

The Influence of Product Quality, Product Innovation, and Consumer Behavior on the Purchase Decision of Iphone Products in Batam City

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Abstract: The development of the times encourages each technology company to be able to create products that can be adjusted to the latest consumer needs, especially communication technology. These products, in addition to being able to meet their needs, must be able to help complete daily work and provide added value during their use. This study aims to examine whether there is an influence involved from product quality variables, product innovation and consumer behavior on the purchase decision of Iphone products in Batam City. The research method applied in this research process is to use the Lemeshow formula so that as many as 100 respondents were obtained with a side non-probability sampling technique by purposive sampling. The results obtained were that each independent variable gave significant and positive results where the variables of product quality, product innovation, and consumer behavior to the dependent variable, namely the decision to purchase Iphone products in Batam City.

Keywords: keyword; Consumer Behavior; Purchase Decision; Product Innovation; Product Quality;

1. Introduction

The existence of communication technology is very helpful for humans in meeting their needs in various existing activities, one part of the communication technology device is smartphone or a practical smartphone to use in carrying out daily activities. Smartphones is a mandatory item for everyone to have (Antony Putra, Windi Wahyuni, & Ajriyah, 2021). Iphone is a product smartphone produced by California-based Apple Inc, where the Iphone has its own software operating system, IOS, which is different from Android. In Indonesia, there are several Smartphone brand which are competitive in businesses such as Samsung, Oppo, Vivo, Nokia, LG, Panasonic and also Iphone.

One of the reasons why iphone products have a lot of demand is because Iphone provides excellent product quality such as the IOS operating system that facilitates data transfer between IOS devices, clear cameras, simple and elegant designs, strong security systems, and others (Junita, Amilia, & Rahman, 2024). But behind the quality of the qualified product, there are still many consumers who complain about the durability of the battery. In addition, innovations from Apple products are always present in every development and launch in the latest products. One of the latest innovations in the release of the Iphone 16 series is the camera control placed on the side which makes it easier for consumers to capture moments quickly, then there is the application of a new system, namely the A18 Chip which is a big leap in the form of efficiency and performance of the AAA game playing experience (Apple, 2024).

Product innovation can be described as a different perspective or thinking from general thinking where this innovation seeks to produce new things (Anderson & Hidayah, 2023) Iphone releases new models with a rapid frequency that causes a short decline in sales because consumers feel that the old product is outdated (Pramesti Kusnara, 2023). In addition to the influence of product quality and innovation, the influence that occurs is due to the influence of consumer behavior based on cultural, psychological, personal, and social factors.

The average Iphone user buys because it is to fulfill a lifestyle, pursue prestige and recognition alone. However, due to the relatively expensive price of Iphone, it is difficult

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for consumers to buy for those who have a small income. The purchase decision of a product generally occurs due to the existence of supporting aspects, as well as the decision to purchase Iphone products which are also supported by product quality, innovation and consumer behavior.

Product quality can be described as part of the usefulness of the role it plays in the product which includes accuracy, reliability, durability, convenience and other values (Cesariana, Carmelia Juliansyah, Fadlan Firtriyani, 2022). Indicators of product quality are performance, durability, safety, and reliability (Hulima, Soepono, & Tielung, 2021). Product innovation can be described as a different perspective or thinking from general thinking where this innovation seeks to produce new things (Anderson & Hidayah, 2023). Indicators of product innovation are line expansion, new products, completely new products, R&D level, and the ability to overcome challenges.

Consumer behavior can be described as the reaction or action that consumers have towards determining the desired product or service that is influenced by certain aspects (Wahyuni & Amanatuz, 2020). Indicators of consumer behavior are cognitive components, affective components, and conative components. The purchase decision can be described as the last action in seeking the result of the purchase decision based on considerations for the product to be purchased (Dwi Andriani & Menuk Sri, 2021). The indicators of the purchase decision are such as product buying interest, complete product stock, product brand or brand, varied payment methods, quantity of products to be purchased, and intensity or frequency of product purchases.

2. Materials and Methods

This study uses a descriptive research approach with a quantitative method. This research uses 3X and 1Y, namely Product Quality (X1), Product Innovation (X2), Consumer Behavior (X3) and Purchase Decision (Y). To be able to process the research data, data was collected from the questionnaire that was distributed and the subject in this study was consumers who bought Iphone products in Batam City. The type of population is unknown, so sampling techniques are used non probability and the Lemeshow formula of 100 respondents which will be measured by the Likert scale. The focus should be on individuals who are of legal age and have the financial capacity or interest to purchase iPhone products. Typically, this would include adults aged 18 and above, as they are more likely to have the purchasing power and experience with consumer behavior relevant to the decision-making process for high-end products like the iPhone. Additionally, setting an age limit ensures that the data collected represents those who are most likely to make purchase decisions, as younger individuals may not yet have the financial autonomy, while older adults may have different purchasing patterns based on their lifestyle or technological needs. Therefore, an age range of 18 to 60 years would provide a representative sample of potential iPhone buyers in Batam City.

3. Results and Discussion

3.1. Validity Test

Data validity tests are used in research to correct the score generated on each item of the statement, a statement can be said to be valid if the statement is significantly correlated with the alpha level with a certain total score. With a total sample of 100 respondents, based on the r table with a significant r of 0.05, the r table is 0.196.

Table 1. Results of Research Validity Test

Kualitas Produk (X1)		Inovasi Produk (X2)		Nilai Perilaku (X3)		Keputusan Pembelian (Y)	
X1.1	0.827	X2.1	0.839	X3.1	0.856	Y.1	0.869
X1.2	0.822	X2.2	0.861	X3.2	0.844	Y.2	0.872
X1.3	0.844	X2.3	0.859	X3.3	0.867	Y.3	0.845

X1.4	0.879	X2.4	0.865	X3.4	0.847	Y.4	0.849
X1.5	0.838	X2.5	0.852	X3.5	0.869	Y.5	0.841
X1.6	0.831	X2.6	0.848	X3.6	0.839	Y.6	0.853
X1.7	0.820	X2.7	0.883			Y.7	0.851
X1.8	0.867	X2.8	0.851			Y.8	0.863
		X2.9	0.865			Y.9	0.842
		X2.10	0.845			Y.10	0.850
						Y.11	0.850
						Y.12	0.878

Keterangan : Valid

Table 1. provides information about the validity test results of each statement of the independent and dependent variables. It provides results where the value of r calculation is greater than the r of the table, so that this study can be recognized for its validity.

3.2. Data Reliability Test

The reliability test carried out in this study has the aim of measuring the consistency and stability of the measuring instrument, thereby providing the same or similar results within a certain time range that has been set.

Table 2. Reliability Test of Research Data

Nilai Cronbach's Alpha			
Kualitas Produk	Inovasi Produk	Perilaku Pelanggan	Keputusan Pembelian
0.940	0.959	0.924	0.965

Keterangan : Reliabel

Table 2. provides information on the reliability test results of each independent and dependent variable. It gives a result where the value of Cronbach's alpha obtained is greater than the value of 0.6 which can be stated that this study is reliable.

3.3. Normality Test

The normality test was carried out in this study as a statistical procedure to determine whether the data obtained from the respondents had been distributed normally. This test has a role to ensure that the basic assumptions of parametric analysis have been met to obtain the right interpretation.

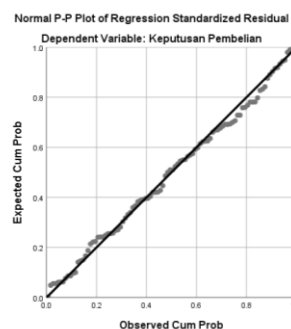


Figure.1 Normal P-Plot Chart

Figure.1 shows the normal graphical shape of a p-plot where the dots are spread along a diagonal line towards the y-axis or heading upwards. So that the results of this study can be declared normal.

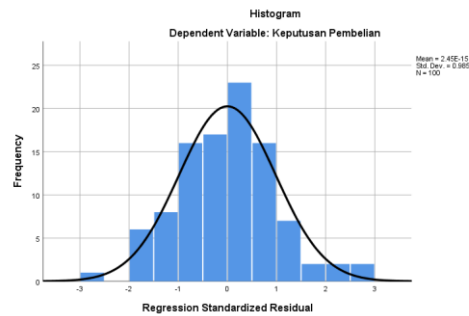


Figure 2. Histogram

Figure 2. The histogram shows the shape of the histogram that resembles a bell, where when the curve is in the form of a bell it can be interpreted as normally distributed data.

Table 3. Kolmogorov-Smirnov Test Results

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		100
Normal Parameters ^{a,b}	Mean	.0000000
	Std.Deviation	2.15443612
Most Extreme Differences	Absolute	.055
	Positive	.055
	Negative	-.040
Test Statistic		.055

Table 3. above contains the results of the Kolmogorov-Smirnov test which produces a value of asymp.sig (2-tailed) of 0.200c.d which means above the value of 0.05, so that this study can prove its normality.

3.4. Multicollinearity Test

This study conducted a multicollinearity test with the aim of detecting whether there is a high correlation between each independent variable and its dependent variable.

Table 4. Multicollinearity Test Results

Model		Sig	Tolerance	VIF
1	(Constant)	.000		
	Kualitas Produk	.000	.372	2.690
	Inovasi Produk	.000	.361	2.773
	Perilaku Konsumen	.000	.298	3.353

Table 4. shows that the results of the tolerance value in this study are above the value of >0.10 and the VIF value is below <10.00 so that in this study there are no symptoms of multicollinearity.

3.5. Heteroscedasticity Test

This study conducted a heteroscedasticity test to identify the heteroscedasticity of variants from residual in the linear regression model.

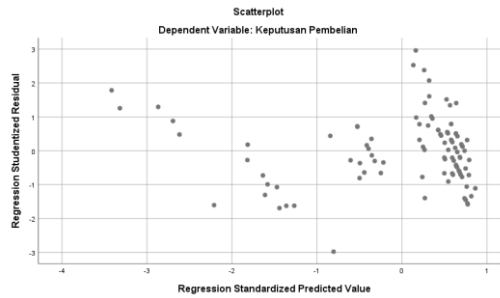


Figure 3. Scatterplot Chart

Figure 3. shows the result where the points in the graph are spread out above and below the y-axis, so such a result can be stated as no heteroscedasticity.

3.6. Determination Coefficient Analysis

A statistical method used to measure the extent to which independent variables in a regression model can explain the variation of dependent variables.

Table 5. Analysis of Determination Coefficients

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error Of The Estimate
1	.980	.961	.960	2.188

Table 5. is the result of the determination coefficient test, the results show the value of Adjuster R Square of 0.960 which means that it has a percentage of 96% influenced by product quality variables, product innovation and customer behavior towards purchase decisions. The amount of the 4% percentage is influenced by factors or models outside of this study.

3.7. Test T (partial)

This study uses a purposeful t-test to test the hypothesis regarding each variable independent of the dependent variable in the liner regression model. This study used 100 respondents so that the t-count value was 1,984.

Table 6. Results of the T-Test of the Study

Model	Unstandardized		Standardized		Collinearity Statistic		
	B	Std. Error	Beta	t	Sig	Tolerance	VIF
(Constant)	-11.171	1.809		-6.174	.000		
1							
Kualitas Produk	.614	.086	.331	7.101	.000	.372	2.690
Inovasi Produk	.560	.062	.426	8.987	.000	.361	2.773
Perilaku Konsumen	.638	.113	.293	5.624	.000	.298	3.353

Table 6. contains the results of the T or partial test, the following is an explanation of the contents of the table above, namely: H1 = The product quality variable (X1) obtained a calculated t value of 7,101 > 1,984 table t values. The amount of significant value is 0.000 < 0.05. This can state that H0 is rejected and H1 is accepted, which means that the quality

of the product affects the purchase decision. H2 = The product innovation variable (X2) obtained a calculated t value of $8,987 > 1,984$ table t values. The amount of significant value is $0.000 < 0.05$. This can state that H0 is rejected and H1 is accepted, which means that product innovation affects the purchase decision. H3 = The consumer behavior variable (X3) obtained a calculated t value of $5,624 > 1,984$ table t value. The amount of significant value is $0.000 < 0.05$. This can state that H0 is rejected and H1 is accepted, which means that consumer behavior affects the purchase decision.

When product quality can be achieved in accordance with company standards and is also able to meet consumer expectations, it can be referred to as the best product quality. This can have an effect in increasing purchase decisions for Iphone products. This statement can be proven in this study because the t-value is calculated at $7,101 > 1,984$ t-values of the table. The amount of significant value is $0.000 < 0.05$, so it can be concluded that product quality has a positive and significant influence on the decision to purchase Iphone products in Batam City. Research conducted by (Simbolon, Handayani, & Nugraedy, 2020) also had similar results.

Innovations that continue to develop which are followed by the development of the times are very attractive to consumers because these innovations can help and meet consumer needs. Beneficial innovations can play a role in increasing purchases by consumers. This statement can be proven in this study because the t-value is calculated at $8,987 > 1,984$ t-values of the table. The amount of significant value is $0.000 < 0.05$, so it can be concluded that product innovation has a positive and significant influence on the decision to purchase Iphone products in Batam City. Research conducted by (Simbolon et al., 2020) also had similar results.

Consumer behavior can play a role in improving purchase decisions by consumers because consumers interact directly with products based on their wants or needs. This statement can be proven in this study because the t-value is $5,624 > 1,984$ t-value of the table. The amount of significant value is $0.000 < 0.05$, so it can be concluded that consumer behavior has a positive and significant influence on the decision to purchase Iphone products in Batam City. Research conducted by (Shabira & Wardhana, 2021) also had similar results.

Purchase decisions can occur because consumers are influenced by several factors such as product quality, product innovation and consumer behavior. This statement can be proven in this study because the f-value is calculated at $380,034 >$ out of $2,698$ with a significance of $0.000 < 0.05$, so it can be concluded that product quality, product innovation and consumer behavior have a significant positive and simultaneous influence on the decision to purchase Iphone products in Batam City. Research conducted by (Octaviani, Vini Lumban Batu, 2021) also had similar results.

4. Conclusions

Product quality has a significant positive influence on the purchase decision of Iphone products in Batam City with a partial test score of $7,101 > 1,984$ t-values table with a significant value of $0.000 < 0.05$. Product innovation has a significant positive influence on the decision to purchase Iphone products in Batam City with a partial test score of $8,987 > 1,984$ table t values with a significant value of $0.000 < 0.05$. Consumer behavior has a significant positive influence on the purchase decision of Iphone products in Batam City with a partial test score of $5,624 > 1,984$ table t values with a significant value of $0.000 < 0.05$. Product quality, product innovation and consumer behavior have a significant positive influence simultaneously on the purchase decision of Iphone products in Batam City.

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