Effect of Product Quality and Service Quality on Customer Loyalty with Customer Satisfaction as an Intervenning Variables
(Case Study on the Tirta Jasa Lampung Selatan Regional Company (PDAM))

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Abstract:

This study aims to determine the effect of Product Quality and Service Quality on Customer Satisfaction and Loyalty at the Tirta Jasa Regional Drinking Water Company (PDAM), Lampung Selatanar. The sample used is 220 (10 times the number of research indicators there are 22), the data analysis used is path analysis SEM (Structural Equation Modeling) model processed with the Amos version 22 program.The results of this study found that:
- Directly, product quality has a positive and significant effect on customer satisfaction and also on customer loyalty.
- Directly, service quality has a positive and significant effect on customer satisfaction and also on customer loyalty.
- Directly and indirectly, product quality has a positive and significant effect on customer loyalty.
- Directly and indirectly service quality has a positive and significant effect on customer loyalty.
- Customer satisfaction has a positive and significant direct effect on customer loyalty.

Keywords:
product quality; service quality; customer satisfaction; customer loyalty

I. Introduction

Consumer satisfaction is an important factor in existence companies so companies must put customer satisfaction as the main goal of the company. Feelingsatisfied or not is obtained after the consumer makes a purchase. This shows that satisfaction is a consumer evaluation of a whether the product matches expectations with reality. Consumers who are feeling satisfied tends to continue to use the same product or service offered by the company and will not switch to that product offered by competitors. So that it requires companies to follow every slightest change in customer behavior.

Consumer satisfaction is defined by (Kotler & Keller, 2016) with the intention that consumers can experience one of the three levels of general satisfaction, namely if the performance is below expectations, consumers will feel disappointed but if the performance is in accordance with customer expectations will feel satisfied and if the performance can exceed expectations, the customer will feel very satisfied or happy.

(Aryani & Rosinta, 2010) argued that customer satisfaction is the key to creating customer loyalty. There are many benefits received by the company by achieving a high level of customer satisfaction, namely in addition to increasing customer loyalty but also preventing customer turnover, reducing customer sensitivity to prices, reducing marketing failure costs, reducing operating costs caused by increasing the number of customers, increasing advertising

effectiveness, and improve business reputation. Product quality and P quality are things that must be considered by a company to increase customer satisfaction.

Customer loyalty is a good thing and the target of every service company. Loyal customers are better than customers who are less loyal. And having loyal customers usually generates profits throughout the company's business journey. The concept of customer loyalty is more associated with behavior (behavior) than with attitude.

PDAM Tirta Jasa is a company owned by the local government of South Lampung Regency which is engaged in the production and distribution of drinking water for the community, in carrying out its duties and functions it should be able to provide satisfaction to the community, especially to customers, with customer satisfaction expected to increase customer loyalty which in turn provides benefits for the company.
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II. Review of Literatures

2.1 Product Quality

According to Kotler and Armstrong (2014) product quality is the ability of a product to demonstrate its function, this includes overall durability, accuracy reliability, ease of product operation and repair, as well as other product attributes.Quality product drawing the extent to which the product's ability to meet and satisfying consumer needs.To find out the quality of products consumed by customers, according to Kotler and Armstrong, there are eight indicators of product quality, namely:

a. Performance: Relates to the functional aspects of an item and is the main characteristic that customers consider in buying the item (regarding basic operating characteristics).
b. Features: Performance aspects that are useful for adding basic functions, related to product and development options (extra items added to basic features).
c. Reliability: Matters relating to the probability or probability that an item will successfully perform its function every time it is used within a certain period of time and conditions.
d. Conformance: Relates to the level of conformity with predetermined aspects based on customer desires (conformity of performance and product quality to standards).
e. Durability: A reflection of economic life in the form of a measure of the durability of an item's life (the life span before it is replaced).
f. Service Ability: Characteristics related to speed, ease of competence, and accuracy in providing services for organizational improvement (ease of service or repairs when needed).
g. Asthetics: Characteristics of a subjective nature regarding aesthetic values relating to personal considerations and reflections of individual references.
h. Perceived Quality: Consumers do not always have complete information about product attributes. However, consumers usually have information about the product indirectly (the quality that consumers perceive).

2.2 Service Quality

Goetsch and David quoted by Tjiptono (2012) state that service quality is a dynamic condition related to products, services, people, processes, and the environment that meet or exceed expectations. Meanwhile, according to(Lupiyoadi, 2013b) Service quality is the overall characteristics and characteristics of a product / service in its ability to meet predetermined or latent needs.

To determine the quality of service perceived by consumers, there are indicators of customer satisfaction that lie in the five dimensions of service quality. According to Ratnasari and Aksa (2011) there are five main indicators of service quality, namely as follows:
a. Tangibles (Direct Evidence)
b. Reliability
c. Responsiveness (Responsiveness)
d. Assurance (Guarantee)
e. Empathy (Empathy)

2.3 Customer Satisfaction

According to(Tjiptono & Chandra, 2018)Satisfaction is an attitude that is decided based on the experience gained. Research is needed to prove whether or not previous expectations are the most important part of satisfaction. According to(Lupiyoadi, 2013a), there are five indicators of customer satisfaction, namely:
a. Product quality That is the feeling of satisfaction shown by customers when the products they use are of high quality.
b. Quality of service or service, namely the feeling of satisfaction expressed by customers when they get good service or as expected.
c. Emotion, namely the satisfaction obtained not because of the quality of the product but social or self-esteem which makes customers feel satisfied with certain brands. In general, customers will get the confidence that other people will be amazed by him when using a product with a certain brand that tends to have a higher level of satisfaction.
d. Price That is, setting a relatively cheap price will provide a higher value to customers with products of the same quality.
e. Promotion Namely promotion of information on company products and services in an effort to communicate the benefits of products and services to target consumers. These promotional activities include product and service advertisements, discounted goods and gift giving.

2.4 Customer Loyalty

According to Griffin (2004), here are four indicators of customer loyalty, namely:
a. Make repeat purchases regularly
b. Buying between product lines and services Using other products manufactured or offered by our company, even though their products vary.
c. Recommend to people Become an advocate and refer their satisfaction and goodness of the company's products/services to other parties to immediately use the company's products/services.
d. Demonstrate immunity against competitors Consistent use of the company's products/services even though there are many offers from competing companies.

2.5 Hypothesis

According to(Sugiyono, 2014) hypothesisis a temporary answer to the formulation of research problems, it is said to be temporary because the answers given are only based on theory. The hypothesis is formulated on the basis of a frame of mind which is a temporary answer to the formulated problem, namely as follows:
1. H1: The product quality variable (X1) has a significant positive effect on customer satisfaction (Y) at the Tirta Jasa Regional Drinking Water Company (PDAM), South Lampung.
2. H2: Service quality variable (X2) has a significant positive effect on customer satisfaction (Y) at Tirta Jasa Regional Drinking Water Company (PDAM), South Lampung.

3. H3: Variable product quality (X1) has a significant positive effect on customer loyalty (Z) at Tirta Jasa Regional Drinking Water Company (PDAM), South Lampung.
4. H4: Service quality variable (X2) has a significant positive effect on customer loyalty (Z) at the Tirta Jasa Regional Drinking Water Company (PDAM), South Lampung.
5. H5: Customer satisfaction variable (Y) has a significant positive effect on customer loyalty (Z) at Tirta Jasa Regional Drinking Water Company (PDAM), South Lampung.

III. Research Methods

The method used is the exploratory method in analyzing primary data and secondary data through literature study by reviewing selected references and collecting data related to the research field with a sample of 220 (10 times the number of research indicators). The research variables and their indicators and measurement scales can be seen in the following table:

Table 1. Research Variables, Indicators and Measurement Scales

No.	Research Variable	Research Variable Indicators	Measuring Scale
1	Product Quality	a. Perfomance b. Features c. Reliability d. Conformance e. Durability f. Service Ability g. Asthetics h. Perceived Quality	Likert scale (1- 5) 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree
2	Service Quality	a. Tangibles (direct evidence). b. Reliability (reliability). c. Responsiveness (responsiveness). d. Assurance (guarantee). e. Empathy (empathy).	Likert scale (1- 5) 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree
3	Customer Satisfaction	a. Product quality b. Service quality c. Emotions d. Price e. Promotion	Likert scale (1- 5) 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree
4	Customer Loyalty	a. Make repeat purchases b. Purchase a line of products and services c. Recommend to others d. Shows immunity against competitors	Likert scale (1- 5) 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Source: secondary data (processed in 2020)

IV. Result and Discussion

Classic assumption of normality test aims to test whether the data used in the study have a normal distribution. Normality testing using Amos v. 22 by looking at the critical ratio (cr) skewness value (critical value) and the kurtosis value is in the range of ± 2,58 or is at a significance level of 0.01 (1%) while those with a ratio value greater than the absolute value 2 ,58 means that the data is not normally distributed. The results of data processing with Amos can be seen the value of the research variable cr (X1 = Product Quality, X2 = Service Quality, Y = Customer Satisfaction and Z = Customer Loyalty), distributed in the range of ± 2,58 (cr = + 2,58). thus the research data meet the requirements for normality or are normally distributed.

Table 2. c.r Value for Data Normality Test

Variable	min	max	skew	cr	kurtosis	cr
X2	7.000	23.000	.119	.722	.047	.142
X1	12.000	34.000	-.051	-.312	-294	-.892
Y	12.000	22.000	-246	-1.491	.341	1.032
Z	6.000	14.000	-.029	-178	-482	-1.460
Multivariate					-922	-987

Source: Primary Data (processed in 2020)

Based on table 2 above, it turns out that all variables show that cr is in the range -2,58 ≤cr≤ 2,58, thus the research data meets the requirements for normality or is normally distributed. Multicollinearity test is a test to test whether there is a strong correlation between exogenous variables in influencing indogeneous variables. Ghozali (2011) states that a correlation value of less than 0,9 indicates no severe multicollinearity symptoms.

Table 3. Correlation Values between Variables

	X2	X1	Y	Z
X2	1.000			
X1	-.001	1,000		
Y	.472	.465	1,000	
Z	.549	.414	.554	1,000

Source: primary data (processed in 2020)

Based on table 3 above, it can be seen that the correlation value between each variable is less than 0,9, so that the data meets the requirements there is no multicollinearity and can be used for research.

From the primary data processing with Amos v 22, the results were obtained Model suitability and path analysisas shown in the picture and table below:
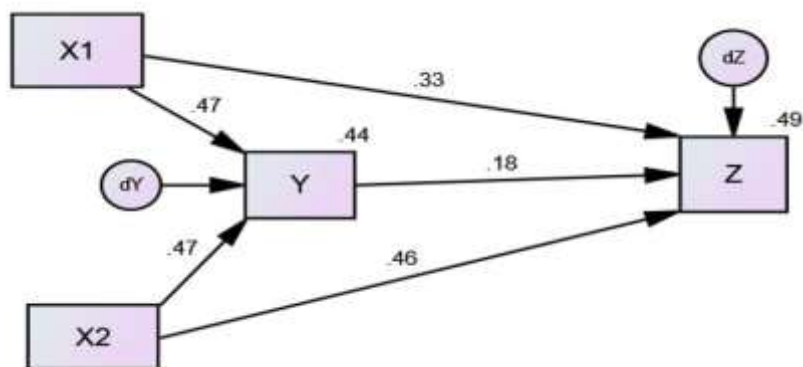
Figure 1. *Path Analysis*

Table 4. Value of Goodness of Fit Index (GOFI) Measurement Model

GOFI	Value Calculated Results	Standard Value For Good Fit	Conclusion
p-value	0,987	p-value ≥ 0,05	Good fit
RMSEA	0,000	RMSEA ≤ 0,08	Good fit
NFI	1,000	NFI ≥ 0,90	Good fit
CFI	1,000	CFI ≥ 0,90	Good fit
IFI	1,004	IFI ≥ 0,90	Good fit
RFI	1,000	RFI ≥ 0,90	Good fit
TLI	1,022	TLI ≥ 0,90	Good fit
GFI	1,000	GFI ≥ 0,90	Good fit
AGFI	1,000	AGFI ≥ 0,90	Good fit
Standardized RMR	0,005	SRMR ≤ 0,05	Good fit

Source: secondary data (processed in 2020)

Based on Figure 1 and table 4 above, the ten Goodness of Fit Index (GOFI) criteria show a good fit, meaning that the analysis model can be used in this study. The total effect for each variable on other variables can be seen in the following table:

Table 5. Total Effect between Variables

	X2	X1	Y
Y	.473	.466	.000
Z	.550	.415	.182

Source: primary data (processed in 2020)

From table 5 above it can be seen that:
a. Variable X1 (Product Quality) has a total effect on variable Y (Customer Satisfaction) 0,466 or 46,60%
b. Variable X1 (Product Quality) has a total effect on variable Z (Customer Loyalty) 0,415 or 41,50%
c. Variable X2 (Service Quality) has a total effect on variable Y (Customer Satisfaction) 0,473 or 47,30%
d. Variable X2 (Service Quality) has a total effect on variable Z (Customer Loyalty) 0,550 or 55,50%
e. Variable Y (Customer Satisfaction) has a total effect on variable Z (Customer Loyalty) 0,182 or 18,20%

The total effect for each variable on other variables can be seen in the following table:

Table 6. Direct Effects between Variables

	X2	X1	Y
Y	.473	.466	.000
Z	.464	.330	.182

Source: primary data (processed in 2020)

From table 6 above it can be seen that:
a. Variable X1 (Product Quality) has a direct effect on variable Y (Customer Satisfaction) 0,466 or 46,60%
b. Variable X1 (Product Quality) has a direct effect on variable Z (Customer Loyalty) 0,330 or 33,00%
c. Variable X2 (Service Quality) has a direct effect on variable Y (Customer Satisfaction) 0,473 or 47,30%
d. Variable X2 (Service Quality) has a direct effect on variable Z (Customer Loyalty) 0.464 or 46,40%
e. Variable Y (Customer Satisfaction) has a direct effect on variable Z (Customer Loyalty) 0,182 or 18,20%

The Indirect Effect for each variable on other variables can be seen in the following table:

Table 7. Indirect Influence between Variables

	X2	X1	Y
Y	.000	.000	.000
Z	.086	.085	.000

Source: primary data (processed in 2020)

From table 7 above it can be seen that:
a. Variable X1 (Product Quality) has an indirect effect on variable Z (Customer Loyalty) 0,085 or 8,50%
b. Variable X2 (Service Quality) has an indirect effect on variable Z (Customer Loyalty) 0,086 or 8,60%

Hypothesis test:
To test the hypothesis, the following criteria are used:
- Accept H0 and reject HA if the p value is> 0,05
- Reject H0 and Accept HA if p ≤ 0,05

From the primary data after being processed with Amos 22, they are as shown in the following table:

Table 8. Regression Weights: (Group number 1 - Default model)

			Estimate	SE	CR	P	Label
Y	<---	X1	.193	.021	9.210	***	par_1
Y	<---	X2	.262	.028	9.350	***	par_2
Z	<---	X2	.215	.026	8.148	***	par_3
Z	<---	X1	.114	.020	5.819	***	par_4
Z	<---	Y	.152	.054	2.823	.005	par_5

Source: primary data (processed in 2020)

From table 8 above it can be seen:
a. Y <---- X1 reads the effect of X1 (Product Quality) on Y (Customer Satisfaction) with an estimated value of 0,193 means that it has a positive effect and the value of p = *** means the effect is significant, so Hypothesis 1 (H1) is accepted which means that the product quality (X1) has a significant positive effect on customer satisfaction (Y) at the Regional Drinking Water Company (PDAM) Tirta Jasa Lampung Selatan.
b. Y <---- X2 reads the influence of X1 (Product Quality) on Y (Customer Satisfaction) with an estimated value of 0,262 means that it has a positive effect and the value of p = *** means the effect is significant, so Hypothesis 2 (H2) is accepted which means that the quality of service (X2) has a significant positive effect on customer loyalty (Y) at the Regional Drinking Water Company (PDAM) Tirta Jasa Lampung Selatan.
c. Z <---- X2 reads the influence of X2 (Service Quality) on Z (Customer Loyalty) with an estimated value of 0,215 which means that it has a positive effect and the value of p = *** means the effect is significant, so Hypothesis 3 (H3) is accepted which means that the quality of service (X2) has a significant positive effect on customer loyalty (Z) at the Regional Drinking Water Company (PDAM) Tirta Jasa Lampung Selatan.
d. Z <---- X1 reads the effect of X1 (Product Quality) on Z (Customer Loyalty) with an estimated value of 0,114 which means that it has a positive effect and the value of p = *** means that the effect is significant. so that Hypothesis 4 (H4) is accepted which means that product quality (X4) has a significant positive effect on customer loyalty (Z) at the Tirta Jasa Regional Drinking Water Company (PDAM), South Lampung.
e. Z <---- Y reads the effect of Y (Customer Satisfaction) on Z (Customer Loyalty) with an estimated value of 0,152 means that it has a positive effect and the value of p = 0,005 <0,05 means that the effect is significant. so that Hypothesis 5 (H5) is accepted which means that Customer Satisfaction (Y) has a significant positive effect on customer loyalty (Z) at the Tirta Jasa Regional Drinking Water Company (PDAM), South Lampung.

V. Conclusion

Based on the description above, we can conclude the following:
1. Product quality has a significant positive effect on customer satisfaction at the Tirta Jasa Regional Drinking Water Company (PDAM) in South Lampung.
2. Service Quality has a significant positive effect on customer loyalty at the Tirta Jasa Regional Drinking Water Company (PDAM) in South Lampung.
3. Product Quality has a significant positive effect on customer loyalty at the Tirta Jasa Regional Drinking Water Company (PDAM) in South Lampung.
4. Customer Satisfaction has a significant positive effect on customer loyalty at the Tirta Jasa Regional Drinking Water Company (PDAM) in South Lampung.

References

Aryani, D., & Rosinta, F. (2010). Pengaruh kualitas layanan terhadap kepuasan pelanggan dalam membentuk loyalitas pelanggan. Jurnal Ilmu Administrasi Dan Organisasi.

Goetsch, DL, and David, S. 2008. Implementasi Kualitas, Alih Bahasa: Fandy Tjiptono dan Gregorious Chandra, (2011), Andi. Yogyakarta.

Griffin, 2004. Komitmen Organisasi, Terjemahan, Jakarta: Erlangga

Kotler, Philip dan Amstrong, Gary, (2014), Principles of Marketin, 12th Edition, Jilid 1 Terjemahan Bob Sabran Jakarta: Erlangga.

Kotler, P., & Keller, K. L. (2016). Marketing Mangement 15 th edition. In Pearson Education, Inc.

Lupiyoadi, R. (2013a). Manajemen Pemasaran jasa, Jakarta: Salemba Empat. Manajemen Pemasaran Jasa, Jakarta: Salemba Empat.

Lupiyoadi, R. (2013b). Manajemen Pemasaran Jasa: Berbasis Kompetensi Edisi 3. Penerbit Salemba.

Ratnasari Tri Ririn, Mastuti H Aksa. 2011. Manajemen Pemasaran Jasa. Penerbit: Ghalia Indonesia

Sugiyono. (2014). Metode dan Prosedur Penelitian. E-Journal.

Tjiptono, F., & Chandra, G. (2018). Manajemen Kualitas Jasa. Yogyakarta. ANDI.