

Influence of Product Innovation on Consumer Purchase Decision of Mobile Phones in Akwa Ibom State, Nigeria

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ABSTRACT: *This paper examined the influence of product innovation on consumer purchase decision of mobile phones in Akwa Ibom State, Nigeria. The survey research design was used for this study. Data for this paper were obtained through structured questionnaire administered to the respondents. 385 respondents were selected using convenience sampling technique. The results of four hypotheses were obtained using multiple linear regression model. The results showed that there is positive effect of improve quality, new design and new features on consumer purchase decision of mobile phones in Akwa Ibom State. Based on the research results, it is recommended that mobile phones manufacturing companies should continuously introduce innovative values into their products in forms of improve quality, new design and new features to attract consumers' patronage.*

KEYWORDS: Consumer purchase decision, improve quality, new design, new features, Product innovation

I. INTRODUCTION

1.1 Background to the Study

In a competitive business environment, innovation is the key for the survival and development of a firm. Product is anything offer to the market that is capable to satisfy the consumer needs or wants. Product can be tangible or intangible. It can take a variety of forms, including a physical object, a service, etc. (Attih, 2013, Attih, 2023). Product innovation is the introduction of additional value into good by a firm to have competitive advantage over others. It is a source of growth and success for firms and very important to the economic growth. According to Sumiati (2020) innovation is what companies required to stand out among competitors. Wahayuni (2019) asserted that product innovation is a new product development process due to an increase in the additional value of a product, which makes it different from other products.

Pulungan, Fauzi and Rini (2018) described product innovation 'as the development of distinct product that can be sold and the procedure involves using new ideas into products that can be sold'. According to the authors, product innovation plays crucial role in terms of influencing purchase decisions. They opined that every firm must create distinct products, because innovative ideas transform the future of the firm. Product innovations are important to the manufacturers, marketers and consumers. It is the means to satisfy changing consumers' needs, wants and preference as well as making variety of products available in the market. Firms regularly use new ideas to offer extra value to a product.

Consumer purchase decision can be influenced by product innovation components which can be in forms of improve quality, new design, new features or model, etc. However, despite the importance of product innovation to organizations, some lack creative ideas on which of the component(s) of product innovation would add value to their products. Therefore, based on the above mentioned background problem, this study is basically to examine the influence of product innovation on consumer purchase decision of mobile phones in Akwa Ibom State, Nigeria.

1.2 Objectives of the Study

The main aim of this study was to examine the influence of product innovation on consumer purchase decision of mobile phones in Akwa Ibom State, Nigeria. The specific objectives were:

- i. To examine the effect of improve quality on consumer purchase decision of mobile phones in Akwa Ibom State.
- ii. To ascertain the influence of new design on consumer purchase decision of mobile phones in Akwa Ibom State.
- iii. To analyze the effect of new features on consumer purchase decision of mobile phones in Akwa Ibom State.

- iv. To determine the influence of improve quality, new design and features on consumer purchase decision of mobile phones in Akwa Ibom State.

1.3 Research Questions

Based on the objectives of the study, the following research questions were raised:

- i. What is the effect of improve quality on consumer purchase decision of mobile phones in Akwa Ibom State?
- ii. To what extent does new design influence consumer purchase decision of mobile phones in Akwa Ibom State?
- iii. What is the effect of new features on consumer purchase decision of mobile phones in Akwa Ibom State?
- iv. To what extent does improve quality, new design and features influence consumer purchase decision of mobile phones in Akwa Ibom State?

1.4 Research Hypotheses

Based on the objectives of the study, the following hypotheses were formulated:

H₀₁: There is no significant effect of improve quality on consumer purchase decision of mobile phones in Akwa Ibom State.

H₀₂: There is no significant influence of new design on consumer purchase decision of mobile phones in Akwa Ibom State.

H₀₃: There is no significant effect of new features on consumer purchase decision of mobile phones in Akwa Ibom State.

H₀₄: There is no significant influence of improved quality, new design and new features on consumer purchase decision of mobile phones in Akwa Ibom State.

1.5 Significance of the Study

The outcomes of this study will be beneficial to the producers of mobile phones. It would help the producers of mobile phones to formulate policies on product innovations and to identify the innovation component that mostly influenced the consumer purchase decision of their products. The outcomes would also add to the existing body of knowledge on product innovation and consumer purchase decision in mobile phone industry, especially in Nigeria. It would serve as a reference material for researchers who want to carry out a study on similar or related topics.

1.6 Scope of the Study

This study was restricted to the users of mobile phones in Akwa Ibom State, Nigeria. It focused on three (3) product innovation components-improve quality, new design and features as independent variables and consumer purchase decision as dependent variable. The unit of analysis was the users of mobile phones in Akwa Ibom State, Nigeria.

II. REVIEW OF LITERATURE

2.1 Product Innovation

Product innovation is the firm's creative idea to add new value to product shape, attributes or qualities based on consumer's needs or improve the worth of goods and services by developing innovative values. Product innovation can be described as the creation of additional value into goods, variations in design or features of well-known products (www.marchudson.net/academia/prod...). Product innovation is the creation of new value into the existing product in forms of quality, design or features to satisfy consumer's needs and wants.

2.2 Components of Product Innovation

Product Quality: Kotler and Armstrong (2016) described product quality as 'the ability of product to perform its function'. 'Ability including durability, reliability, easy to operate and repair and other attributes for all products'. Kotler and Keller (2012) asserted that product quality is the capacity of a good to offer remarkable outcomes that equal or greater than what a customer expected.

Product Design: Homburg, Schwemmler and Kuehnl (2015) defined product design as a 'set of established components of a good that customers recognize as a multidimensional concept consisting the three dimensions of aesthetics, functionality and symbolism'. Product design is totality of product features. It is the combination of how the product looks.

Product Features: Product features are attributes of good that depict its form, elements and abilities ([www.aha.io/roadmapping/guide/requirements-management/what ar.](http://www.aha.io/roadmapping/guide/requirements-management/what-ar/)). Product features consist of physical characteristics of good that contribute to benefits it offers.

2.3 The Consumer Purchase Decision

Kotler and Armstrong (2016) described 'consumer purchase decision' as a period by which consumer's agrees to purchase good desired. The authors clarified that a buying decision is the period that the consumer decided to purchase a chosen brand or product. According to Djatmito and Pradama (2015), 'consumer purchase decision' is the time in which buyer's actually purchase the product'. It is the final selection of product to buy by

the consumer. 'The act of buying is the period, which the consumer take decision on which to purchase, where to purchase and how to purchase'(Preethan and Mohan, 2019).

2.4 Review of Empirical Studies

Rayi and Aras (2021) studied how product innovation and motivation drive purchase decision as consumer buying behaviour in Greater Jakarta. The survey method was adopted to gather data from the 96 consumers. The results from hypotheses were obtained using structural equation model. The results revealed that there is a significant and positive relationship between product innovation and consumer purchase decision. It was concluded that the main factor for innovation that can be accepted by millennial is the product quality that remains good.

Tarmidi, Prince, Dosinaen, Siahaem, Azzadi, and Napitupulu(2021) investigated the effect of product innovation and price on purchasing decisions on shopee user in Bandung (case study on electronic products labeled shipping from oversea). The quantitative approach was used in the study. The sample size of 100 respondents was selected for the study using non probability sampling technique. The hypotheses were tested using multiple linear regression model. The results showed that product innovation and price have significant influence together on the purchase decision of consumers in Bandung. It was concluded that product innovation and price play an important role in influencing consumers purchase decision.

Abilova and Karaduman (2019) conducted a study on the effect of product innovations on consumer decision making process in Turkey. The survey research design was used to obtain information from the respondents. The sample size of 385 respondents was selected for the study. The hypotheses were tested using multiple linear regression model. The findings revealed that there is a significant relationship between product innovation and consumer purchase decision. The hypotheses were tested using multiple linear regression model. It was concluded that product innovation plays crucial role in influencing consumers purchase decision.

Lahindah and Siahaan (2018) examined the influence of product innovation and service quality to buying decision and impact to repeat buying at Progo Road, Bandung. The survey research design and interview were used to obtain data from the respondents. The sample size of 384 respondents was selected for the study. The hypotheses were tested using Warp. PLS 30 model. The findings of the study showed that product innovation and the service quality influence buying decision in the culinary industry along the progo Road, Bundung. It was concluded that product innovation and service quality significantly impact on buying decision but did not impact repeat buying.

Pulungan, Fauzi and Rini (2018) investigated the effect of product innovation, consumer attitude and advertising at the purchase decision of Yamaha Motorcycle in CV Sejatic Mitra Motor Meda Marelán. The descriptive quantitative research method was used to obtain data from the respondents. The sample size of 1455 consumers was selected for the study. The hypotheses were tested using multiple linear regression model. The findings revealed that simultaneously, the innovation of product, consumers' attitude and advertisement attraction had a positive and significant impact on the decision to buy. It was concluded that product innovation plays crucial role in influencing consumers purchase decision of Yamaha Motorcycle in CV Sejatic Mitra Motor Meda Marelán.

Hatta, Rachbini and Parenrengi (2018) analyzed product innovation, product quality price, and purchase decision in Bogor city. Survey research design was used to obtain information from the respondents. The sample size of 150 consumers was randomly selected for the study. The hypotheses were tested using structural equation modeling. The results revealed that respondents' perceptions of innovation and product quality, price, promotion, and the level of purchasing decisions were highly significant. It was concluded that product innovation and product quality price have positive influence consumer purchase decision.

Ginting and Sembiring (2017) examined the effect of product innovation, product quality and city image on purchase decision of Uis Karo woven fabric. The survey research design was used to obtain information from the respondents. The sample size of 95 respondents was selected for the study. Hypotheses were tested using simple regression model. The results showed that simultaneously product innovation, product quality and city image have positive and significance influence on the buying decision of Uis Karo. It was concluded that product innovation has a positive and significance effect on the purchase decision of consumers in Uis Karo.

Shiau (2014) studied the impact of product innovation on behaviour intention: The measurement of the mediating effect of the brand image of Japanese Anime Dolls. The survey research method was used to obtain information from the respondents. The sample size of 434 respondents was selected for the study. Hypotheses were tested using simple regression and correlation. The findings of the study showed that new products, services innovation and technological innovation had a significant and positive impact on brand image. It was concluded that product, services and technology innovations play crucial role to enhance companies brand image.

Awan and Zahra (2014) investigated the impact of innovations on consumers' behaviour: A case study of PAK Electron Limited in Pakistan. The field survey research design was used to collect data from the

respondents. The sample size of 200 customers was selected using convenience sampling technique. The hypotheses were tested using S-curve model. The findings of the study revealed that the effect of innovations are significant on the behaviour of customers and 75% of respondents endorsed that innovative electronic product attracted customers and have brought positive change in their behaviour and living standards. It was concluded that innovation plays a key role in changing consumers' behaviour and growth of business of innovative firms.

III. RESEARCH METHODOLOGY

This section focused on the methods and procedures for collecting and analyzing data for the study. It consists of research design, sample size/sampling technique, conceptual specification of model, empirical specification of model, source and nature of data and methods of data analysis.

3.1 Research Design

The survey research design was used in the study. It involves systematic gathering of quantitative data from respondents through self-administered structured questionnaire.

3.2 Population, Sampling technique and Sample Size

The population of this study comprised all the users of mobile phones in Akwa Ibom State. The convenience sampling technique was used to select 385 users of mobile phones in Akwa Ibom State. The sample size of users of mobile phones in Akwa Ibom State, Nigeria was determined using the formula for infinite population by Walpole as follows:

$$n = \frac{(Z/a/2)^2}{4e^2}$$

Where:

n = Sample size

$(Z/a/2)^2 = 1.96$

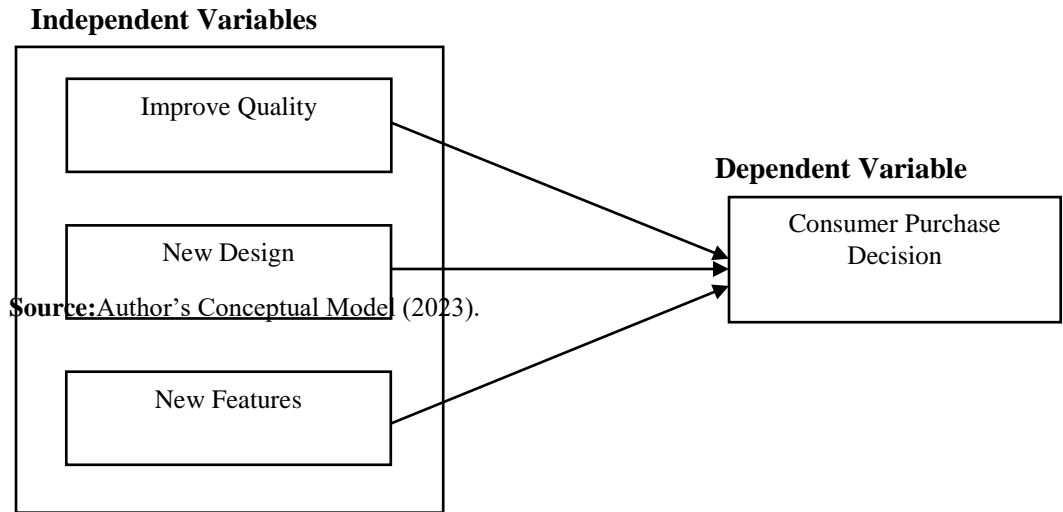
e = error margin = 0.05

$$\begin{aligned} \text{Sample (n)} &= \frac{(1.96)^2}{4 (0.05)^2} \\ &= \frac{(1.96)^2}{4 (2.5)} \\ &= \frac{(1.96)^2}{0.01} \\ &= \frac{3.8416}{0.01} \\ &= 384.6 \end{aligned}$$

$$\text{Sample size} = 385$$

3.3 Conceptual Specification of Model

Based on the research hypotheses, conceptual model was developed to determine the influence of product innovation on consumer purchase decision as dependent variable. The model specifies that consumer purchase decision of mobile phones in Akwa Ibom State is a function of improve quality, new design and features.



3.4 Empirical Specification of Model

To determine the influence of independent variables (product innovation)-improve quality, new design, new features and dependent variable-consumer purchase decision of mobile phones, a multiple regression model was developed.

The model is expressed mathematically as follows:

$$Y = f(X_1, X_2, X_3)$$

$$Y = a_1 + b_1X_1 + b_2X_2 + b_3X_3 + e$$

Where:

Y = Consumer Purchase Decision

X₁ = Improve Quality

X₂ = New Design

X₃ = New Features

a = Constant

b₁, b₂, b₃ = Regression coefficient of each variable

e = error term

3.5 Source and Nature of Data

Data for this study were obtained through primary source. The primary data were collected through a structured questionnaire administered to respondents.

3.6 Methods of Data Analysis

Data obtained from the respondents were analyzed using descriptive statistics basically mean, standard deviation and skewness. The hypotheses were tested using multiple linear regression model. All hypotheses were tested at the 0.05 level of significance with p<0.05 indicating statistical significance. To enhance data analysis, Statistical Package for the Social Sciences (SPSS), Version 22.0 was used.

IV. DISCUSSION OF RESULTS

Table 1: Summary of the descriptive statistics for the research variables

Variables	No. of items	Mean score	Standard deviation	Skewness
Improved quality	3	10.32	1.32	-0.70
New design	3	10.04	4.60	12.27
New features	3	10.15	4.59	12.34
Consumer purchase decision	3	10.17	4.59	12.350

Result in Table 1 presents summary of the descriptive analysis of the research variables (improved quality, new design, new features and consumer purchase decision). The mean rating of 10.32, 10.04, 10.15 and 10.17 were obtained for improved quality, new design, new features and consumer purchase decision with standard deviation of 1.32, 4.60, 4.59 and 4.59 respectively. This indicates that among the three product innovation variables improved quality was more rated than new design and new features. The standard deviation obtained for improved quality was less than that of the other variables indicating that there is an

agreement in the responses of the respondents with regards to improved quality than new design and new features. The skewnesses obtained with the exception of improved quality were all greater than 0 indicating positively skewed data. The relationship among the variables was examined and the result obtained is as presented in Table 2. Result of correlation in Table 2 reveals that improved quality ($r = .484, p < 0.05$), new design ($r = .320, p < 0.05$) and new features ($r = .841, p < 0.05$) all have significant positive relationship with consumer purchase decision. These results imply that the better the improvement in the quality, new design and features are introduced into product, the better the level of consumer purchase decision. Result of the multiple linear regression is as presented in Table 3.

Table 2: Summary of the relationship between improved quality, new design, new features and consumer purchase decision

Variables	1	2	3	4
Improved quality	1.000			
New design	.117	1.000		
New features	.407**	.266**	1.000	.841**
Consumer purchase decision	.484**	.320**	.841**	1.000

**Significant at 1% ($p < 0.01$), *Significant at 5% ($p < 0.05$)

Table 3: Summary of the multiple linear regression results showing the effect of improved, new design, new features on consumer purchase decision

Variables	β_{uns}	SE	β_s	t-calc.	P-value	Tolerance	VIF
Constant	-1.481	.467		-3.174	.002	-	-
Improved quality	.158	.044	.045	3.582	.000	.923	1.084
New design	.157	.030	.157	5.263	.000	.166	6.008
New features	.832	.030	.833	27.608	.000	.164	6.111
R ²	0.984						
R ² adjusted	0.967						
F-calc.	2167.551						
P-value	0.0000						
p-value for Breusch-Pagan-Godfrey	0.760						

SE= standard error, VIF- Variance Inflation Factor, β_{uns} = unstandardized coefficients, β_s = Standardized coefficients, **significant at 1% ($p < 0.01$).

Result in Table 3 reveals coefficient of determination of 0.984 with adjusted R² of 0.967 which indicates that 96.7% of the variation in consumer purchase decision was accounted for improved quality, new design and new features while the remaining 3.3% were as a result of other variables not in the regression model. The multicollinearity among the independent variables was examined using tolerance and Variance Inflation Factor (VIF) and the result yielded tolerance values of .923, .166 and .164 for improved quality, new design and new features with VIF values of 1.084, 6.008 and 6.111 respectively. The tolerance values were all greater than .10 while VIF were all less than 10 indicating that there is no evidence of multicollinearity. Test of Heteroscedasticity was conducted using Breusch-Pagan-Godfrey test and p-value of .760 was obtained which is greater than 0.05 ($p > 0.05$) indicating that the error term is homoscedastic.

For improved quality, the unstandardized regression coefficient of .158 was obtained which indicates that improved quality has positive effect on consumer purchase decision. The standardized beta coefficient of .045 was obtained for improved quality which indicates that if other variables are held constant, for every 1 unit improvement in improved quality of product, consumer purchase decision will improve by .045. Result also reveals t-calculated of 3.582 with p-value of 0.000 ($p < 0.05$). The t-calculated (3.582) is greater than the t-critical

value of 1.97 at the 0.05 level of significance which means that there is a significant positive effect of improved quality on consumer purchase decision of mobile phones in Akwa Ibom State.

Result also shows that new design ($\beta = .157$, $SE = 0.044$, $t\text{-cal.} = 5.263$, $p = 0.000$, $p < 0.05$) has a positive effect on consumer purchase decision. The standardized beta coefficient of .157 was obtained for improved quality indicating that if other variables are held constant, for every 1-unit improvement in new design, consumer purchase decision will increase by .157. Result also shows t-calculated of 5.263 with p-value of 0.000 ($p < 0.05$). The t-calculated of 5.263 is greater than the t-critical of 1.97 at the 0.05 level of significance which implies that there is a significant influence of new design on consumer purchase decision of mobile phones in Akwa Ibom State.

Similarly, for new features, the result also shows that new features ($\beta = .833$, $SE = 0.030$, $t\text{-cal.} = 27.608$, $p = 0.000$, $p < 0.05$) has a positive effect on consumer purchase decision. The standardized beta coefficient of .833 was obtained which implies that if other variables are held constant, for every 1 unit improvement in new features, consumer purchase decision will increase by .833. Result also shows t-calculated of 27.608 with p-value of 0.000 ($p < 0.05$). The t-calculated (27.608) is greater than the t-critical of 1.97 at the 0.05 level of significance which indicates that there is a significant effect of new features on consumer purchase decision of mobile phones in Akwa Ibom State. For the joint contribution of the three product innovation variables, the F-calculated of 2167.551 with p-value of 0.000 were obtained. The F-calculated (2167.551) is greater than the F-critical of 2.65. The null hypothesis is rejected and hence there is a significant influence of improved quality, new design and new features on consumer purchase decision of mobile phones in Akwa Ibom State. Result also indicates that among the three product innovation variables, new features have the most significant positive effect on consumer purchase decision of mobile phones in Akwa Ibom state. The results of this study agrees with the research findings of Rayi and Aras (2021); Tarmidi, Prince, Dosinaen, Siahaem, Azzadi, and Napitupulu (2021); Abilova and Karaduman (2019); Lahindah and Siahaan (2018), and Hatta, Rachbini and Parenrengi (2018) that showed positive significant influence of product innovations on consumer purchase decision.

V. CONCLUSION AND RECOMMENDATION

The study was on influence of product innovation on consumer purchase decision of mobile phones in Akwa Ibom State, Nigeria. The results clearly revealed that improved quality, new design and new features have significant positive relationship with consumer purchase decision of mobile phones. The results also revealed that when there is an improvement in product components, there will be positive influence on consumer purchase decision. Therefore, it is concluded that product innovation plays an important role in influencing consumers purchase decision of mobile phones. Based on the findings, it was recommended that mobile phones manufacturing companies should continuously introduce innovative values into their products in forms of improve quality, new design and new features to attract consumers' patronage. The implication of this study is that the manufacturers of mobile phones can further influence the level of consumer purchase decision by adding new values or attributes to their products.

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