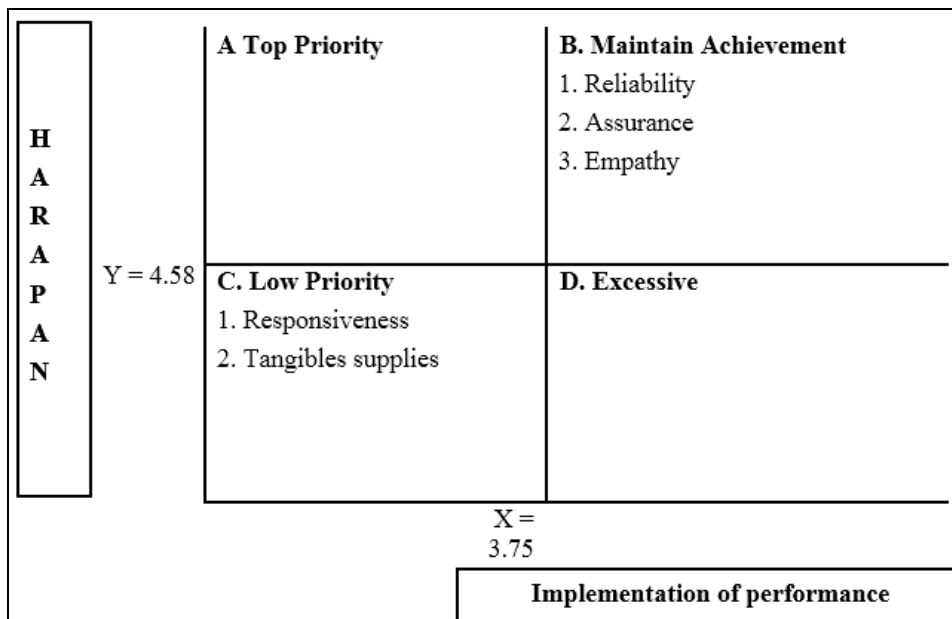
Further, employees were asked to assess the level of interest and performance of health polytechnic Semarang include: reliability, responsiveness, assurance, empathy, and physical evidence (tangibility) to the provision of educational services.

**Table 3:** Analysis of internal customer satisfaction (employees) to the educational services

No	Component	Quality of Service	Category	Level of Satisfaction	Category	Suitability (%)
1	The ability to provide services (reliability)	4:59	Very Important	3.78	satisfied	82.22
2	Interest in assisting customers (responsiveness)	4:54	Very Important	3.63	satisfied	79.85
3	Knowledge, ability, and politeness (assurance)	4:58	Very Important	3.80	satisfied	82.85
4	Ease of interaction (empathy)	4.63	Very Important	3.85	satisfied	83.13
5	Physical infrastructure (direct evidence /tangibility)	4:54	Very Important	3.70	satisfied	81.60
6	Average	4:58	Very Important	3.75	satisfied	81.94

Furthermore, the average value of the level of interest and the performance is analyzed on the Importance-performance

Matrix, in which the x-axis represents the perception while the y-axis represents hope.



**Fig 3:** Cartesian diagram on quality of service and performance/employee satisfaction

Based on customer satisfaction score calculation (employees) that have been made, variable reliability, responsiveness, assurance, empathy, and tangible can be seen best three items are the ability Polytechnic of Semarang Health Ministry in giving services (reliability), knowledge, expertise and politeness (assurance) as well as aspects of empathy or the convenience of making connections made by the Ministry of Health Polytechnic of Semarang for the Provision of educational services. By analysis of Importance-Performance

Analysis (IPA), it can be seen that there are no things to be improved in the future.

Table 4 states that the stakeholders have the perception of the performance of graduates health polytechnic of Semarang with the assessment that the integrity (Ethics & Moral), skills, knowledge, leadership, cooperation, foreign language skills (English communication skills, the ability to use IT, discipline, honesty, motivation, work ethic, innovation, and ability to solve the problem.

**Table 4:** Analysis of external customer satisfaction (Graduates User) on the performance

	Aspect Assessment of Graduate	Satisfaction	Category
1	Integrity	3.0	Good
2	Skills	2.9	Good
3	Insight	2.8	Good
4	Leadership	2.7	Good
5	Cooperation	2.9	Good

6	Foreign languages	2.3	Good
7	Communication	3.0	Good
8	Use of IT	2.8	Good
9	Disciplines	2.9	Good
10	Upright	2.9	Good
11	Work motivation	3.0	Good
12	Work ethic	2.9	Good
13	Innovation	2.7	Good
14	Solving the problem	2.8	Good
	Average	2.8	Good

The theory of satisfaction and dissatisfaction of consumers made up of models disconfirmation of expectations, which explains that the satisfaction or dissatisfaction of consumers is a result of a comparison between the expectations of customers before purchase by actually obtained by the customers of your products or services <sup>[9]</sup>. Customer expectations while buying consider the function of the product (product performance). Product functions, among others <sup>[10]</sup>:

1. The product can function better than expected, so-called positive disconfirmation (positive disconfirmation). If this happens then, the customer will be satisfied.
2. The products can function as expected, called confirmation (simple confirmation). The product does not give a sense of satisfaction, and the product does not disappoint so that customers will have a neutral feeling.
3. Products can function worse than expected, so-called negative disconfirmation (negative disconfirmation). When this happens, it will lead to disappointment, so that customers are not satisfied.

In this study, student respondents feel satisfied with the product and services of Ministry of Health Polytechnic Semarang regarding the provision of educational services for three of the best items that lecturers services, administrative services, and laboratory services. This means that students consider assistance of Ministry of Health Polytechnic of Semarang in the administration of educational services can function better than expected, or it is so-called positive disconfirmation <sup>[11]</sup>. It should be noted that customer satisfaction is the result of the accumulation of consumer willingness to use products and services <sup>[12]</sup>. Therefore, any transaction or new experiences, have an impact on customer satisfaction. Similarly, customer satisfaction has a dimension of time as a result of accumulation. Therefore, anyone who is involved in the affairs of customer satisfaction has been engaged in a long-term relationship. Efforts to satisfy the customer is a long experience that knows no boundaries end <sup>[13]</sup>. In this study, lecturers feel satisfied with the product and services from Ministry of Health polytechnic Semarang in terms of provision of educational services for three of the best items: the ability of Ministry of Health polytechnic Semarang in delivering services (reliability), the desire to help students (responsiveness) as well as the knowledge, skill and politeness (assurance) or the provision of educational services. So we can say that the three items mentioned above have excellent quality services to meet the expectations of the lecturers. Quality of service is the expected level of excellence and control over the level of excellence to satisfy customer desires <sup>[14, 15]</sup>, or in other words, there are two main factors that affect

the quality of services, the *expected service*, and *perceived service* <sup>[16]</sup>. If the services received or perceived as expected, then the perceived service quality is excellent and satisfactory. If the services received exceed customer expectations, the quality of service perceived as an ideal quality. Conversely, if the services received are lower than expected, then it is perceived as the weak quality of services. Thus whether or not the quality of service depends on the ability of service providers to meet customer expectations consistently <sup>[1, 17]</sup>. In the Ministry of Health Polytechnic Semarang analogized as a company that focuses on health education services, then the employee's role is as a communicator and representative of the corporate image. The failure of employees to convey a right image to customers will have a negative impact on the perception of the company.

Employee performance is shown through the quality of services provided to the customers so that the company is perceived on the base of customers' evaluation on the quality of service of employees, other than through human resources practices such as assessment of supervisors, peers, and superiors <sup>[18]</sup>. For the *front-office* employees who often functioned by salespeople, their work performance assessed by looking at the growth rate and the level of customer migration. Factors that influence customer satisfaction one of them is the quality of the product: Product quality is said fulfilled the expectations of consumers based on the actual performance of the product <sup>[10, 12, 13]</sup>. In this case, the Ministry of Health Polytechnic Semarang Graduates is the products for the provision of educational services, and consumers are those who utilize the products of Ministry of Health polytechnic Semarang, Indonesia.

#### 4. Conclusions

1. Students considered that the three best items in the provision of educational services are service of lecturers, administrative services, and laboratory services.
2. Lecturer judge that the two best items are made for the provision of educational services: the ability to provide services and ease of interaction. By analysis of Importance-Performance Analysis (IPA), it can be seen the thing that must be improved in the future is physical infrastructure.
3. Employees considered that the three best items in the provision of educational services are: the ability to provide services, knowledge, expertise, and politeness as well as empathy.
4. Overall, the users have a reasonable level of satisfaction toward the graduates of Ministry of Health Polytechnic Semarang, Indonesia.

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