

# **The Influence of Speed of Service Time, Officer Competence, Facilities and Infrastructure on Service Quality and Its Impact on Customer Satisfaction (Study on Services at the Jambi Provincial Health Laboratory Center)**

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## **Abstract**

This study aimed to analyze the direct and indirect effects of the speed of service time, the competence of officers, and facilities and infrastructure on customer satisfaction which was mediated by service quality. The research was conducted at the Technical Services Unit of Jambi Provincial Health Laboratory Center. The populations in this study were customers who used services at the Technical Services Unit of Jambi Provincial Health Laboratory Center. The sample in this study was selected using the accidental sampling method, which were service users of Technical Services Unit of Jambi Provincial Health Laboratory Center whom were met by researchers randomly. In this research, data analysis used the Partial Least Square (PLS) approach. The research results showed that: speed of service time, and facilities and infrastructure had a direct influence on service quality and customer satisfaction, while officer competency had a direct influence on service quality but has no direct influence on customer satisfaction. Meanwhile, speed of service time and officer competency had indirect influence on customer satisfaction which was mediated by service quality, while facilities and infrastructure did not have indirect influence on customer satisfaction which was mediated by service quality.

**Keywords:** Customer satisfaction, service quality, speed of service time, officer competency, facilities and infrastructure

## **Introduction**

Health laboratory examination services are the main health service support activities and must be available in an area. Therefore, the existence of regional laboratories plays an important and much needed role, especially for diagnosing disease, curing disease and restoring health. Minister of Health Regulation Number 605 of 2008 is the basis for health laboratory services where the regulation regulates service standards that must be provided by health laboratories to customers. Based on these regulations, health laboratories must apply service standards in providing examination results reports, including opinions and interpretations of the results.

Health laboratory services carried out in accordance with established service standards will produce quality services and will have an impact on customer satisfaction. Quality health laboratory examination services make customers feel satisfied, but still take into account technical aspects so that examination result data still reaches a high level of precision and accuracy. On the other hand, inspection result data also has measurement references and is

supported by good documentation of inspection results, so that the results can be maintained scientifically and legally. Therefore, in order to achieve quality services, health laboratory services must be integrated in their implementation, starting from planning sample collection, handling, inspection and/or calibration, to providing results reports to customers. Improving the quality of health laboratory examination services is absolutely necessary so that it can have an impact on customer satisfaction, especially for the continued existence of regional health laboratories in the current era of intense competition.

Wait and Handayani (2015) stated that the quality of examination services in health laboratories is greatly influenced by two important factors, namely if the examination results have good accuracy and accuracy. The fulfillment of these two factors in the examination results will provide benefits for consumers who use laboratory examination services. Apart from precise and accurate examination results, services must also be supported by simple, easy and fast administrative procedures. Therefore, laboratory data processing needs to be supported by adequate facilities and infrastructure using application programs or computers, such that examination results can be as planned and do not require a long time, so as to reduce costs due to long processes. Error factors and slow processing of laboratory examination data will cause losses in time and material which result in the services provided not running optimally (Sayuti, 2018).

Public health services in the field of Health Laboratory services in Jambi Province are provided by the Regional Technical Implementation Unit (UPTD) of the Health Laboratory Center at the Jambi Provincial Health Service. This is in accordance with Jambi Governor Regulation Number 22 of 2018 concerning the Establishment, Organizational Structure, Duties and Functions and Work Procedures of the Regional Technical Implementation Unit for Health Laboratory Halls at the Jambi Provincial Health Service which states that the aim of establishing the Regional Technical Implementation Unit for Health Laboratory Halls at the Health Service Jambi Province, namely: "in order to achieve the goals and objectives of providing quality and affordable laboratory services to the community and to help doctors make diagnoses".

Laboratory examinations carried out under the Jambi Provincial Health Laboratory UPT include: clinical pathology examinations, immunological examinations, microbiological examinations and public health examinations. Apart from carrying out the function of health laboratory examinations, the Jambi Provincial Health Laboratory UPT also carries out its function of carrying out referral activities which include: examination and specimen referrals, science and technology (IPTEK) referrals, and facilities and infrastructure referrals.

This factor of long service time is of concern to the Jambi Provincial Health Laboratory Center UPT to improve the quality of service. Kotler and Keller (2016) stated that the length of service time, which is a benchmark for the ability to provide services quickly and precisely, is one of the determining factors in assessing service quality. The effectiveness of organizations, especially organizations that are responsible for providing services, is influenced by the accuracy and speed of the services provided, and this has an impact on customer satisfaction (Jannah et al., 2017).

Kasmir and Pasolong (2007) in Isalmiadi (2015) revealed that service quality shows the ability of officers to provide services in accordance with established service standards so that they can provide satisfaction to customers. Therefore, good service quality needs to be supported by officers who have competence in accordance with the responsibilities of the services provided. Officers who provide services must have sufficient knowledge and experience so that they can show a positive attitude both in communicating and in acting so that the quality of the service provided can provide satisfaction for customers. This positive attitude must also be supported by real action so that quality health services can be realized (Notoadmojo, 2014).

Facilities and infrastructure factors are supporting tools in the implementation of public services. Latif et.al. (2020) revealed that the success of public services must be supported by the availability of adequate facilities and infrastructure so that all activities carried out can achieve the expected results according to plan. Research of Ulandari and Yudawati (2019) revealed that the availability of infrastructure at service locations is absolutely necessary if you expect an increase in customer satisfaction. Infrastructure is an element of physical service quality that is directly felt by all customers. The influence of facilities and infrastructure is very strong on the quality of services provided, so that if facilities and infrastructure are not provided properly, it will affect the quality of services provided, making it impossible for customers to feel satisfied with the services provided.

The importance of the level of customer satisfaction must be supported by speed of service time, competence of officers, and facilities and infrastructure. On the other hand, the three factors above must also be supported by good service quality so that it can produce a high level of satisfaction for customers who use services at the Jambi Provincial Health Laboratory Center UPT. Based on the description above, researchers are interested in retesting the research that has been carried out with different objects. In accordance with the problems that have been formulated, the aims and objectives of this research are to determine: 1) the direct influence of speed of service time, officer competency, and facilities and infrastructure on service quality; 2) the direct influence of speed of service time, officer competency, facilities and infrastructure, and service quality on the level of customer satisfaction; and 3) the indirect influence of speed of service time, officer competency, and facilities and infrastructure on the level of customer satisfaction which was mediated by service quality.

## **Research Method**

The research method used in this research is explanatory research. Singarimbun and Effendi (2008) explain: "explanatory research is research used to explain the causal relationship between variables through testing formulated hypotheses". The research design used in this research is a correlational design. Correlational studies are used in this research to study the relationship between two or more variables, namely the extent to which variations in one variable are related to variations in other variables.

The population in this study were customers who used services at the Jambi Province Health Laboratory Center UPT. The sample in this research was selected using the accidental sampling method. This method was chosen because it was difficult to determine the number of customer data that used services at the Jambi Provincial Health Laboratory Hall UPT, so the sample was service users of the Jambi Provincial Health Laboratory Hall UPT services that the researcher met randomly.

Data collection was carried out using a questionnaire, namely a data collection technique by giving respondents a set of questions or written statements to answer (Sugiyono, 2012). The questionnaire distribution technique was carried out by researchers visiting and distributing questionnaires to several work units of the Jambi Provincial Health Laboratory Center UPT which provides services to customers.

In this research, data analysis uses the Partial Least Square (PLS) approach. PLS is a component or variant-based Structural Equation Modeling (SEM) model. Data analysis in this research was carried out using the Structural Equation Modeling (SEM) method using Partial Least Square (PLS) assisted by SmartPLS 4.0 software.

**Results and Discussion**

**Outer Model Test**

This analysis was carried out by looking at the validity and reliability of the indicators used to measure latent variables consisting of speed of service time, officer competency, service quality and level of customer satisfaction.

**1. Validity Test**

An indicator is declared valid and can be used as an indicator to measure the latent variable if the loading factor value was greater than 0.07. The results of the validity test using the outer loading value can be seen in the following table:

**Table 1** Loading Factor Value on the Indicator for Each Latent Variable

Indicators – Latent Variable	Outer loadings
X1_1 <- X1	0,755
X1_2 <- X1	0,735
X1_3 <- X1	0,734
X1_4 <- X1	0,761
X2_1 <- X2	0,799
X2_2 <- X2	0,762
X2_3 <- X2	0,717
X3_1 <- X3	0,799
X3_2 <- X3	0,780
X3_3 <- X3	0,794
X3_4 <- X3	0,824
Y1 <- Y	0,676
Y2 <- Y	0,742
Y3 <- Y	0,745
Y4 <- Y	0,740
Y5 <- Y	0,802
Y6 <- Y	0,740
Y7 <- Y	0,777
Y8 <- Y	0,721
Y9 <- Y	0,733
Z1 <- Z	0,751
Z10 <- Z	0,731
Z11 <- Z	0,734
Z12 <- Z	0,610
Z2 <- Z	0,749
Z3 <- Z	0,747
Z4 <- Z	0,746
Z5 <- Z	0,720
Z6 <- Z	0,749
Z7 <- Z	0,775
Z8 <- Z	0,715
Z9 <- Z	0,690

Source: Primary data processed, 2023

Based on the table above, it can be seen that the loading factor values for all indicators for the speed of service variable (X1), the officer competency variable (X2), and the facilities and infrastructure variable (X3) with an outer loading greater than 0.7, which means that all indicators were declared valid and can be used as indicators to measure their respective latent variables. Meanwhile, for the service quality variable (Z) there were two indicators, namely Z9 and Z12 with an outer loading value smaller than 0.7, while for the customer satisfaction level variable (Y) there was one indicator, namely Y1 with an outer loading value smaller than 0.7. Thus, these three indicators were not involved in the subsequent analysis process.

The discriminant validity measurement was calculated by looking at the Average Variance Extracted (AVE) score. The AVE value was used to measure the total variance

of the construct that can be explained by the measurements taken. The recommended value was greater than 0.5. The measurement results can be seen in the following table:

**Table 2** Average Variance Extracted Measurement Results

Latent Variable	Average Variance Extracted (AVE)
X1	0,557
X2	0,577
X3	0,639
Y	0,572
Z	0,558

Source: Primary data processed, 2023

Based on the table above, it can be seen that the AVE value for each latent variable was greater than 0.5, which means that all indicators for each latent variable were able to measure the latent variable well.

**2. Reliability test**

Reliability testing was carried out to see the reliability of all indicators to measure a construct. A construct was said to be reliable if it has high composite reliability and Cronbach alpha values. The recommended value for the composite reliability value was greater than 0.7 and the Cronbach alpha value was greater than 0.6. The composite reliability and Cronbach alpha values can be seen in the following table:

**Table 3** Cronbach Alpha and Composite Reliability Score

Latent Variable	Cronbach's Alpha	Composite Reliability
X1	0,735	0,834
X2	0,635	0,804
X3	0,812	0,876
Y	0,893	0,914
Z	0,912	0,927

Source: Primary data processed, 2023

Based on the table above, it can be seen that the composite reliability values for all variables were greater than 0.7. This means that the measurement results for each construct were reliable and able to explain well each of the variables in question. The Cronbach alpha values for all variables were greater than 0.6, which means that all constructs were reliable and the data from measuring all indicators for measuring latent variables is reliable.

**Results of Inner Model and Hypothesis Testing**

This research was conducted to see the influence of speed of service time, officer competency, and facilities and infrastructure on customer satisfaction which was mediated by service quality as an intervening variable. Therefore, data analysis was carried out by looking at the influence of the variables speed of service time, officer competency, and facilities and infrastructure directly on the level of customer satisfaction and indirectly, mediated by service quality. The results of the direct influence hypothesis test can be seen in Table 4.

**Table 4** Direct Effect Test Results

	Original sample (O)	T statistics ( O/STDEV )	P values
X1 -> Y	0,231	2,638	0,008
X1 -> Z	0,406	3,951	0,000
X2 -> Y	0,067	0,657	0,511
X2 -> Z	0,319	3,672	0,000
X3 -> Y	0,248	2,343	0,019
X3 -> Z	0,223	2,211	0,027
Z -> Y	0,346	2,916	0,004

Source: Primary data processed, 2023

Based on Table 4, the results of hypothesis testing can be formulated as follows:

- a. The effect of speed of service time on service quality with a p-value of 0.000 was smaller than the significance level of 0.05. This means that H0 was rejected and Ha was accepted. Thus, the speed of service time had a significant effect on service quality.
- b. The influence of officer competency on service quality with a p-value of 0.000 was smaller than the significance level of 0.05. This means that H0 was rejected and Ha was accepted. Thus, officer competency had a significant effect on service quality.
- c. The influence of facilities and infrastructure on service quality with a p-value of 0.027 was smaller than the significance level of 0.05. This means that H0 was rejected and Ha was accepted. Thus, facilities and infrastructure have a significant effect on the level of customer satisfaction.
- d. The effect of speed of service time on the level of customer satisfaction with a p-value of 0.008 was smaller than the significance level of 0.05. This means that H0 was rejected and Ha was accepted. Thus, the speed of service time has a significant effect on the level of customer satisfaction.
- e. The influence of officer competence on the level of customer satisfaction with a p-value of 0.511 was greater than the significance level of 0.05. This means that H0 was accepted and Ha was rejected. Thus, officer competency does not have a significant effect on the level of customer satisfaction.
- f. The influence of facilities and infrastructure on the level of customer satisfaction with a p-value of 0.019 was smaller than the significance level of 0.05. This means that H0 was rejected and Ha was accepted. Thus, facilities and infrastructure have a significant effect on the level of customer satisfaction.
- g. The influence of service quality on the level of customer satisfaction with a p-value of 0.004 was smaller than the significance level of 0.05. This means that H0 was rejected and Ha was accepted. Thus, service quality has a significant effect on the level of customer satisfaction.

Testing the indirect influence of speed of service time, officer competency, and facilities and infrastructure on the level of customer satisfaction mediated by service quality variables can be seen in the following table:

**Table 5** Indirect Effect Test Results

	Original sample (O)	T statistics ( O/STDEV )	P values
X1 -> Z -> Y	0,140	2,410	0,016
X2 -> Z -> Y	0,110	2,021	0,043
X3 -> Z -> Y	0,077	1,745	0,081

Source: Primary data processed, 2023

The results of testing the hypothesis of the indirect influence of speed of service time, officer competency, and facilities and infrastructure on the level of customer satisfaction mediated by the service quality variable werere as follows:

- a. The indirect effect of speed of service time on customer satisfaction is mediated by service quality with a p-value of 0.016 which was smaller than the significance level of 0.05. This means that H0 was rejected and Ha was accepted. Thus, speed of service time has a significant indirect influence on customer satisfaction which was mediated by service quality.
- b. The indirect effect of officer competency on customer satisfaction is mediated by service quality with a p-value of 0.043, which was smaller than the significance level of 0.05. This means that H0 was rejected and Ha was accepted. Thus, officer competency has a significant indirect influence on customer satisfaction which was mediated by service quality.

- c. The indirect effect of facilities and infrastructure on customer satisfaction is mediated by service quality with a p-value of 0.081 which was greater than the significance level of 0.05. This means that  $H_0$  was accepted and  $H_a$  was rejected. Thus, facilities and infrastructure do not have a significant indirect influence on customer satisfaction which was mediated by service quality.

The results of research regarding the influence of speed of service time on service quality were in line with Letelay (2021) which revealed the influence of timeliness on service quality. Regarding the influence of officer competency on service quality, the results of this research were in line with research conducted by Mesfin et.al. (2017) who revealed that the main factor influencing the quality of health laboratory services is poor human resource management. These results also supported the research of Honifa et.al. (2021) which revealed that staff competency has a significant effect on the quality of patient service at the Andilia Clinic, Bogor Regency. Meanwhile, the influence of facilities and infrastructure support on service quality in this research supported the results of previous research conducted by Gultom (2021) which revealed the influence of facilities and infrastructure on service quality at the Sipayang Community Health Center, Rengat District, Indragiri Hulu Regency.

The results of research on the influence of speed of service time on customer satisfaction supported the results of previous research conducted by Anggaraeni (2021) which revealed that waiting time has a positive and significant effect on customer satisfaction at UPTD Puskesmas II Negara. These results also supported the results of research conducted by Jannah et.al (2017) which revealed that there was a relationship between speed of service time and patient satisfaction at RSGM Jember University.

The insignificant influence of officer competency in this study on customer satisfaction occurs because the measurement of officer competency tends to be more personal, namely consumer assessments of officers who directly interact with consumers. As a result, the measured competency of officers does not truly reflect the competency of officers as a whole. Respondents' responses regarding the competence of officers who provide services and deal directly with consumers are not able to make consumers feel satisfied with the services provided. This condition occurs because consumers' satisfaction or dissatisfaction with the services provided was more influenced by the speed of service factor. Even though the competence of officers who have direct contact with consumers was not optimal, if health laboratory examination services can be carried out quickly and on time, this will have an impact on the level of consumer satisfaction.

The research results showed that there is a significant direct influence of service quality on the level of customer satisfaction of the Jambi Province Health Laboratory Center UPT in line with research conducted by Arifin et.al (2023) which revealed that service quality has a positive and significant influence on patient satisfaction. The better quality of service will increase patient satisfaction with BPJS users at Ratu Aji Putri Botung Hospital. The results of this research were also in line with research conducted by Iswahyuningsih (2022), Yunike et.al. (2023), and Honifa et.al. (2021), and Ulandari and Yudawati (2019) which revealed that service quality has a significant effect on the level of customer satisfaction.

The quality of service in health laboratory services is greatly influenced by the services provided by the Health Laboratory Center. Good service will increase consumer perceptions regarding the products offered by UPT Jambi Provincial Health Laboratory Center. The better consumer perception of service quality at the next stage will influence the level of customer satisfaction and customer loyalty. Consumers will be more confident in purchasing products because they already feel the quality of service offered.

The results of this research indicated that there was an indirect effect of speed of service time on customer satisfaction which was mediated by service quality. This means that the influence of speed of service time on service quality was very significant so that it can have a

very significant impact on customer satisfaction. Services carried out quickly and on time increase the quality of services carried out by the Jambi Province Health Laboratory UPT, which in turn had a positive impact on the level of customer satisfaction. The same condition occurs when the influence of officer competency was mediated by service quality which can have an indirect influence on customer satisfaction. Thus, the influence of officer competence did not have a direct influence on customer satisfaction, but must be mediated by service quality. Therefore, considerations for increasing customer satisfaction related to officer competency must take into account competency that is related to the quality of service provided.

Facilities and infrastructure mediated by service quality did not have an indirect impact on customer satisfaction. This condition occurs because the service quality factor that was well perceived by consumers was very dependent on the aspect of speed of service provided, so that the impact of available infrastructure support did not have a big effect on service quality so as to increase customer satisfaction. On the other hand, not all of the support for facilities and infrastructure in laboratory examinations at the Jambi Province Health Laboratory Center UPT directly touches consumers. The facilities and infrastructure that support services to be carried out well and quickly are precisely the facilities and infrastructure that consumers could not see and know about. As a result, consumers could not provide a full assessment of facilities and infrastructure, especially laboratory examination facilities and infrastructure.

Improving the quality of services to speed up the performance of the Jambi Provincial Health Laboratory UPT includes, among other things, using digital media so that services can be provided more effectively and efficiently. The use of digital media using information systems in laboratory examination services needs to be supported by officers who have sufficient competence so that the information system can be run optimally and provide benefits for improving service quality. Apart from that, support from truly adequate facilities and infrastructure is also needed so that the services provided by the Jambi Provincial Health Laboratory UPT really run optimally and increase customer satisfaction.

## **Conclusion**

Based on the results of hypothesis testing and discussion, it can be concluded that speed of service time, officer competency, and facilities and infrastructure have a direct influence on service quality. Meanwhile, speed of service time, facilities and infrastructure, and service quality had a direct influence on customer satisfaction, while officer competency had no direct influence on customer satisfaction. The indirect influence on customer satisfaction which was mediated by service quality was shown by the speed of service time and the competence of officers, while facilities and infrastructure did not have an indirect influence on customer satisfaction which was mediated by service quality.

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