

# Analysis of Student Satisfaction with Services Using the Service Quality (ServQual) Method

*M.Dzikri<sup>1</sup>, Lilis Suryani Napitupulu<sup>2</sup>, Donni Nasution<sup>3</sup>  
<sup>1,2,3a</sup>Universitas Prima Indonesia*

## ABSTRACT

This study aims to analyze the level of student satisfaction with services at SMK Swasta Perguruan Mabbar, a private vocational school in North Sumatra that offers education in Accounting. The quality of school services, which includes learning services, management, facilities, and other aspects, is the main focus in an effort to increase student satisfaction and improve the quality of education. The Service Quality (ServQual) method is used in this study to evaluate service quality based on five dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. The results of the analysis show that the level of student satisfaction is 3.482, which is categorized as good. This finding indicates that the ServQual method is effective in measuring student satisfaction by using expected value as the main benchmark, thus providing more accurate and objective results in assessing student satisfaction with the services provided. This research is expected to provide insight for school management to further improve the quality of services provided to students.

**Keywords:** Students, Satisfaction, School, Service Quality

## INTRODUCTION

SMK Swasta Perguruan Mabbar is a private vocational school in North Sumatra that offers education in the field of Accounting. School is a place to study from a cycle that has a major contribution in an effort to improve the ability of a child's potential and the development of a nation [1][2]. The services provided by schools must be comprehensive and meet the needs of various parties, not only students, but also parents, and the world of work. School quality can be seen from the quality of school services which is an important aspect that reflects the school's commitment in providing optimal education to its students [3][4]. Service quality is a very important thing that is used as a reference in service management. Student satisfaction is a measure of how well students' expectations and needs are met by the services provided by the school [5].

To be able to realize good quality, students play an important role, because they must provide the best quality service [6]. Because so far there has been no evaluation of the quality of service to determine the level of satisfaction received by students, which is the main part of the form

of achievement of efforts in the field of learning which is currently related to what students feel [7][8]. To measure the level of service quality including learning services, management services, facility services and others [9].

The problems faced by SMK Perguruan Mabar Private Vocational School are quite diverse, especially those related to service quality. One of the methods used is the Service Quality Method to assess the superiority of the level of service provided from each aspect, then it can be seen from the difference between consumer assessments of the services they expect to receive [10][11]. The ServQual method used to measure service quality with 5 dimensions related to student satisfaction levels, namely Tangibles, Reliability, Responsiveness, Assurance, Emphaty. In this study, the authors are interested in conducting a study entitled “Analysis of Student Satisfaction with Services Using the Service Quality (ServQual) Method”.

## **METHODS**

### **Type of Research**

To achieve the objectives of this study, researchers used quantitative research. Quantitative research is the process of collecting data in the form of numbers, in order to analyze the desired information [12]. This measurement is carried out using valid research instruments, then processed and analyzed statistically to produce quantitative data that can be interpreted.

### **Research Methodology**

The Service Quality method is a method of measuring service quality by assessing each attribute dimension by varying which shows the difference between the expected service and the service received [13]. In addition, this method can help solve the problems being analyzed, and find new solutions to existing problems, therefore the service quality method obtains a Gap value which will be a factor in determining the expected performance improvement [14]. Service Quality mengandung 5 dimensi utama yang merupakan aspek-aspek penting dalam mengukur kualitas layanan [15]:

- a. Tangibles (Physical evidence), which describes the physical appearance of facilities, equipment and employees.

- b. Reliability (Reliability) states the ability to deliver the promised service accurately and consistently.
- c. Responsiveness, namely the readiness and ability of the workforce to help customers and provide services quickly and responsively.
- d. Assurance includes the knowledge and skills, politeness, and alertness of the staff in serving customers.
- e. Emphaty (Empathy) includes care, special attention, good communication, and customer feelings.

### Research Procedure

The research conducted several stages to achieve the research objectives, the following explanation of the steps in this research design can be seen from the flowchart in the following figure :

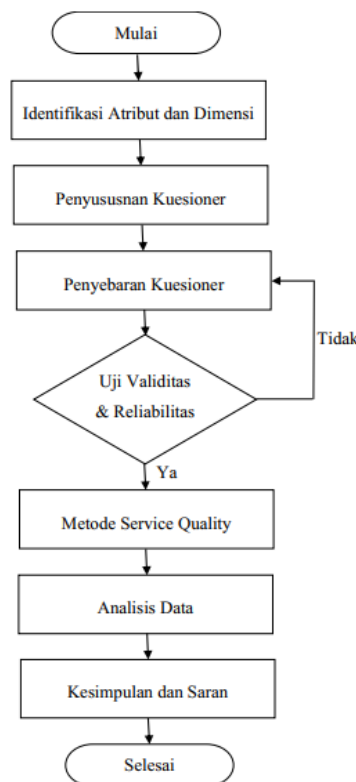


Figure 1 Research procedure

## RESULTS

### Diagnosis of Problems

This research not only uses complex statistical formulas, but also applies the Service Quality approach to analyze the data. The use of the Service Quality method is unique to this research, where respondents' answers are categorized based on percentages. This method makes it possible to gain a more in-depth and comprehensive understanding of the quality of service received. By combining complex statistical analysis and Service Quality methods, this study is able to provide a more complete picture of the quality of education services in schools. This is expected to help in the formulation of more effective and efficient service quality improvement strategies.

### Data Exploration

This study uses data from a 19-item questionnaire filled out by SMKS Perguruan Mabar students to measure the perceived quality of SMKS Perguruan Mabar management services. The following characteristics are used as the basis for measurement:

**Table 1 Questionnaire Completion Data**

No	Column Name	Description
1	Name	Name of Student/I
2	Class	Class Student/I
3	Gender	Gender of Student/I
4	No Whatsapp	Student's Whatsapp number
5	Questionnaire Questions	19 Question Items Distributed

The questions that will be asked to respondents can be seen below:

**Table 2 Questionnaire Questions**

No	Dimension	Question
1	Tangible	What do you think about the facilities (tables, chairs, blackboards and books in the library) at school?
2		What do you think about the infrastructure (school building, study hall, sports field, art room and library) in the school?
3		Is the school environment neat and clean to your satisfaction?
4		What do you think about the teacher's ability to discuss and interact in class?

5	Reability	Has each teacher mastered the learning materials that will be taught to students satisfactorily?
6		Is the extracurricular coaching service satisfactory?
7		Is the teacher on time in teaching that has been scheduled satisfactory?
8	Responsivnes	Is each teacher's attention and positive response to student complaints satisfactory?
9		Does the school always provide fast and precise services to students satisfactorily?
10		Is it satisfactory that teachers provide prompt action when needed?
11		Is the administration service fast in providing services?
12	Assurance	What do you think about the school discipline regarding entering school on time?
13		What do you think about the rules applied at school?
14		Is the certainty that the manager's services are in accordance with the provisions satisfactory?
15		Are the students treated fairly without discriminating satisfactorily?
16	Emphaty	Is it satisfactory that teachers provide services to students regardless of social status?
17		Is the role of teachers in giving extra attention to students who give complaints and feedback satisfactory?
18		Is it satisfactory for the school, especially teachers, to understand students' needs?
19		Is the manager's concern in giving attention to students satisfactory?

### Answer Scale

In this study, the Likert Scale will be used to rate the research variables in the range of 1 to 5. The variables to be measured are converted into indicators using a Likert scale.

### Validity Test

The validity test is an important step in ensuring the quality of the questionnaire. A valid questionnaire will produce accurate and reliable data to measure the variables to be studied. One method commonly used to test the validity of questionnaires with a Likert scale is Pearson correlation [16]. The correlation value obtained from the questionnaire was compared with the r table value at a significance level of 0.05 and a sample size of 30 respondents. The df (degrees of freedom) value is calculated using the n-2 formula, which in this case results in 28. The r table value used as a reference is 0.374.

$$r_{xy} = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{(N\sum x^2 - (\sum x)^2)(N\sum y^2 - (\sum y)^2)}}$$

$r_{xy}$  = Correlation coefficient between variable X and variable Y

$\sum xy$  = Sum of multiplication between x and Y variables

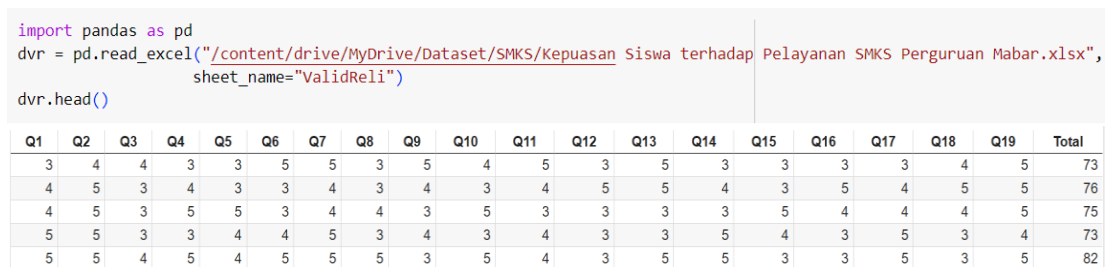
$\sum x^2$  = Sum of the squares of X values

$\sum y^2$  = Sum of squares of Y values ,2

$(\sum x)^2$  = Sum of X values then squared 2

$(\sum y)^2$  = The sum of the Y values then squared

The following are the results of the calculation of the validity test of perdimensional data with Python Programming If r count > r table then the question item is declared valid, if r count < r table the question item is declared invalid.



**Figure 2 Validity and Reliability Test Data**

**Table 3 Validity Test Table**

Pertanyaan	Nilai Signifikansi	Keterangan
Q1	0.838029	Valid
Q2	0.758717	Valid
Q3	0.701233	Valid
Q4	0.832731	Valid
Q5	0.752477	Valid
Q6	0.734846	Valid
Q7	0.757728	Valid
Q8	0.746880	Valid
Q9	0.688630	Valid
Q10	0.813306	Valid
Q11	0.796268	Valid
Q12	0.793577	Valid
Q13	0.786203	Valid
Q14	0.643771	Valid
Q15	0.743437	Valid
Q16	0.835104	Valid
Q17	0.875166	Valid
Q18	0.821539	Valid
Q19	0.746005	Valid

**Reliability Test**

Reliability testing is an important step in ensuring the quality of the questionnaire. A reliable questionnaire will produce consistent and stable data, so it can be trusted to measure the variables to be studied. One method commonly used to test the reliability of questionnaires with a Likert scale is Cronbach's Alpha:

$$r_{11} = \left( \frac{n}{n - 1} \right) \left( 1 - \frac{\sum \sigma_t^2}{\sigma^2} \right)$$

r<sub>11</sub> = reliability sought

n = Number of question items tested

Σσ<sub>t</sub><sup>2</sup> = Total variance of each item score

σ<sup>2</sup> = Total variance

```
def cronbach_alpha(dvr):  
    dvr_corr = dvr.corr()  
    N = dvr.shape[1]  
    rs = np.array([])  
    for i, col in enumerate(dvr_corr.columns):  
        sum_ = dvr_corr[col][i+1:].values  
        rs = np.append(sum_, rs)  
    mean_r = np.mean(rs)  
    cronbach_alpha = (N * mean_r) / (1 + (N - 1) * mean_r)  
    return cronbach_alpha  
print('Nilai Cronbach Alpha :',cronbach_alpha(dvr))
```

Nilai Cronbach Alpha : 0.9685615877506719

**Figure 3 Reliability Test**

Based on Figure 3.1 above, it is obtained that the questionnaire measuring student perceptions with 19 questions on the SERVQUAL dimension has an Alpha Cronbach value of 0.968. This value is much higher than the minimum standard of 0.6, indicating that the questionnaire has very high reliability.

### Student Satisfaction Assessment

Service quality is determined through data analysis to assess whether a variable has a positive or negative impact on the service quality of Perguruan Mabar Private Vocational High School. Student satisfaction with management services can be measured using the following equation 1 [citation]:

$$Rk = \frac{Tsk}{Tk}$$

Where :

Rk = Average satisfaction

Tsk = Total Questionnaire Score

Tk = Total Questionnaire

The Service Quality method, by utilizing customer data to measure five key dimensions of service (Tangible, Empathy, Responsiveness, Reliability, and Assurance), enables the identification and rectification of service quality problems. The Servqual approach plays an important role in formulating appropriate strategies to overcome these problems. The results of this study will offer improvements to performance issues with identified problems. Furthermore, data from 100 student responses to the survey will be evaluated using the Service Quality approach.



The results of the questionnaire using the Service Quality technique are shown in Tables 3.3, 3.4, 3.5, 3.6, 3.7, and 3.8 below :

### 1. Tangibles

The Tangibles indicator contains 4 questions which can be seen in the following table showing the results of students' answers to the school services of SMK Swasta Perguruan Mabar.

**Table 4 Tangibles Indicators**

```
dv = pd.read_excel('/content/drive/MyDrive/Dataset/SMKS/Kepuasan Siswa terhadap Pelayanan SMKS Perguruan Mabar.xlsx',
                 sheet_name='Tangible')
data_table.DataTable(dv.head(20), include_index=False)
```

Pertanyaan	Sangat Kurang = 1	Kurang = 2	Cukup = 3	Baik = 4	Sangat Baik = 5
Q1	3	14	29	47	7
Q2	0	14	36	44	6
Q3	0	8	29	49	14
Q4	2	4	30	48	16
Total	5	40	124	188	43

In finding the results of the assessment of student school services in the Tangibles dimension can be seen in Figure 3.3 below :

```
TSK = (5*1)+(40*2)+(124*3)+(188*4)+(43*5)
TK = 5+40+124+188+43
print('Nilai Seluruh Kelas :',TSK)
print('Nilai Total Kelas :',TK)
hasil = TSK/TK
print("Hasil Tangibles = ", hasil)

Nilai Seluruh Kelas : 1424
Nilai Total Kelas : 400
Hasil Tangibles = 3.56
```

**Figure 4 Tangibles Average Value**

The average satisfaction level, calculated based on the data from table 3.3, was 3.56. The Performance Indicator material is rated as Good based on the Likert Scale assessment criteria. Thus, it can be concluded that the Tangibles variable produces Good results.

### 2. Reliability

The Tangibles indicator contains 3 questions which can be seen in the following table showing the results of students' evaluation of the school services of SMK Swasta Perguruan Mabar :

**Table 5 Reliability Indicator**

```

dv = pd.read_excel('/content/drive/MyDrive/Dataset/SMKS/Kepuasan Siswa terhadap Pelayanan SMKS Perguruan Mabar.xlsx',
                  sheet_name='Reliability')
data_table.DataTable(dv.head(20), include_index=False)
    
```

Pertanyaan	Sangat Kurang = 1	Kurang = 2	Cukup = 3	Baik = 4	Sangat Baik = 5
Q5	0	7	18	50	25
Q6	1	19	38	35	7
Q7	0	9	37	45	9
Total	1	35	93	130	41

In finding the results of the assessment of student school services in the Reliability dimension can be seen in Figure 3.4 below :

```

TSK = (1*1)+(35*2)+(93*3)+(130*4)+(41*5)
TK = 1+35+93+130+41
print('Nilai Seluruh Kelas :',TSK)
print('Nilai Total Kelas :',TK)
hasil = TSK/TK
print("Hasil Reliability = ", hasil)
    
```

Nilai Seluruh Kelas : 1075  
 Nilai Total Kelas : 300  
 Hasil Reliability = 3.5833333333333335

**Figure 3.5 Average Reliability Score**

The average satisfaction level, calculated based on the data from table 3.6, was 3.58. The Performance Indicator material is rated as Good based on the Likert Scale assessment criteria. Thus, it can be concluded that the Reliability variable produces Good results.

### 3. Responsiveness

The Tangibles indicator contains 4 questions which can be seen in table 3.5 below showing students' answers to the school services of SMK Swasta Perguruan Mabar.

**Table 6 Responsiveness Indicator**

```

dv = pd.read_excel('/content/drive/MyDrive/Dataset/SMKS/Kepuasan Siswa terhadap Pelayanan SMKS Perguruan Mabar.xlsx',
                  sheet_name='Responsiveness')
data_table.DataTable(dv.head(20), include_index=False)
    
```

Pertanyaan	Sangat Kurang = 1	Kurang = 2	Cukup = 3	Baik = 4	Sangat Baik = 5
Q8	2	11	33	41	13
Q9	3	20	32	36	9
Q10	2	17	33	35	13
Q11	3	16	27	44	10
Total	10	64	125	156	45

In finding the results of the assessment of student school services in the Responsiveness dimension can be seen in Figure 3.5 below :

```
TSK = (10*1)+(64*2)+(125*3)+(156*4)+(45*5)
TK = 10+64+125+156+45
print('Nilai Seluruh Kelas :',TSK)
print('Nilai Total Kelas :',TK)
hasil = TSK/TK
print("Hasil Responsiveness = ", hasil)

Nilai Seluruh Kelas : 1362
Nilai Total Kelas : 400
Hasil Responsiveness = 3.405
```

**Figure 6 Average Responsiveness Score**

The average satisfaction level, calculated based on the data from table 3.5, was 3.40. The Performance Indicator material is rated as Good based on the Likert Scale assessment criteria. Thus, it can be concluded that the Responsiveness variable produces Good results.

#### 4. Assurance

The Assurance indicator contains 4 questions which can be seen in table 3.7 which shows the results of students' evaluation of the school services of SMK Swasta Perguruan Mabbar.

**Table 7 Assurance Indicator**

```
dv = pd.read_excel('/content/drive/MyDrive/Dataset/SMKS/Kepuasan Siswa terhadap Pelayanan SMKS Perguruan Mabbar.xlsx',
sheet_name='Assurance')
data_table.DataTable(dv.head(20), include_index=False)
```

Pertanyaan	Sangat Kurang = 1	Kurang = 2	Cukup = 3	Baik = 4	Sangat Baik = 5
Q12	5	12	26	41	16
Q13	2	15	27	45	11
Q14	3	17	31	41	8
Q15	6	16	26	36	16
Total	16	60	110	163	51

In finding the results of the assessment of school services Students in the Assurance dimension can be seen in Figure 3.6 below:

```
TSK = (16*1)+(60*2)+(110*3)+(163*4)+(51*5)
TK = 16+60+110+163+51
print('Nilai Seluruh Kelas :',TSK)
print('Nilai Total Kelas :',TK)
hasil = TSK/TK
print("Hasil Assurance = ", hasil)

Nilai Seluruh Kelas : 1373
Nilai Total Kelas : 400
Hasil Assurance = 3.4325
```

**Figure 7** Average Assurance Score

The average satisfaction level, calculated based on the data from table 3.7, was 3.43. The Performance Indicator material is rated as Good based on the Likert Scale assessment criteria. Thus, it can be concluded that the Assurance variable produces Good results.

## 5. Empathy

The Empathy indicator contains 4 questions which can be seen in table 3.4 below showing students' answers to the school services of SMK Swasta Perguruan Mabar.

**Table 8** Empathy Indicator

```
dv = pd.read_excel('/content/drive/MyDrive/Dataset/SMKS/Kepuasan Siswa terhadap Pelayanan SMKS Perguruan Mabar.xlsx',
                 sheet_name='Empathy')
data_table.DataTable(dv.head(20), include_index=False)
```

Pertanyaan	Sangat Kurang = 1	Kurang = 2	Cukup = 3	Baik = 4	Sangat Baik = 5
Q16	3	7	38	39	13
Q17	4	13	26	45	12
Q18	5	21	30	34	10
Q19	4	10	32	36	18
Total	16	51	126	154	53

In finding the results of the assessment of student school services in the Empathy dimension, it can be seen in Figure 3.7 below:

```
TSK = (16*1)+(51*2)+(126*3)+(154*4)+(53*5)
TK = 16+51+126+154+53
print('Nilai Seluruh Kelas :',TSK)
print('Nilai Total Kelas :',TK)
hasil = TSK/TK
print("Hasil Empathy = ", hasil)

Nilai Seluruh Kelas : 1377
Nilai Total Kelas : 400
Hasil Empathy = 3.4425
```

**Figure 8** Average Empathy Score

The average satisfaction level, calculated based on the data from table 3.4, was 3.44. The Performance Indicator material is rated as Good based on the Likert Scale assessment criteria. Thus, it can be concluded that the Empathy variable produces Good results.

## Assessment Recapitulation

Table 3.9 below presents a recapitalization of all final value variables obtained from calculations using the Service Quality approach in managing services provided to students.

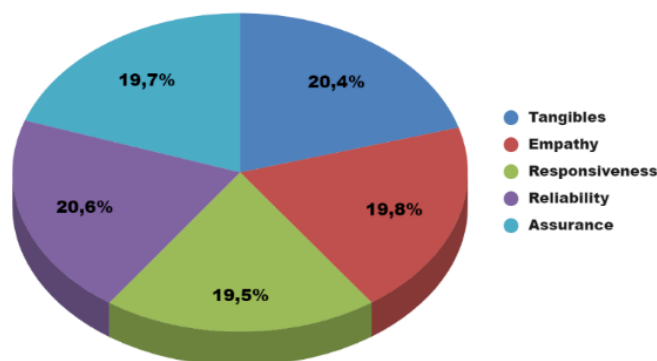
**Table 9** Assessment Recapitulation

Indikator	Nilai	Keterangan Penilaian
Tangibles	3.56	Baik
Empathy	3.44	Baik
Responsiveness	3.4	Baik
Reliability	3.58	Baik
Assurance	3.43	Baik
Total	3.482	Baik

Based on the recapitulation results of all Servqual variables in Table 3.8, the final value for all Servqual methods exceeds 3.482. From there it can be concluded that student satisfaction with the services provided by SMK Swasta Perguruan Mabar is categorized as Good.

### Visualisasi Data

A pie chart is a circle graph that depicts statistical data by dividing the circle into a proportional number of slices according to the number or numerical proportion of data represented. Each slice symbolizes a certain percentage of the whole, where one circle represents 100% of the total data. For example, half a circle represents 50% of the total data. In Figure 3.8 below, we can see the visualization of the data recapture results graphically:



**Figure 9** Pie Chart of Recapitulation Results

After distributing the survey to 100 students at SMK Swasta Perguruan Mabar, data processing was carried out on the responses given. The largest comparison of service quality values from SMK Swasta Perguruan Mabar occurs in the Reliability aspect, reaching a total percentage of 20.60%. Followed by the Tangibles aspect with a total percentage of 20.40%, then the Empathy aspect with a total percentage of 19.80%. The Assurance aspect recorded a total percentage of 19.70%, and the last is the Responsiveness aspect with a total percentage of 19.50%.

## CONCLUSION

Some conclusions that can be drawn based on the results and discussion in this study are as follows:

1. The level of satisfaction of students of SMK Swasta Perguruan Mabar obtained after applying the Service Quality method is 3.482 so that it can be concluded that students' satisfaction with the school is categorized as good.
2. The Servqual method is proven to be effective in analyzing student satisfaction because it uses the expected value as the main benchmark. This results in a more accurate final calculation value and reflects the level of student satisfaction more objectively.

## Advice

It is hoped that further researchers will add more variables to increase the assessment benchmarks and add new methods such as the Customer Satisfaction Index (CSI) to compare the results with the Service Quality method.

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