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SERVICE SYSTEM DESIGN AT UNIVERSITY WITH BENEFIT AND EXPERIENCE APPROACH

Bambang Karsono[1], Taufiq Immawan[2] A.Dwi Wahyuni. P[3], Ahmad Padhil[4]
[1,2] Department of Industrial Engineering, Islamic University of Indonesia
Jl. Kaliurang Km. 14,5 Sleman, Yogyakarta 55584
[3,4] Department of Industrial Engineering, Universitas Muslim Indonesia
E-mail: bambang.18@umi.ac.id[1] , 985220101@uii.ac.id[2]

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ABSTRACT

The world of education, in this case universities, can be seen as service providers, while students are seen as service users. Students are the most important element for educational institutions, listening to whether the services provided are in accordance with their expectations. Education payment services or what is often referred to as SPP/BPP are financial transactions or payments made by students with the aim of supporting educational development activities. The purpose of this research is to assist tertiary institutions in improving the quality-of-service quality by analyzing the priority of improvements that must be carried out immediately along with the corrective steps. Based on the research results, it is known that the proposed service system specifications for tertiary institutions are in accordance with the needs of students. some of the attributes proposed are
(1) Payment procedures, (2) The concept of payment with experience & benefits, (3) Service systems, and (4) Service response.

Keywords: Service Quality, Experience, Benefit, Quality Function Deployment.

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Universitas Muslim Indonesia
Address :
Jl. Urip Sumoharjo Km. 5 (Kampus II UMI)
Makassar Sulawesi Selatan.
Email :
Jiem@umi.ac.id
Phone :
+6281341717729
+6281247526640

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1. INTRODUCTION

The world of education, in this case, universities, can be seen as a service or service provider, while students are seen as users of services or services, which are called consumers or customers (Anisah *et al.*, 2020). Service quality and customer satisfaction are different concepts, but customer satisfaction and service quality are determined in the same way by comparing customer expectations with perceptions of the performance they receive (Wirtz and Lovelock, 2017). Education payment services or often known as SPP/BPP are financial transactions or payments made by students with the aim of supporting educational development activities(Roza *et al.*, 2020).

The Indonesian Muslim University (UMI) is a private university in the city of Makassar, South Sulawesi. This university was founded on June 23, 1954, and in terms of age, UMI is the oldest university in eastern Indonesia that opened and has a Faculty of Industrial Technology. FTI-UMI was founded on June 16, 1987, and currently has four study programs namely, Industrial Engineering, Chemical Engineering, Mining Engineering, and the Professional Engineer Program. However, in carrying out its functions, FTI-UMI cannot be separated from student complaints and dissatisfaction with the quality of services that have been provided.

The SPP/BPP payment service system currently still faces several problems that need to be addressed. The problem that often occurs is limited facilities and infrastructure. Universities that do not yet have a well-integrated payment system still use a manual system. This often causes difficulties in the payment process, such as very long queues, errors in calculations, and loss of proof of payment. The next problem is related to the payment of tuition fees/BPP for students who come from underprivileged families. Many underprivileged families have difficulty paying tuition fees/BPP so that some students are hampered in making payments, some students choose to take time off, several new students choose to withdraw because of their inability to pay for college.

Therefore, the purpose of this research is to improve the quality-of-service in tertiary institutions, especially in the process of paying tuition fees. Where this research process uses the root cause analysis (RCA) method as a tool to identify the root causes of problems and the QFD method to find a service design that fits the needs of customers/students.

2. METHODS

a. Root Cause Analysis (RCA)
   Root Cause Analysis (RCA) is a process method for identifying and determining the root causes of certain problems. RCA is a structured investigation that aims to identify the true causes of a problem and the actions needed to eliminate these causes (Susendi *et al.*, 2021). This root cause analysis is used to analyze processes with the aim of obtaining weak processes that cause problems that adversely affect service (Pratama *et al.*, 2018).
b. Quality Function Deployment (QFD)
   The QFD method is a structured method used in the product and service development process to determine the specific needs and wants of customers, as well as evaluate the ability of a product or service to meet customer needs and wants. Several companies have applied QFD in practice and reported significant benefits (Zairi and Youssef, 1995). the Quality Function Deployment (QFD) method to translate the voice of the customer into design, materials, processes, and production
c. Experience and Benefit
   Customer Experience is an indicator of the success of services provided by service providers, good customer experience will have an impact on the sustainability of a business (Setiawan and Hermawan, 2022). Therefore, service providers always design to provide the best experience so that customers not only receive information, but customers can also feel the benefits of being involved with these services (Ivone *et al.*, 2022).

According to research put forward by (Sumarwan *et al.*, 2010)), that customer benefits come from product appearance, service, and reputation. Customers who feel they are getting value or benefits will feel a satisfaction.

d. Participant
The sample consisted of 97 active students from three study programs using the slovin method.

3. FINDINGS AND DISCUSSION

3.1. Findings

In preparing this questionnaire, the first stage was carried out by discussing and sharing with several groups of students to get input about the wishes of the students. Then from the results of discussions and direct interviews with the students, the following attributes can be drawn:

Table 1. Attributes of Student Desires for SPP/BPP Payment Services

No	Attributes	Quality Dimension
X1	Ability of Staff in Helping to Solve Problems related to SPP/BPP Payments	Reliability
X2	Ability of Staff in Answering Student Questions regarding Tuition/BPP Payments	
X3	Clarity of Student Service Procedures	
X4	Speed and Accuracy of Staff Service	Responsivenes
X5	The alertness of administrative staff in serving students	
X6	Ease of Obtaining Information Regarding SPP/BPP Payments	
X7	Ease of Paying SPP/BPP	
X8	Certainty of Service Time is in Accordance with the Rules	Assurance
X9	Assurance That the Service has been provided in accordance with the Rules	
X10	Staff Serving with Appreciation	Empathy
X11	Friendliness and Courtesy in Providing Services	
X12	Ease of Obtaining SPP/BPP information	Tangible
X13	Ease of making SPP/BPP payments	

Data analysis technique

Validity and Reliability Test

Test the validity in this study using Microsoft excel. The significance test was carried out by comparing the value of r count with r table for degree of freedom (df) = n-2, in this case n is the number of samples, in this case the number of samples (n) = 97 and the amount of df can be calculated 97 - 2 = 95 with df = 95 and alpha 0.05, we get r table = 0.1680. Based on the calculation results, all statement attributes are declared valid and reliable

3.2. Discussion

a. Root Cause Analysis (RCA)
The stages of cause and effect analysis function to find the root of the problems that occur. The problems that occur have two root causes, namely related to financial problems and unsatisfactory service. Problems have causes, such as staff in the SPP/BPP payment section making records but not in accordance with the real situation. These things, for example, become causes that can harm students or tertiary institutions (see figure 1). Financial problems have causes (1) Not making payments with reasons or causes for high SPP/BPPP costs and no payment relief, (2) High installments for reasons or causes of difficulty in billing installments, and there are no specific conditions for making payments payment, and (3) There are students who are late paying with reasons or causes of lack of convenience in the payment process because

there are no payment instructions. Meanwhile, unsatisfactory service problems have causes (1) misunderstandings in the transaction process due to input or recording errors from officers/staff in the payment section which can harm students, and (2) long queues when making payments with reasons or causes of a lack of number of payment counters and Payment services are less fast due to the lack of officers/staff and the input process is done manually.

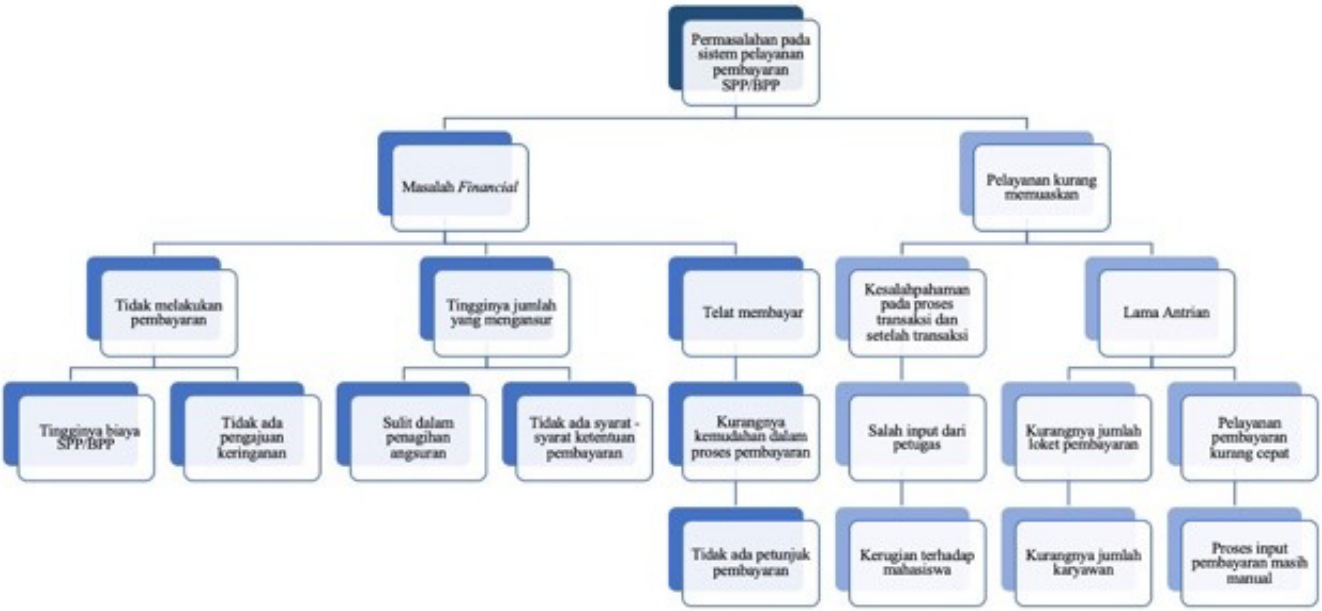


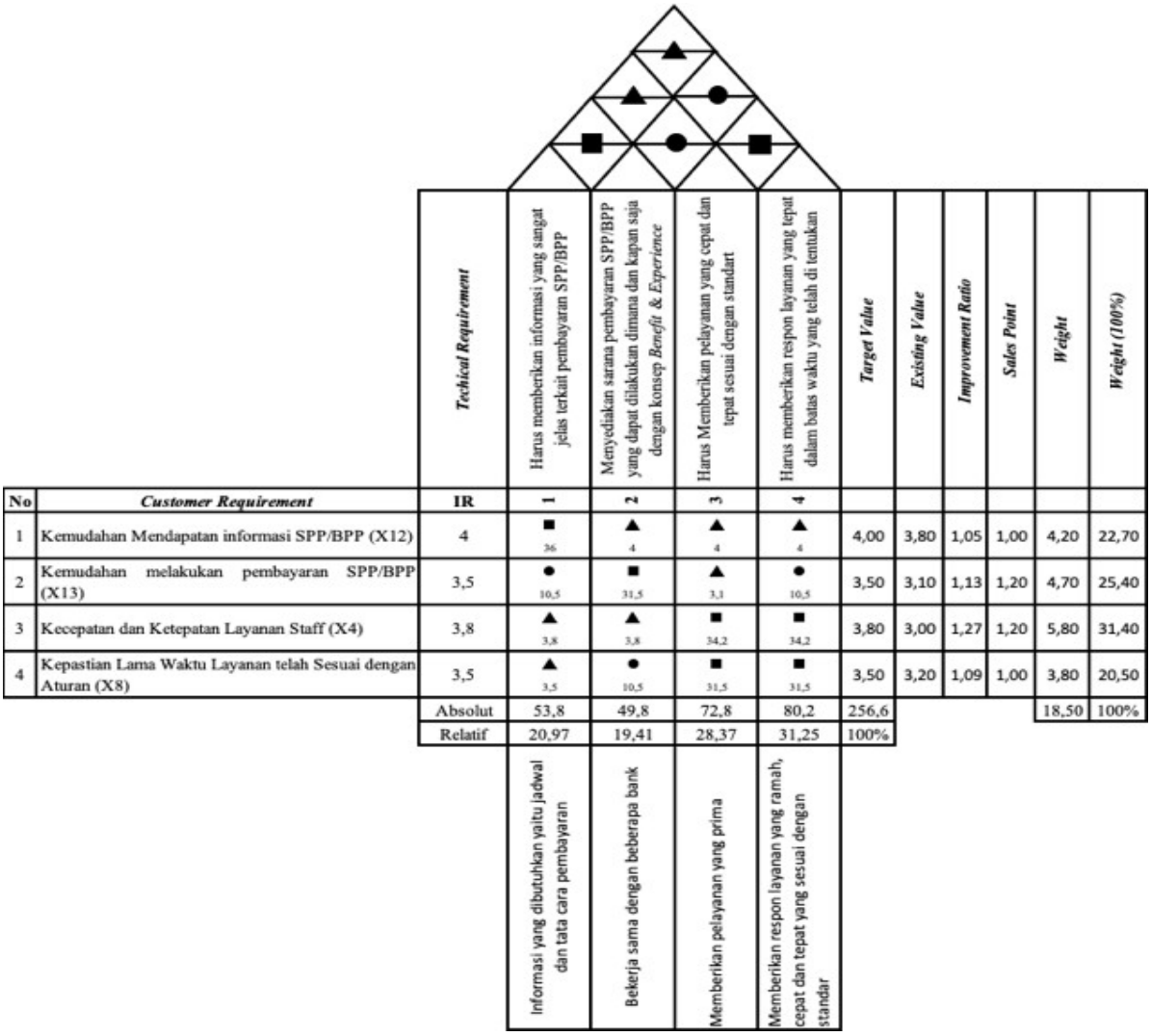
Figure 1. Root Cause Analysis

b. Quality Function Deployment (QFD)

1) House of Quality (HOQ) Matrix Customer Needs and Expectations (Customer Needs and Benefits)

The first stage that must be carried out in this research is to look for the attributes desired by consumers for the services provided by tertiary institutions by using the questionnaire method. From the results of the questionnaire consisting of 97 student respondents, it can be seen that the attributes of the expectations of the needs/interests in service delivery can be seen in table 1. After the Root Cause Analysis was carried out using Fault Tree Analysis, several representative attributes were selected which are the priority things for immediate improvement by universities, and at the same time become the voice of the customer (VOC) which is the main requirement in establishing a House of Quality.

The essence of QFD is a large matrix that will relate what the customer wants (What) and how a product will be designed and produced to meet customerneeds. The focus of QFD is to involve the customer in the product development process as early as possible, which needs and wants. The application of the QFD methodology in the product/service design process begins with the establishment of a product/service planning matrix, also known as the house of quality. Determination of the attributes of consumer desires is determined based on the results of the open questionnaire recapitulation obtained 13 attributes of customer wants/needs. Determination of Technical Characteristics (Engineering Characteristics) is carried out by conducting interviews with the University. The picture of the University's House of Quality can be seen in Figure 2.



No	Customer Requirement	IR	1	2	3	4	Target Value	Existing Value	Improvement Ratio	Sales Point	Weight	Weight (100%)
	Technical Requirement		Harus memberikan informasi yang sangat jelas terkait pembayaran SPP/BPP	Menyediakan sarana pembayaran SPP/BPP yang dapat dilakukan dimana dan kapan saja dengan konsep *Benefit & Experience*	Harus Memberikan pelayanan yang cepat dan tepat sesuai dengan standart	Harus memberikan respon layanan yang tepat dalam batas waktu yang telah di tentukan						
1	Kemudahan Mendapatan informasi SPP/BPP (X12)	4	■ 26	▲ 4	▲ 4	▲ 4	4,00	3,80	1,05	1,00	4,20	22,70
2	Kemudahan melakukan pembayaran SPP/BPP (X13)	3,5	● 10,5	■ 31,5	▲ 3,1	● 10,5	3,50	3,10	1,13	1,20	4,70	25,40
3	Kecepatan dan Ketepatan Layanan Staff (X4)	3,8	▲ 3,8	▲ 3,8	■ 34,2	■ 34,2	3,80	3,00	1,27	1,20	5,80	31,40
4	Kepastian Lama Waktu Layanan telah Sesuai dengan Aturan (X8)	3,5	▲ 3,5	● 10,5	■ 31,5	■ 31,5	3,50	3,20	1,09	1,00	3,80	20,50
		Absolut	53,8	49,8	72,8	80,2	256,6				18,50	100%
		Relatif	20,97	19,41	28,37	31,25	100%					
			Informasi yang dibutuhkan yaitu jadwal dan tata cara pembayaran	Bekerja sama dengan beberapa bank	Memberikan pelayanan yang prima	Memberikan respon layanan yang ramah, cepat dan tepat yang sesuai dengan standar						

Figure 2. House of Quality

Customer requirements are obtained from selected attributes which are priority problems and are the most complained about by students and have not been fulfilled or need to be corrected by universities. The results of the priority sequence of customer requirements obtained are as follows:

1) Ease of Obtaining SPP/BPP information (X12) with an importance rating of 4.0 which is one of the Tangible dimensions
2) Ease of making SPP/BPP payments (X13) with an importance rating of 3.5 which is one of the dimensions of Physical Evidence (Tangible)
3) Speed and Accuracy of Staff Service (X4) with an importance rating of 3.8 which is one of the dimensions of the Responsiveness dimension
4) Certainty of the Length of Service Time in Accordance with the Rules (X8) with an importance rating value of 3.5 is one of the dimensions of the Assurance dimension

Technical requirements are obtained from customer needs which are translated into the technical language to make it clearer in the form of steps that need to be prioritized according to the matrix, namely as follows:

1) Universities must provide very clear information regarding payment of tuition fees/BPP (X12), with an absolute interest value of 53.8.
2) Universities Must Provide a means of paying SPP/BPP which can be done anywhere and anytime with the concept of Benefit &Experience (X13), with an absolute interest value of 49.8.
3) Universities Must Provide fast and precise

services in accordance with standards (X4) with an absolute importance value of 72.8.

4) Higher Education Must Produce an appropriate service response within a predetermined time li mit (X8) with an absolute importance value of 80.2

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c. Proposed Benefit & Experience Based Service System Design

Based on the proposed improvement design, it can be seen that providing facilities in collaboration with several banks has the most influence on other attributes, therefore this attribute is prioritized for improvement. Based on the proposed system improvement design related to the HOQ matrix relationship, it can be explained as follows:

1) Technical requirements in the form of tertiary institutions must provide information boards/brochures regarding the procedure for payment of SPP/BPP is a technical requirement that has a strong relationship with providing a means of payment that can be made anywhere and anytime, while it has a weak relationship with providing fast and appropriate services according to with standards and provide appropriate service response within a predetermined time limit.

2) Technical Requirements in the form of University must cooperate with several banks related to payment of SPP/BPP is a Technical requirement that has a moderate relationship with having to provide a fast and appropriate service response in accordance with standards and provide appropriate service responses within a predetermined time limit .

3) Technical Requirements in the form of University must provide a fast and appropriate service response in accordance with standards, namely technical requirements that have a strong relationship with having to provide appropriate service responses within a predetermined time limit.

4. CONCLUSION AND SUGGESTION

Based on the analysis and discussion results that have been carried out in the previous chapter, the following conclusions can be drawn: The service system needed by students is to make it easier for students to get SPP/BPP

a. information (X12), make it easier for students to make SPP/BPP payments (X13), provide speed and accuracy of staff services (X4), and ensure the length of service time is in accordance with the rules (X8).

b. A verification test has been carried out that the specifications of the service system proposed for University are in accordance with the needs of students. Some of the attributes that were proposed were Providing information boards/brochures regarding SPP/BPP payment procedures (1), The Concept of Ease of Making SPP/BPP Payments in collaboration with several Bank parties (2), Providing excellent service and Improving coordination between employees (3), and provide a friendly service response and provide a fast and precise response.

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