

The Effect of Price Perception and Service Quality on Customer Satisfaction, and its Impact to Customer Loyalty Telkomsel Prepaid Mobile Internet in Bogor, Indonesia

¹Martua Andreas Simanjuntak
Mercu Buana University Jakarta, Indonesia

²Dendi Anggi Gumilang
Mercu Buana University, Jakarta, Indonesia

Abstract:- Indonesians aged 16 to 64 spend an average of 5.7 hours per day using a mobile cellular device to access the internet. This research aims to investigate the effect of price perception and service quality on customer satisfaction and its impact to customer loyalty Telkomsel prepaid mobile internet users in Bogor, Indonesia. Data were collected using a quantitative descriptive research methodology. The data analysis technique used was Structural Equation Modeling - Partial Least Squares (SEM-PLS). This study's demographic consists of users in the Bogor area who access the internet using Telkomsel prepaid mobile cellular device cards. The sampling method used was purposive sampling, with a sample size of 119 respondents. The study's findings support all hypotheses, indicating that price perception, service quality, and customer satisfaction have a positive and significant impact on customer loyalty. Furthermore, customer satisfaction mediates the relationship between price perception, service quality, and customer loyalty towards Telkomsel.

Keywords:- Price Perception; Service Quality; Customer Satisfaction ; Customer Loyalty

I. INTRODUCTION

The telecommunications sector and its associated services have experienced remarkable growth on a global scale. This industry has become one of the key sectors in advanced economies and plays an increasingly vital role in people's lives. Furthermore, it remains continues to be a center for growth and innovation across various industries.^[1] Both positive and negative internet user experiences in Indonesia are influenced by the quality of services provided by internet service providers. Telkomsel, Indosat, XL-Axiata, Hutchison 3 Indonesia, and Smartfren Telecom Tbk are among the telecommunication network operators that use GSM technology.^[2]

Telkomsel continuously develops infrastructure devices, such as Base Transceiver Stations (BTS), to meet the diverse needs of its users. In 2019, Telkomsel successfully built approximately 23,154 BTS. As the largest telecommunications operator in Indonesia, Telkomsel serves a total of 159.83 million customers. From the total number of customers, 152.32 million are prepaid customers, while 7.5

million are postpaid customers. But, data of Telkomsel operator revenue from 2017 to 2020 can be seen in Figure 1 below.

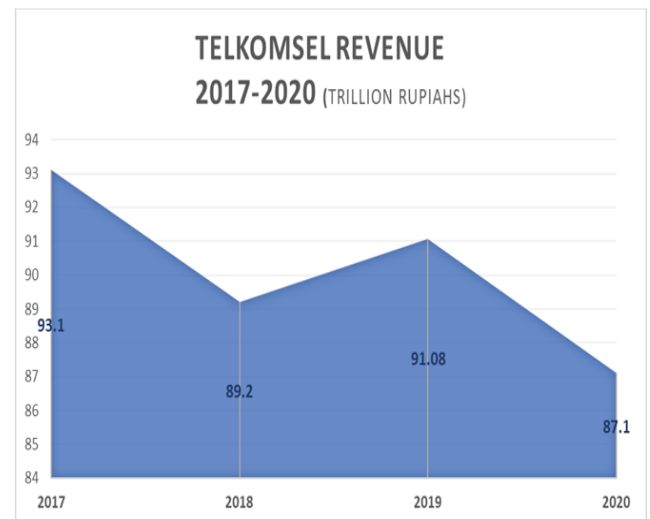


Fig 1 Telkomsel Revenue Graph from 2017 to 2020.
Source: Financial report of Telkomsel 2017-2020.

West Java region, which will be the site of this research, specifically in the city of Bogor, there is still a need for improvement to obtain positive experiences from consumers. In the categories of playing online games and download speed experienced, other operators are more excellent in some user areas in Bogor.^[3] The Indonesian Consumer Protection Foundation (YLKI) provided complaint data related to telecommunications companies in the year 2021. Out of a total of approximately 535 received complaints, Telkomsel ranked second of the total complaints following Indihome. The issues raised by users were primarily related to internet network problems, accounting for 39%, followed by administrative concerns at 16%, and billing deductions at 15% (Databoks, 2022).^[4]

Users may become unsatisfied when they feel that a product or service is unable to work properly, which may lead them to express either positive or unfavorable opinions about the operators. Rahmawati et al., (2020).^[5]

Although the relationship between price perception and customer loyalty has been theoretically recognized widely, a research gap still exists in the literature as regard to the equivocal effect of price perception on customer loyalty Prihatini & Gumilang (2021) found that price perception has an impact on the intention to repurchase, with customer satisfaction as an intervening variable.^[6] On the other hand, according to Herawati et al. (2022), they found that the price factor does not significantly influence customer loyalty mediated by customer satisfaction.^[7] The review of the previous studies above shows inconsistent research results, as price is relative. Price also affects consumers' perspectives, where some consumers believe that higher prices indicate higher product quality, while others believe it is better to buy products with lower prices but reasonably good quality (Darmansah & Yosepha, 2020).^[8]

Numerous researches have recognized of service quality as a crucial factor influencing customer loyalty, (Zhou, 2013; Slack, 2020) That service quality influences trust, while system quality affects customer satisfaction, asserted that have a relationship exists between service quality and customer loyalty mediated by customer satisfaction.^{[9][10]} Online service quality, which is a component of service quality (ServQual) or service quality itself, is one of the most extensively researched topics due to its association with cost, satisfaction, retention, and loyalty (Magdalena & Jaolis, 2018)^[11] However, according to previous research by H. Hermawan (2021), and Basir et al. (2015), the factor of service quality does not have an influence on customer loyalty.^{[12][13]}

The researchers then conducted a pre-survey to discover how consumers felt about Telkomsel's services in order to support these data. The results of the pre-survey conducted indicated that there were larger findings expressing disagreement with the service quality factor, with 17 out of 30 respondents disagreeing, constituting a percentage of 56%. Subsequently, there were results showing a tendency towards disagreement with the pricing factor of Telkomsel's mobile internet service, totaling 54%. Furthermore, there were findings leaning towards disagreement with customer satisfaction regarding Telkomsel's mobile internet service, with 16 out of 30 respondents expressing disagreement, equivalent to 53%. Finally, there were outcomes tending towards misalignment with loyalty statements, with 18 out of all presurvey respondents disagreeing, representing a percentage of 60%.

Based on the data above, researchers are focusing in examining "The effect of price perception and service quality on customer satisfaction, and its impact to customer loyalty Telkomsel's prepaid mobile internet in Bogor, Indonesia".

Upon the conclusion of this study, both theoretical and practical contributions will be provided. From a theoretical point, This research is anticipated to serve as a foundational resource for future studies examining the influence of price perception, service quality on customer satisfaction, and its consequent impact on customer loyalty. From practical point, The outcomes of this research are expected to be applicable

in addressing practical issues in the field concerning the influence of price perception, service quality on customer satisfaction, and its impact on customer loyalty in the telecommunications industry.

II. LITERATURE REVIEWS

A. Consumer Behavior

Consumer behavior is the study of how data is acquired through the process of exchange, in the acquisition, consumption, and utilization of goods, services, experiences, and ideas. Understanding consumer behavior offers various benefits for marketers. Firstly, marketers can gain a deeper insight into consumer needs and preferences, enabling them to formulate precise marketing strategies based on direct observation or the results of consumer behavior surveys. Furthermore, this information aids marketers in assessing the success of new products or services they offer or produce, thereby optimizing their ability to fulfill consumer desires (Robbins & Coulter, 2019).^[14]

B. Consumer Loyalty

Measuring customer satisfaction and dissatisfaction is a crucial indicator of loyalty towards a product. Loyalty is a term that depicts an individual's allegiance to an entity. According to Mowen and Minor (2005),^[15] loyalty can be described as a state in which customers exhibit a positive attitude towards a brand, feel a connection to that brand, and have an intention to continue purchasing the product in the future. According to Griffin (2008), the characteristics of loyal customers are as follows: make regular repeat purchases, make purchases across various product and service lines, refer others, demonstrate immunity to the pull of competition.^[16]

C. Consumer Satisfaction

The definition of customer satisfaction according to Zeithaml and Bitner, (2000) is the response to the contentment experienced by consumers.^[17] After purchasing a product or service, consumers proceed to use or experience the benefits of the product or service and react to those benefits in accordance with their expectations, or conversely, if the benefits do not align with their expectations. Furthermore, Schiffman and Kanuk (2007) state that if the product and services meet expectations, customers will feel satisfied. Conversely, if the product and services do not align with expectations, customers will feel dissatisfied or less satisfied. This demonstrates that customer satisfaction is closely related to post-purchase evaluation outcomes.^[18] According to Gunawan et al. (2019), there are various factors that can have an impact, including Product and features, Consumer emotions, and Attribution towards service success or failure.^[19]

D. Service Quality

Service quality is defined as the discrepancy between expectations and performance that arises from consumers' comparison of the service offering, they anticipate from a company and the actual service performance (Parasuraman, Zeithaml & Berry, 2000). Service quality can be assessed across five dimensions, which is Tangible, Empathy,

Responsiveness, Reliability, Assurance.^[20]

According to Wang et al. (2004), for industries within the high-technology service sector, such as the mobile telecommunications network sector, a new dimension concerning network quality has been introduced as a new driver of overall service quality.^[21] Furthermore, He, H. et al. (2010) present the Dimensions and Indicators of service quality as follows: Tangible, Reliability, Responsiveness, Assurance, Empathy, Network Quality.^[22]

E. Price Perception

That price perception is the consumer's assessment of whether a price is high, low, or reasonable. Lee and Lawson (2011) propose that price perception entails the evaluation by consumers and elicitation of emotional responses to determine whether the price offered by a seller and the price compared to units from other sources are considered rational, acceptable, or equitable.^[23]

F. Theoretical Framework

Therefore, the conceptual framework developed in this study can be observed in the diagram below.

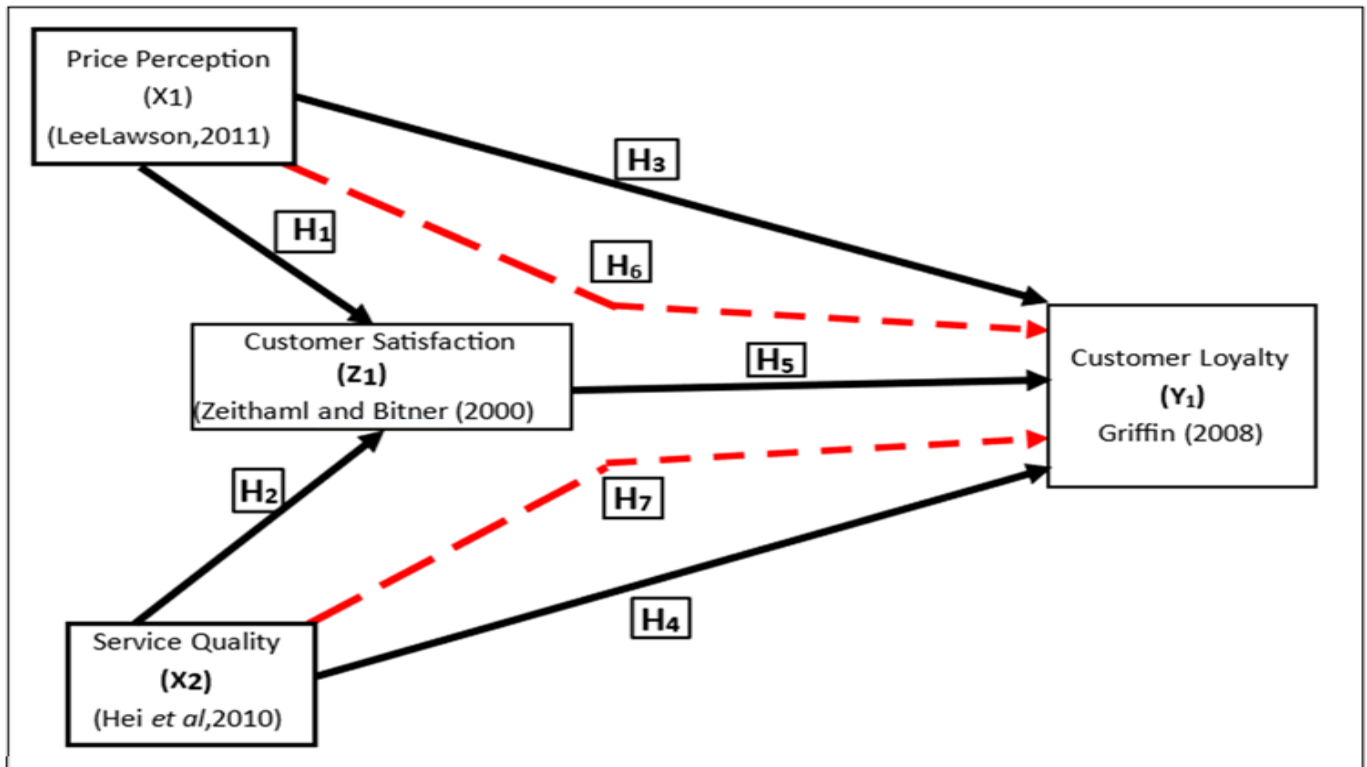


Fig 2 Theoretical Framework
Source: Theoretical Reviews

G. Hypothesis

The Hypothesis in this research as follows:

- Hypothesis 1 (H1): Price Perception has a positive and significant impact on Customer Satisfaction.
- Hypothesis 2 (H2): Service Quality has a positive and significant impact on Customer Satisfaction.
- Hypothesis 3 (H3): Price Perception has a positive and significant impact on Customer Loyalty.
- Hypothesis 4 (H4): Service Quality has a positive and significant impact on Customer Loyalty.
- Hypothesis 5 (H5): Customer Satisfaction has a positive and significant impact on Customer Loyalty.
- Hypothesis 6 (H6): Customer Satisfaction mediates the relationship between Price Perception and Customer Loyalty.
- Hypothesis 7 (H7): Customer Satisfaction mediates the relationship between Service Quality and Customer Loyalty.

III. METHODOLOGY

This study will employ a causal study approach aimed at examining the relationships between independent and dependent variables. The researcher conducts a causal study to identify the connections between independent and dependent variables, so that if the independent variable is eliminated or manipulated in a certain way, issues within the dependent variable can be resolved (Sekaran, 2017).^[24]

The author chose for a purposive sampling technique, wherein specific criteria were set to ensure that the selected samples meet the requirements outlined for this research, with the number of samples in this study being 119 respondents. This research uses four variables of Price Perception (X1), Service Quality (X2), Customer Satisfaction (Z) and Customer Loyalty (Y). The data in this study were obtained from primary sources using a questionnaire item and distributed online via the Google form and measured with a Likert scale.

Testing the research hypothesis was carried out using the Partial Least Square (PLS) based Structural Equation Model (SEM) approach.

behavior, where individuals prefer products that offer diverse benefits, such as Telkomsel.

IV. FINDINGS AND DISCUSSION

Based on data from 119 respondents, the majority of Telkomsel customers in Bogor sampled in the study are mostly male, which is 78 respondents or around 65.5% of the total. Furthermore, the descriptive analysis of the largest demographic group of users indicates the presence of the millennial generation, aged 26-41 years old.

Based on the analysis results, it is evident that the largest number of respondents come from the income group of Rp5,000,000 - Rp8,000,000. However, there is representation from every income group under study, indicating that Telkomsel has created a product that can be utilized by all market segments.

Based on the analysis results, it is evident that the largest number of respondents come from the educational background of Bachelor's degree (S1) with a total of 75 respondents. Educational background influences purchasing

A. Descriptive Analysis of Research Variables

The variables in this study are measured using a 5-point Likert scale response, consisting of the following categories: STS (Strongly Disagree), TS (Disagree), C (Neutral), S (Agree), and SS (Strongly Agree). Due to the utilization of a 5-point scale, the assessment categories for variables are as follows:

Table 1 Descriptive Analysis of Research Variables

Interval	Category
1% - 20%	Very Poor
21% - 40%	Poor
41% - 60%	Neutral
61% - 80%	Good
81% - 100%	Very Good

B. Description of Price Perception Variables(X1)

Table 2 Description of Price Perception Variables(X1)

Indicator	STS	TS	C	S	SS	TOTAL	Mean	Std Deviation
X1.1	3	10	44	50	12	119	3,487	0,878
X1.2	2	12	55	40	10	119	3,370	0,839
X1.3	1	13	43	53	9	119	3,472	0,818
Variable average								3,443

Source: processing data (2023)

The figures indicate that the price perception falls under the "good" category. This implies that Telkomsel users in Bogor City have a favorable price perception towards Telkomsel's products. In item x1, the highest value is 3.487, indicating that the pricing of Telkomsel's offered package is considered rational in line with its quality.

C. Description of Service Quality (X2)

Table 3 Description of Service Quality (X2)

Indicator	STS	TS	C	S	SS	TOTAL	Mean	Std Deviation
X2.1	1	3	47	59	9	119	3,605	0,701
X2.2	1	5	40	60	13	119	3,664	0,759
X2.3	2	8	48	52	9	119	3,487	0,798
X2.4	1	4	37	63	14	119	3,714	0,746
X2.5	1	5	50	49	14	119	3,588	0,782
X2.6	1	3	46	58	11	119	3,630	0,720
X2.7	0	3	43	58	15	119	3,714	0,712
X2.8	0	1	38	66	14	119	3,782	0,650
X2.9	0	1	35	61	22	119	3,874	0,705
X2.10	0	2	38	60	19	119	3,807	0,713
X2.11	0	3	42	52	22	119	3,782	0,769
Variable average								3,695

Source: processing data (2023)

Based on the research findings, the variable of service quality demonstrates an average value of 3.695 out of the maximum score of 5. The figures indicate that the service quality falls under the "good" category. This implies that Telkomsel users in Bogor City believe that the service provided by Telkomsel's are in good quality products. In item x2.9, the highest value is 3.874 indicating that the Telkomsel employees consistently exhibit polite and friendly behavior towards customers.

D. Description of Customer Satisfaction (Z)

Table 4 Description of Customer Satisfaction (Z)

Indicator	STS	TS	C	S	SS	TOTAL	Mean	Std Deviation
Z.1	0	6	34	64	15	119	3,739	0,739
Z.2	0	4	34	65	16	119	3,782	0,712
Z.3	0	6	37	64	12	119	3,689	0,719
Variable average							3,736	

Source: processing data (2023)

Based on the research findings, the variable of service quality demonstrates an average value of 3.736 out of the maximum score of 5. The figures indicate that the service quality falls under the "good" category. This indicates that Telkomsel customers experience satisfaction while using Telkomsel prepaid mobile internet services. In item Z2., the highest value is 3.782 show that customer feel satisfaction and emotionally, it creates a positive impression of Telkomsel's services.

E. Description of Customer Loyalty (Y)

Table 5 Description of Customer Loyalty (Y)

Indicator	STS	TS	C	S	SS	TOTAL	Mean	Std Deviation
Y.1	0	2	22	65	30	119	4,034	0,709
Y.2	1	4	34	61	19	119	3,782	0,780
Y.3	2	15	39	48	15	119	3,496	0,925
Y.4	5	19	38	44	13	119	3,345	1,008
Variable average							3,664	

Source: processing data (2022)

Based on the research findings, the variable of service quality demonstrates an average value of 3.664 out of the maximum score of 5. This indicates that customer loyalty towards Telkomsel in Bogor City falls under the "good" category. This aligns with the descriptive analysis results of the respondents, where, in terms of their length of usage, the majority of responses come from users with a usage period exceeding 5 years. This suggests that the respondents in this study exhibit loyalty to Telkomsel's products.

F. Outer Model Measurement

The measurement of the outer model can be analyzed using validity and reliability testing. In path analysis testing using SmartPLS software, the validation of data is conducted through various methods including convergent validity, Fornell-Larcker criterion, cross-loading, heterotrait-monotrait ratio (HTMT), composite reliability, and Cronbach's alpha.

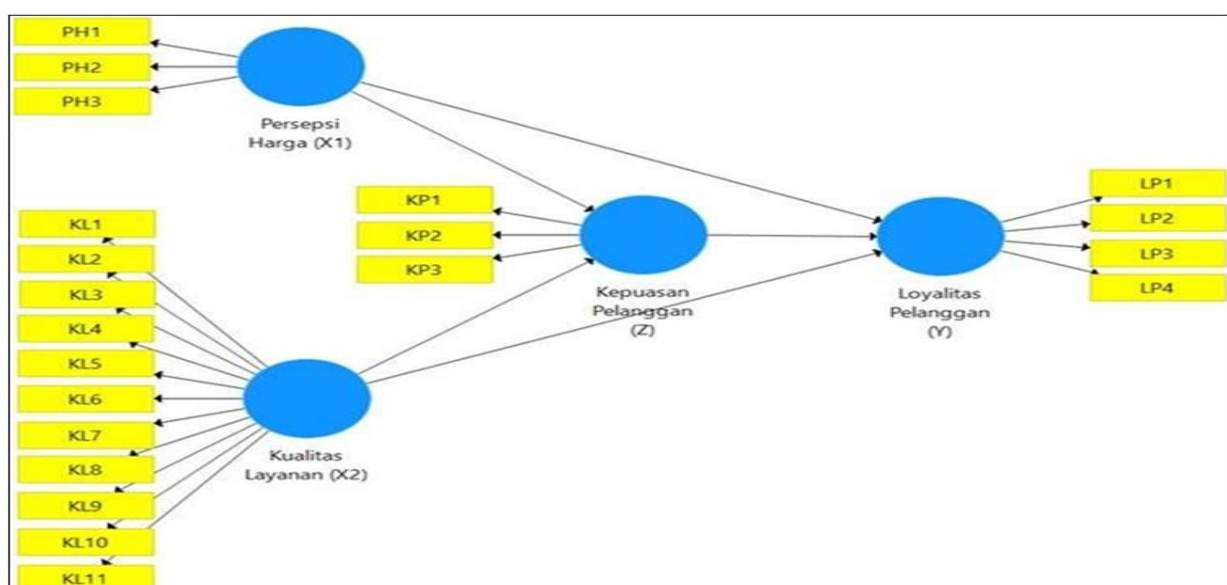


Fig 3 Results of the PLS

G. Convergent Validity

Convergent validity is performed to assess the validity of indicators composing latent variables through factor loadings derived from the PLS Algorithm analysis using SmartPLS software. Factor loadings indicate the correlation between the items composing a variable and the latent

variable. Factor loadings with values > 0.60 can be categorized as valid indicators, while factor loadings on items with values < 0.50 can be classified as not valid (Sarwono, 2015).[25] [25]The following presents the results of the convergent validity analysis in the study.

Table 6 Convergent Validity

Variable	Indicator	Outer Loading	Validity
Price Perception (X1)	X1.1	0,901	Valid
	X1.2	0,931	Valid
	X1.3	0,926	Valid
Service Quality (X2)	X2.1	0,722	Valid
	X2.2	0,653	Valid
	X2.3	0,738	Valid
	X2.4	0,847	Valid
	X2.5	0,854	Valid
	X2.6	0,894	Valid
	X2.7	0,853	Valid
	X2.8	0,687	Valid
	X2.9	0,862	Valid
	X2.10	0,877	Valid
	X2.11	0,828	Valid
Customer Satisfaction (Z)	Z.1	0,902	Valid
	Z.2	0,921	Valid
	Z.3	0,936	Valid
Customer Loyalty(Y)	Y.1	0,827	Valid
	Y.2	0,849	Valid
	Y.3	0,823	Valid
	Y.4	0,767	Valid

Source: processing data (2023)

The results of the factor loading test indicate that all statement items across the research variables have values above 0.60. The statement item with the smallest loading factor is item X2.2 from the service quality variable (X2) with a value of 0.653. Meanwhile, the highest loading factor is observed in statement item X1.2 from the price perception variable (X1) at 0.931. This leads to the conclusion that the instruments used in this study have satisfied the validity criteria based on the convergent validity test.

H. Fornell-Larcker Criterion

The assessment of Fornell-Larcker criterion involves a comparison between the relationships of two latent variables, utilizing the square root of the average variance extracted (AVE). When the calculated Fornell-Larcker criterion value is lesser than the square root of the AVE, it indicates that the construct meets the criteria for Fornell-Larcker discriminant validity. Below is the outcome of the discriminant validity analysis using the Fornell-Larcker criterion.

Table 7 Fornell-Larcker criterion

	Customer Satisfaction(Z)	Service Quality(X2)	Customer Loyalty(Y)	Price Perception(X1)
Customer Satisfaction (Z)	0,920			
Service Quality (X2)	0,759	0,805		
Customer Loyalty(Y)	0,751	0,725	0,817	
Price Perception (X1)	0,686	0,677	0,655	0,919

Source: processing data (2023)

The outcomes of the aforementioned assessment reveal that the computed Fornell-Larcker criterion value is lower than the square root of the AVE. This observation is highlighted in the bold figures, which are comparatively higher than those of other latent variable constructs. As a result, it can be deduced that the research instruments hold validity according to the Fornell-Larcker criterion evaluation.

I. Cross Loading

A model or instrument is considered to pass the cross-loading test if the correlation values of variables are higher than their latent variables. To view the cross-loading test results, they can be observed as follows.

Table 8 Cross Loading

	Customer Satisfaction (Z)	Service Quality (X2)	Customer Loyalty(Y)	Price Perception (X1)
X1.1	0,623	0,603	0,587	0,901
X1.2	0,575	0,619	0,553	0,931
X1.3	0,685	0,643	0,656	0,926
X2.1	0,636	0,722	0,518	0,460
X2.2	0,557	0,653	0,512	0,588
X2.3	0,611	0,738	0,600	0,622
X2.4	0,639	0,847	0,520	0,589
X2.5	0,615	0,854	0,576	0,545
X2.6	0,668	0,894	0,596	0,633
X2.7	0,634	0,853	0,627	0,637
X2.8	0,553	0,687	0,524	0,399
X2.9	0,581	0,862	0,621	0,487
X2.10	0,631	0,877	0,651	0,514
X2.11	0,583	0,828	0,645	0,506
Z.1	0,902	0,690	0,677	0,689
Z.2	0,921	0,685	0,715	0,609
Z.3	0,936	0,720	0,679	0,595
Y.1	0,695	0,647	0,827	0,577
Y.2	0,667	0,602	0,849	0,530
Y.3	0,595	0,560	0,823	0,541
Y.4	0,466	0,550	0,767	0,485

Source: processing data (2023)

Based on the outcomes of the cross-loading test from X1, X2, Z and Y, it is evident that the cross-loading values of the construct variables exceed those of all their respective latent variables. This indicates that the instruments used in this study are valid when assessed through the cross-loading test.

J. Heterotrait-Monotrait Ratio (HTMT)

Table 9 Heterotrait-Monotrait Ratio (HTMT)

	Customer Satisfaction(Z)	Service Quality(X2)	Customer Loyalty(Y)	Price Perception(X1)
Customer Satisfaction (Z)				
Service Quality (X2)	0,821			
Customer Loyalty(Y)	0,851	0,813		
Price Perception (X1)	0,751	0,731	0,746	

Source: processing data (2023)

Based on the HTMT analysis results in the table above, it can be observed that the HTMT values in this study are below 0.9. Therefore, it can be concluded that all variables in this research have met the requirements for discriminant validity analysis between two reflective constructs.

K. Composite Reliability

Table 10 Composite Reliability

Variable Latent	Composite Reliability	Information
Customer Satisfaction (Z)	0,943	Reliabel
Service Quality (X2)	0,953	Reliabel
Customer Loyalty(Y)	0,889	Reliabel
Price Perception (X1)	0,942	Reliabel

Source: processing data (2023)

Based on the results of the composite reliability testing, all variables exhibit composite reliability values above 0.70. Among them, the Customer Loyalty (Y) variable has the lowest composite reliability value of 0.889, while the Service Quality (X2) variable has the highest composite reliability value of 0.953.

L. Cronbach's Alpha

Table 11 Cronbach's alpha

Variable Latent	Cronbach's Alpha	Information
Customer Satisfaction (Z)	0,909	Reliabel
Service Quality (X2)	0,944	Reliabel
Customer Loyalty(Y)	0,834	Reliabel
Price Perception (X1)	0,909	Reliabel

Source: processing data (2022)

Based on the results of the Cronbach's alpha testing, all Cronbach's alpha values are above 0.70. The Customer Loyalty (Y) variable has the lowest Cronbach's alpha value of 0.834. Nevertheless, all variables fall within the range of 0.81-1.00, signifying that the instruments used in this study are highly reliable.

M. Inner Model Measurement

The inner model measurement aims to analyze the relationships between latent variables. Inner model analysis can be conducted using indicators such as R-square, Q-square, and VIF.

➤ R-Square (R²)

Table 12 Inner Model Measurement

Variable	R Square
Customer Satisfaction (Z)	0,631
Customer Loyalty(Y)	0,634

Source: processing data (2023)

Based on the table above, it is evident that the Customer Satisfaction (Z) variable has an R² value of 0.631 or 63.1%. This signifies that Price Perception (X1) and Service Quality (X2) collectively account for 63.1% of the variation in Customer Satisfaction (Z). The remaining 36.9% of Customer Satisfaction is explained by variables beyond the scope of this study.

The variable of customer loyalty (Y) has an actual R² value of 0.634 or 63.4%. This indicates that price perception (X1) and service quality (X2) are able to explain customer loyalty (Y) by 63.4%. The remaining 36.6% of customer loyalty is explained by variables outside the scope of this study.

➤ Predictive Relevance (Q²)

Table 13 Predictive Relevance (Q²)

Variable Laten	SSO	SSE	Q ² (=1-SSE/SSO)
Customer Satisfaction (Z)	357,000	171,415	0,520
Service Quality (X2)	1309,000	1309,000	
Customer Loyalty(Y)	476,000	285,839	0,399
Price Perception (X1)	357,000	357,000	

Source: processing data (2023)

Based on the table above, it is observed that the Q² value for the Customer Satisfaction variable is 0.520, indicating a predictive model relevance of 52%. Categorized, this signifies a substantial predictive relevance for the Customer Satisfaction variable. Meanwhile, the Q² value for the Customer Loyalty variable is 0.399, denoting a predictive model relevance of 39.9%. Categorized, this also signifies a significant predictive relevance for the Customer Loyalty variable.

➤ Coefficient of Determination f-Square (f²)

Table 14 Predictive Relevance (Q²)

Variable Laten	Customer Satisfaction (Z)	Customer Loyalty(Y)
Customer Satisfaction (Z)		0,163
Service Quality (X2)	0,433	0,093
Customer Loyalty(Y)		
Price Perception (X1)	0,149	0,040

Source: processing data (2023)

The variable Price Perception (X1) towards Customer Satisfaction (Z) has an F² value of 0.149, indicating that Price Perception (X1) has a moderate influence on Customer Satisfaction (Z). The variable Price Perception (X1) towards

Customer Loyalty (Y) has an F² value of 0.040, meaning that Price Perception (X1) has a small influence on Customer Loyalty (Y). The variable Service Quality (X2) towards Customer Satisfaction (Z) has an F² value of 0.433,

signifying that Service Quality (X2) has a significant influence on Customer Satisfaction (Z). The variable Service Quality (X2) towards Customer Loyalty (Y) has an F² value of 0.093, indicating that Service Quality (X2) has a small to moderate influence on Customer Loyalty (Y). The variable

Customer Satisfaction (Z) towards Customer Loyalty (Y) has an F² value of 0.163, implying that Customer Satisfaction (Z) has a moderate influence on Customer Loyalty (Y).

➤ *VIF (Variance Inflation Factor)*

Table 15 VIF (Variance Inflation Factor)

Variable Laten	Kepuasan Pelanggan (Z)	Loyalitas Pelanggan (Y)
Customer Satisfaction (Z)		2,710
Service Quality (X2)	1,847	2,647
Customer Loyalty (Y)		
Price Perception (X1)	1,847	2,122

Source: processing data (2023)

Based on the results of the VIF test, it is shown that all VIF values for the relationships between variables are less than 5. The variables Service Quality (X2) and Price Perception (X1) towards Customer Satisfaction (Z) have very low values of 1.847, while the variable Customer Satisfaction (Z) towards Customer Loyalty (Y) has the highest VIF value of 2.710. This indicates that the research model is not experiencing multicollinearity.

N. Hypothesis Testing Results

Table 16 Hypothesis Testing Results

	Original Sample (O)	T Statistics ((O/STDEV))	P Values
Customer Satisfaction (Z) -> Customer Loyalty (Y)	0,402	3,721	0,000
Service Quality (X2) -> Customer Satisfaction (Z)	0,543	5,552	0,000
Service Quality (X2) -> Customer Loyalty (Y)	0,301	2,688	0,004
Price Perception (X1) -> Customer Satisfaction (Z)	0,318	3,335	0,000
Price Perception (X1) -> Customer Loyalty (Y)	0,175	1,757	0,040
Service Quality (X2) -> Customer Satisfaction (Z) -> Customer Loyalty (Y)	0,218	3,270	0,001
Price Perception (X1) -> Customer Satisfaction (Z) -> Customer Loyalty (Y)	0,128	2,191	0,014

Source: processing data (2023)

Price perception has a direct influence on customer loyalty of 0.175. This is evident as it has a P value of 0.040 < 0.05 and a T statistic of 1.757 > 1.66, therefore, hypothesis three (H3) is accepted, indicating that price perception has a positive and significant impact on customer loyalty by 17.5%. Service quality has a direct influence on customer loyalty of 0.301. This is evident as it has a P value of 0.004 < 0.05 and a T statistic of 2.688 > 1.66, therefore, hypothesis four (H4) is accepted, indicating that service quality has a positive and significant impact on customer loyalty by 30.1%. Customer satisfaction has a direct influence on customer loyalty of 0.402. This is evident as it has a P value of 0.000 < 0.05 and a T statistic of 3.721 > 1.66, therefore, hypothesis five (H5) is accepted, indicating that customer

satisfaction has a positive and significant impact on customer loyalty by 40.2%. Price perception has a direct influence on customer satisfaction of 0.318. This is evident as it has a P value of 0.000 < 0.05 and a T statistic of 3.335 > 1.66, therefore, hypothesis one (H1) is accepted, indicating that price perception has a positive and significant impact on customer satisfaction by 31.8%. Service quality has a direct influence on customer satisfaction of 0.543. This is evident as it has a P value of 0.000 < 0.05 and a T statistic of 5.552 > 1.66, therefore, hypothesis two (H2) is accepted, indicating that service quality has a positive and significant impact on customer satisfaction by 54.3%.

O. Indirect Effect Hypotheses

Table 17 Hypothesis Testing Results

	Original Sample (O)	T Statistics ((O/STDEV))	P Values
Service Quality (X2) -> Customer Satisfaction (Z) -> Customer Loyalty (Y)	0,218	3,270	0,001
Price Perception (X1) -> Customer Satisfaction (Z) -> Customer Loyalty (Y)	0,128	2,191	0,014

Source: processing data (2023)

Quality of service has an indirect effect on customer loyalty through customer satisfaction, with a magnitude of 0.218. This is evident from the P value of 0.001 < 0.05 and a T statistic of 3.270 > 1.66. Therefore, hypothesis seven (H7) is accepted, indicating a positive and significant influence of

service quality on customer loyalty through customer satisfaction at 21.8%. In other words, customer satisfaction (Z) mediates the relationship between service quality (X2) and customer loyalty (Y). Price perception has an indirect effect on customer loyalty through customer satisfaction,

with a magnitude of 0.128. This is evident from the P value of $0.014 < 0.05$ and a T statistic of $2.191 > 1.66$. Therefore, hypothesis six (H6) is accepted, indicating a positive and significant influence of price perception on customer loyalty through customer satisfaction at 12.8%. In other words, customer satisfaction (Z) mediates the relationship between price perception (X1) and customer loyalty (Y).

V. CONCLUSION, LIMITATION AND IMPLICATION

A. Conclusion

In conclusion, the findings of this study can be summarized as follows, Price perception has a positive and significant impact on customer loyalty. This implies that a favorable price perception enhances Telkomsel customer loyalty. Service quality has a positive and significant impact on customer loyalty. This indicates that better service quality leads to increased customer loyalty towards Telkomsel. Customer satisfaction has a positive and significant impact on customer loyalty. This suggests that higher levels of customer satisfaction contribute to stronger loyalty towards products such as Telkomsel. Price perception has a positive and significant impact on customer satisfaction. This signifies that a positive price perception contributes to higher customer satisfaction with Telkomsel. Service quality has a positive and significant impact on customer satisfaction. This highlights that better service quality leads to increased

customer satisfaction with Telkomsel. Customer satisfaction mediates the relationship between price perception and customer loyalty. This indicates that price perception influences customer satisfaction, which in turn affects Telkomsel customer loyalty. Customer satisfaction mediates the relationship between service quality and customer loyalty. This reveals that service quality impacts customer satisfaction, ultimately contributing to Telkomsel customer loyalty. These conclusions highlight the interplay between price perception, service quality, customer satisfaction, and customer loyalty within the context of Telkomsel. The study underscores the importance of effectively managing these factors to enhance customer loyalty and satisfaction in the telecommunications industry.

B. Limitation and Implication

It is important for the government to take action through policies that promote safe workplaces in the telecommunications industry in order to increase the quality of service provided to users. In Indonesia, the telecommunications industry is expected to become a critical component of the nation's economy, education system, and access to other technologies.

Based on the results of a deskriptif analysis, there are some user-provided opinions that are relatively expensive relative to the product. Assume a situation where the goal is to find a solution rather than to carry out a lengthy process of repair. In order to provide customers a feeling of comfort and enable them to communicate problems and issues that arise, staff members must continue to demonstrate

transparency and a willingness to go above and beyond in their interactions with customers.

In comparison to other operators, Telkomsel is the sole provider of cellular networks, and as such, most users find its pricing to be more expensive. In terms of a contributing factor, one way to ensure that the price-setting strategy can deliver prices that are more competitively priced in accordance with product specifications and market demands in the target region is, for example, to implement a subsidy program for more competitive prices by focusing on higher operational efficiency margins. This aims to provide a solution for the second indicator in the deskriptif analysis where most users claim that Telkomsel's price is high.

The results of the study showed that all hypotheses were accepted. However, the results of the R2 study show that inconsistent pricing and poor service quality can indicate weak customer loyalty. It is advised to continue the study with other variables that may be able to reveal Telkomsel customer loyalty. Consider examples like variable Company Image, transactions security, and brand trust.

The F² test results suggest that customer satisfaction (Z) moderately influences customer loyalty (Y). Subsequent research could enhance the investigation by incorporating other intervening variables to further elucidate the drivers of customer loyalty.

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