

## NEW PRODUCT DEVELOPMENT AND CONSUMER INNOVATIVE BEHAVIOUR: AN EMPIRICAL VALIDATION STUDY

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### ABSTRACT

**T**he purpose of this study was to access empirically the extent to which new product development influences consumer adoption and innovative behaviour in the high-tech consumer durable electronics companies in Rivers State of Nigeria. The nomothetic methodology was adopted and forty copies of structured questionnaire were our primary data collection instrument which was distributed to five functional and registered high-Tech consumer durable electronics marketing companies in Port Harcourt. Moreso, from the forty copies of questionnaire distributed, thirty five copies were retrieved and qualified for use. However, the postulated hypotheses were tested by employing the Spearman's Rank Correlation Coefficient Statistical Tool (SRCC) which was facilitated by the Statistical Packages for Social Sciences (SPSS) version 15.0. The study revealed that a significant relationship exists between NPD and CIB and also, that amongst the measures of CIB, that consumer personality and perception impacts more significantly on NPD. The authors therefore concludes that electronic home appliance companies should always take into cognizance consumer personality, perception and learning when evolving new products as these will always influence consumer adoption behaviour. However we recommended that the companies should always evolve product that matches with customer personality and intensify marketing communication strategies to continuously create an enduring perception of their products in the minds of their targeted customers.

**Key Words:** *Product Innovation, Consumer Adoption and Innovative behavioural indicators.*

## INTRODUCTION

Launching new products and services in the market represents an important source of increasing the size of a business and the profits of a company. The success of introducing new product on the market is a critical issue of the current marketing programs (McCole, 2005, and Hoffman, 2005). New Product Development (NPD) speed is critical because product life cycles are shrinking and obsolescence is occurring more quickly than in the past while competition also has intensified. Consequently, to grow, it has become imperative for firms to move new product to market faster. Companies such as Gillette, Honey well and Xerox are often cited as examples of firms that compete on development speed. Firms that succeed in speeding new products faster to market than competitors can obtain first-mover advantages. These advantages stem from the firms competitive start over rivals and are expected to result in dominant market position (Fred and Erik 2009; Hoechst 2000).

In this present economic environment where technological advances happen very quickly and products life cycle is cut short, companies need a strategy for new product development, but also need to know the factors that determine the market success of new products, (Roenrich, 2004). In this paper, the authors analyzed and conceptualized new product, its development processes, the indicators of consumer innovative behaviour and the association between new product development and consumer innovative behaviour

## LITERATURE REVIEW

### CONCEPTUALIZATION OF NEW PRODUCT

A new product concept as defined by (Crawford and Benedetto, 2003), is “a statement about anticipated product features (form or technology) that will yield selected benefits relative to other products or problem solutions already available”. According to Belliveau, *et al* (2002), a new product is defined as “a product (either a good or service) new to the firm marketing it. It excludes product that are only changed in promotion”. Cooper, (2001), explains that a new product is defined as new if it has been on the market for five years or less, and includes extensions and major improvements. (Booz-Allen, 2005) have identified approximate percentages of new product types and they are outlined and discussed as follows:

1. **New-to-the-world Products:** Products that are innovations “New-to-the-world products revolutionize existing product categories, or define wholly new ones” (Crawford *et al.*, 2003). These new products may include an innovative technology and require consumer instruction. Cooper, (2001) states that these new products are the first of their kind and create an utterly new market. This category represents only 10 percent of all new products. For example, new-to-the-world products are Polaroid camera, Rayon fiber, and Sony Walkman.
2. **New category entries (New product lines):** Products, not new to the world, that take a firm into a new category. The new category is an imitation of an existing product (me-too”) and provides entrance into new markets for a company. Even though the product already exists in the market, if a firm introduces the identical product into the market, it can be considered a new product. About 20 percent of all new products fit into this category (Cooper, 2001). This category, for instance, includes Procter and Gamble’s first shampoo, Hallmark gift items, AT&T Universal card and Luvs® diapers.
3. **Addition to product lines: Products that are line extensions:** According to Cooper, (2001), these categories are new items to the firm, but they fit within an existing product line that the firm already produces. Kumar and Phrommathed (2005), report that these categories are the new products that supplement the firm’s established product lines. Thus, this category contains products that are line extensions or flankers such as Tide<sup>™</sup> liquid detergent, Bud Light<sup>™</sup>, Apple’s Mac IIsi® and DKNY® (Crawford *et al.*, 2003). This category is one of the largest categories of new products and accounts for approximately 26 percent of all new product launches in the nineties (Cooper, 2001; Im, *et al.*, 2003).

4. **Product improvements: Current product made better:** Practically, every product on the market today has been improved. These ‘not-so- new’ products can be replacements of existing products in a company’s product line. However, they provide enhanced performance or greater perceived value over the old product (Crawford, *et al*, 2003). These products make up 26 percent of all new products (Cooper, 2001) and examples include Honda Civic Hybrid, Microsoft (Window) XP, Netzero high-speed 3G, and Shima Seiki’s First® seamless knitting machine.

5. **Repositioning: Products that are targeted for a new use or a new application:** Repositioning, a new application for an existing products, is selecting a new market place, solving a new problem and/or serving another market need. Aspirin, for instance, was the standard headache and fever reliever. However, since a new medical benefit was discovered for aspirin, aspirin is now positioned as a headache reliever as well as a preventer of blood clots, strokes and heart attacks (Cooper, 2001). As one example in the textile field, the American Fiber & Yams Company applied polypropylene fiber, whose main application has been upholstery and industrial textiles, into new market segment, the knitted apparel market. This repositioned category accounts for about 7 percent of all new products (Cooper, 2001).

6. **Cost Reductions:** Products that are designed to replace existing products at lower cost: New products that provide a cost reduction, can replace existing products in the line, but can offer similar benefits and performance at a lower cost. They represent 11 percent of all new product launches in the late nineties (Cooper, 2001). Examples of this category are eMachines® desktop computer, Flying Tiger® hand knitting machine, and acrylic. For instance, acrylic fiber that approximates the hand of wool can replace wool (Im *et al* 2007) and is offered at a lower cost in the market.

## NEW PRODUCT DEVELOPMENT

New product development is the development of original products, product improvements, product modifications, and new brands through the firms own R and D efforts (Kotler and Armstrong 2010). Development and launch of successful new products is one of the most critical yet, most challenging task managers face (Hauser, *et al* 2005). From a strategic point of view, new products well attuned to the voice of the customer, with perceived technical superiority, developed within budget and launched ahead of the competition provide real competitive advantages for the firm (Nikolaos, *et al* 2004).

Furthermore, new product development is the lifeblood of numerous firms, and represents the best hope for future growth. Over the years, it has been refined with attention paid to the consumer. (Hoffman, *et al* 2010; Fuchs, *et al* 2010), the development process (Cooper, 2009), the nature of the product (Decker and Scholz, 2010), the channel (Lan, *et al*, 2007); the nature of marketing venue (Fuller et al, 2009, Arakji, and Lang, 2007), and the source of the product concept (Whyld, 2010). Despite the evidence of attempts at continuous improvement, the need for change still exists. (Szymigim, *et al*, 2010).

## NEW PRODUCT DEVELOPMENT PROCESSES/STAGES

The NPD process is guided by new product strategy that aims to align the NPD efforts of the firm with its strategic imperatives (Hargadons, 2003). This alignment warrants that the new products planned will support the strategic objectives of the firm and make the best use of its strategic competencies. (Nikolaos, *et al* 2004).

However, Kotler and Armstrong, (2010), opine that in order for any company to evolve new products, it must understand it’s consumers, markets, deliver superior value to customers. Furthermore, it must carry out strong new-product planning and set up a systematic new products development process for finding and growing new products. According to them, the major eight stages in new-product development are: idea generation; idea screening, concept development and testing; marketing strategy development; business analysis, product development; test marketing, and commercialization. Let us now briefly-examine each of these stages.

**1. Idea Generation:** This is the systematic search for new product ideas. A company typically has to generate many ideas in order to find a few good and useful ones. Product idea generation could be sourced either internally (R and D efforts, executives, scientists, engineers, manufacturing staff, sales people) or externally (customers, competitors, distributors and suppliers). Idea generation, at individual or team level, emerges as an essential component of creativity and consequently of the innovation process. The most innovative firms usually exploit various sources of ideas from new products as well as various means to process those ideas. They also need to stimulate employees' imagination to feed the pipeline that nourishes the design and development of new products. Creative capabilities of organization are essential to their ability to innovate and survive in today's competitive environment. (Galanakis, *et al* 2006). The idea creation phase (creativity) is usually much less costly than the later development stages of the new product development process. It thus make sense to maximize its output by providing a large number of ideas for further exploitation by the organization. The greater the number of ideas at the start of the new product development process, the greater the probability of ending up with successful products.

**2. Idea Screening:** This is the first evaluation of new product idea. It involves screening new-product ideas in order to spot good ideas and drop poor ones as soon as possible. In this stage, only product ideas that will turn into profitable products are adopted.

**3. Concept Development and Testing:** Here, the product idea is drafted in verbal or pictorial form, further explaining the nature of the concept, with initial ideas of impediments, materials and technologies. Moreso, in concept testing, new product concepts is been tested with a group of target consumers to find out if the concepts have strong consumer appeal (Fong, 2003).

**4. Marketing Strategy Development:** This involves the design of an initial marketing strategy for a new product based on the product concept. The marketing strategy statements consist of three parts; description of the target market, the planned product positioning, and the sales, market share, and profit goals for the first few years (Flynn, 2003).

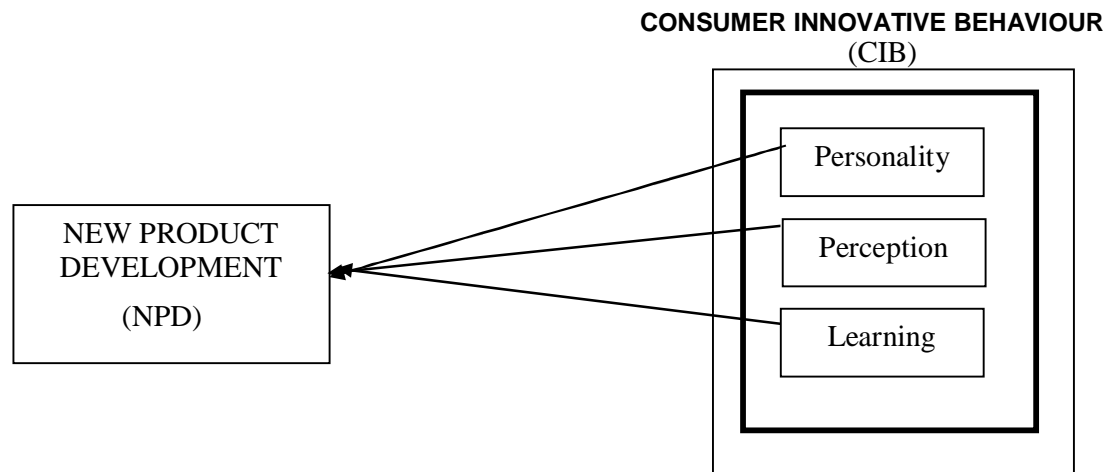
**5. Business Analysis:** This involves a review of the sales, costs, and profit projections for a new product to find out whether these factors satisfy the company objectives. Moreso, at this stage, a decision is made to ascertain the technical feasibility of the product, the products market potential and ultimately, the products financial contribution to the company (Nikolaos *et al* 2004; Sandmeiere *et al* 2010)

**6. Product Development:** At this stage, the product concept is being developed into a physical and several product prototypes in order to ensure that the product idea can be turned into a workable product.

**7. Test Marketing:** This is the stage of new product development in which the product prototype and marketing program are tested in more realistic market settings (Kotler and Armstrong 2010).

**8. Commercialization:** This stage simply involves the introduction of a new product into the market through any of the promotional tool of marketing. In commercializing a product, such new products could be distributed intensively, exclusively or selectively.

## 2.4 A CONCEPTUAL FRAME WORK DEPICTING NEW PRODUCT DEVELOPMENT AND CONSUMER INNOVATIVE BEHAVIOUR



*Source: Researcher's Conceptualization of New Product Development and Consumer Innovative Behaviour.*

### ASSOCIATION BETWEEN NEW PRODUCT DEVELOPMENT AND CONSUMER INNOVATIVE BEHAVIOUR

New product development is one of the riskiest, but most critical strategies in any competitive industry. (Cooper, 2001; Clark *et al* 2006). Many companies have built competitiveness and obtained tremendous profits through new product development. The impact of NPD on consumer adoption and innovative behaviour cannot be over-emphasized. Launching new products and services on the market represents an important source of increasing the size of a business and the profits of a company (Alves, *et al* 2004<sub>a</sub>). Organizations that regularly innovate new products attract consumer innovators and other members of the social system to adopt the innovation (Roger 2003). Moreso, consumer innovative behaviour explains the degree to which members of a social system are quick to adopting or purchasing a new product.

Today firms and organizations have to deal with a dynamic environment within which innovation and creativity have become vital competencies (Mathisen & Einarsen, 2004). Firms and organizations needs to keep a constant flow of ideas if they want to compete favorably and attract improved customer patronage. To keep a head of competitors, firms need to generate a high volume of ideas and translate them into commercial and technical success. This when efficiently and competently carried out will resultantly attract different categories of product adopters with innovative behavioural competencies. However, let us now examine the relationship between the predictor and criterion variables.

#### ❖ **New Product Development and Consumer Personality**

New product development (NPD) speed is critical because product life cycles are shrinking and obsolescence is occurring more quickly than in the past while competition also has intensified. To grow, it has become imperative for firms to evolve a new product that reflects their customer or target-market personality. Each persons distinct personality influences his or her buying behaviour (Hoyer, *et al* 2010). Personality refers to the unique psychological characteristics that lead to relatively consistent and lasting responses to one's own environment. Personality can be useful in analyzing consumer behaviour for certain product or brand choices (Martins, *et al* 2003). For example, coffee marketers have discovered that heavy coffee drinkers tend to be high on sociability. Thus, to attract customers, coffee houses and marketing companies need to create environments in which people can relax and socialize over a cup of steaming coffee (Kotler, and Armstrong 2010). Personality is innate and has the tendencies to influence individual product choices and adoption behaviour.

Therefore, the identification of specific personality characteristics associated with consumer behaviour has proven to be highly useful in the development of a firm's market segmentation strategies. (Schiffman, and Kanuk 2007), consumer's ability to adopt an innovation is a function of his/her individual, intellectual, perceptual, personal and attitudinal characteristics. An individual who score high on this traits is open to new experience and places a premium on different and novel stimuli particularly of meaningful sort not just thrill seeking, (Harmsen, *et al* 2000; Fuller, 2010).

#### ❖ **New Product Development and Consumer Perception**

Companies, in developing new products are expected to exhibit some high level of creativity and innovativeness which is consistent with their customer perception of both their product and company image. Customer's perception of a company and product will influence his/her purchase behaviour. Perception may be defined as the process by which an individual selects, organizes, and interpretes stimuli into a meaningful and coherent picture of the world. Moreso, it can be described as how we see the world around us. Individuals act and react on the bases of their perception not on the basis of objective reality. Thus, to the marketer, consumer's perceptions are much more important than their knowledge of objective reality. Furthermore, since individuals make decisions and take actions based on what they perceive to be real, it is imperative that marketers understand the whole notion of perception and its related concept to more readily determine what factors influence consumers to buy (Schiffman, and Kanuk 2007; Alves *et al* 2005).

#### ❖ **New product development and consumer learning**

Firms in evolving new products must take into cognizance the impact of consumers learning and all the elements involved in consumer learning. Some consumers learn of a product's existence faster while others learn very slowly. Learning can be thought of as "the process by which individuals acquire the purchase and consumption knowledge and experience that they apply to future related behaviour (Schiffman, & Kanuk 2007). Moreso, consumer learning, can be defined as connecting categories to behaviours that have adaptive value in terms of consumer goals. Fundamental to this definition is that learning is adaptive and determined by the value systems, desires, and needs of the learner (Ekerete, 2000). Also, it depends on what the learner already knows. That is, new information is assessed in terms of existing beliefs and past experiences (Arnold, *et al* 2010). The reason that marketers are concerned with how individuals learn is that they are vitally interested in teaching them, in their roles as consumers, about products, products attributes and their potential benefits; where to buy them, how to use them, how to maintain them, and even how to dispose of them. They are also vitally interested in how effectively they have consumers to prefer their brands and to differentiate their products from competitive offerings (Schiffman, & Kanuk 2007).

Market orientation and entrepreneurial drive provides cultural foundation for organizational learning, which enables an organization to achieve a high level of performance and better customers value (Liu, *et al* 2005). Research has also shown that organizational learning is associated with the development of new knowledge which in turn improves firm performance. (Tse, *et al*, 2003)

Furthermore, innovation could be seen as the "**creative destruction**" for growth while (Im *et al* 2007) defined Innovation as "any new idea that recombines existing ideas, a scheme that challenges the present order formular, or approach". In the views of (Tidd *et al* 2001), Innovation is the core process concerned with renewing what the organization offers and optimizing the way it generates and delivers its outputs.

## STUDY METHODOLOGY

This study mainly adopted the objectivist research strategies where major decisions of the study were based on the nomothetic methodology. Primary data were drawn from five functionally registered technology based electronic companies in Rivers State of Nigeria, which constitutes our level of analysis. These technology based companies are registered with the corporate affairs commission (CAC) and federal ministry of commerce and industry Nigeria. Forty copies of Structured Questionnaire was our primary data collection device which were distributed eight copies per firm and thirty-five copies were retrieved and qualified for use. Our units of analysis were the most senior product development managers, general manager, marketing/sales manager, customer care manager, and operations managers of the firms. The questionnaire was designed carefully by ensuring that the study objectives are considered. Furthermore, the generated data were statistically subjected to test the null hypotheses by employing the Spearman's Rank Correlation Coefficient (SRCC) statistical tool, which was facilitated by window's II programme of the Statistical Packages for the Social Sciences (SPSS). Version 15.0

## DATA PRESENTATION

**Table 1.1 COMPUTING SPEARMAN'S RANK CORRELATION COEFFICIENT BETWEEN NEW PRODUCT DEVELOPMENT (x) AND CONSUMER INNOVATIVE BEHAVIOUR (y)**

	New Product Development	Consumer Innovative Behaviour			d =	
Response Options	X	Y	Rank-x	Rank-y	Rank-x - Rank-y	d <sup>2</sup>
Strongly Agree	10.733	4.700	4	4	0.0000	0
Agree	22.067	27.400	5	5	0.0000	0
Neutral	1.467	2.500	3	3	0.0000	0
Disagree	0.067	0.400	2	2	0.0000	0
Strongly disagree	0.000	0.000	1	1	0.0000	0
<b>SUM</b>	<b>34.333</b>	<b>35.000</b>	<b>15.0000</b>	<b>15.0000</b>	<b>0.0000</b>	<b>0.0000</b>

$\Sigma d^2$

Source: SPSS ver. 15 Output window

### Correlations

			New Product Development	Consumer Innovative Behaviour
Spearman's rho	New Product Development	Correlation Coefficient	1.000	1.000**
		Sig. (1-tailed)	.	.
		N	5	5
	Consumer Innovative Behaviour	Correlation Coefficient	1.000**	1.000
		Sig. (1-tailed)	.	.
		N	5	5

\*\* . Correlation is significant at the 0.01 level (1-tailed).

Source: SPSS ver. 15 Output window

**TABLE 1.2: COMPUTING SPEARMAN'S RANK CORRELATION COEFFICIENT BETWEEN NEW PRODUCT DEVELOPMENT (x) AND CONSUMER PERSONALITY (y)**

	New Product Development	Consumer Personality			d =	
Response Options	X	Y	Rank-x	Rank-y	Rank-x - Rank-y	d <sup>2</sup>
Strongly Agree	10.733	10.000	4	4	0.0000	0
Agree	22.067	21.000	5	5	0.0000	0
Neutral	1.467	4.000	3	3	0.0000	0
Disagree	0.067	0.000	2	1	1.0000	1
Strongly disagree	0.000	0.000	1	1	0.0000	0
<b>SUM</b>	<b>34.333</b>	<b>35.000</b>	<b>15.0000</b>	<b>14.0000</b>	<b>1.0000</b>	<b>1.0000</b>

 $\Sigma d^2$ 

Source: SPSS ver. 15 Output window

**Correlations**

			New Product Development	Consumer Personality
Spearman's rho	New Product Development	Correlation Coefficient	1.000	.975**
		Sig. (1-tailed)	.	.002
		N	5	5
	Consumer Personality	Correlation Coefficient	.975**	1.000
		Sig. (1-tailed)	.002	.
		N	5	5

\*\*. Correlation is significant at the 0.01 level (1-tailed).

Source: SPSS ver. 15 Output window

**TABLE 1.3: COMPUTING SPEARMAN'S RANK CORRELATION COEFFICIENT BETWEEN NEW PRODUCT DEVELOPMENT (x) AND CUSTOMER PERCEPTION (y)**

	New Product Development	Customer Perception			d =	
Response Options	X	Y	Rank-x	Rank-y	Rank-x - Rank-y	d <sup>2</sup>
Strongly Agree	10.733	1.000	4	4	0.0000	0
Agree	22.067	34.000	5	5	0.0000	0
Neutral	1.467	0.000	3	1	2.0000	4
Disagree	0.067	0.000	2	1	1.0000	1
Strongly disagree	0.000	0.000	1	1	0.0000	0
<b>SUM</b>	<b>34.333</b>	<b>35.000</b>	<b>15.0000</b>	<b>12.0000</b>	<b>3.0000</b>	<b>5.0000</b>

 $\Sigma d^2$ 

Source: SPSS Vers. 15 out put

**Correlations**

			New Product Development	Customer Perception
Spearman's rho	New Product Development	Correlation Coefficient	1.000	.894*
		Sig. (1-tailed)	.	.020
		N	5	5
	Customer Perception	Correlation Coefficient	.894*	1.000
		Sig. (1-tailed)	.020	.
		N	5	5

\*. Correlation is significant at the 0.05 level (1-tailed).

Source: SPSS ver. 15 Output window



**TABLE 1.4: COMPUTING SPEARMAN'S RANK CORRELATION COEFFICIENT BETWEEN NEW PRODUCT DEVELOPMENT (x) AND CUSTOMER LEARNING (y)**

	New Product Development	Customer Learning			d =	
Response Options	X	Y	Rank-x	Rank-y	Rank-x - Rank-y	d <sup>2</sup>
Strongly Agree	10.733	20.000	4	5	-1.0000	1
Agree	22.067	15.000	5	4	1.0000	1
Neutral	1.467	0.000	3	1	2.0000	4
Disagree	0.067	0.000	2	1	1.0000	1
Strongly disagree	0.000	0.000	1	1	0.0000	0
<b>SUM</b>	<b>34.333</b>	<b>35.000</b>	<b>15.0000</b>	<b>12.0000</b>	<b>3.0000</b>	<b>7.0000</b>

$\Sigma d^2$

Source: SPSS ver. 15 Output window

Correlations				
			New Product Development	Customer Learning
Spearman's rho	New Product Development	Correlation Coefficient	1.000	.783
		Sig. (1-tailed)	.	.059
		N	5	5
	Customer Learning	Correlation Coefficient	.783	1.000
		Sig. (1-tailed)	.059	.
		N	5	5

Source: SPSS ver. 15 Output window

## HYPOTHESES TESTING/RESULT

In order to empirically validate this study the followings hypotheses were postulated and tested.

*H<sub>01</sub>: There is no significant relationship between new product development and consumer innovative behaviour.*

*H<sub>02</sub>: There is no significant relationship between new product development and consumer personality.*

*H<sub>03</sub>: There is no significant relationship between new product development and consumer perception.*

*H<sub>04</sub>: There is no significant relationship between NPD and consumer learning.*

## DISCUSSION OF THE FINDINGS

The relationship test between New Product Development and consumer innovative behaviour in the population of technology based electronic companies in Rivers State of Nigeria indicated significant. The strength of this proposition is anchored in the positive value of rho (1.000\*), indicating a perfect positive rank correlation between NPD and consumer innovative behaviour. Hence P – value (=0.000), is less than the level of significance. (See Table 1.1). This establishes that there is a significant relationship between NPD and consumer innovative behaviour. In the population of technology based electronic companies in Rivers State Nigeria organizations. This finding supports the view of Rogers (2003); organization that regularly innovate new products attracts consumer innovators and other members of the social system to adopt innovation. Today's successful firms learn and re-learn how to deal with the dynamics of consumers, competitors and technologies all of which require companies to review and reconstitute the product and services they offer to market.

Furthermore, in ascertaining the level of relationship that exist between New Product Development and Consumer Personality the results shows that a significant relationship exist between the two variables. This is evidenced from the fact that rho value (0.975\*) establishes a strong positive rank correlation while the P – value of (0.002) is less than the acceptable significant level of (0.05), as shown in (**Table 1.2**).

More so, the result from the test of hypothesis three indicated that a significant relationship exist between NPD and consumer perception, as shown in the rho positive value of (0.894\*) and p-value (0.020) is less than (0.05) the acceptable level of significance as evidenced in (**Table 1.3**). This finding lends supports to the findings of (Bretani, 2006; Im *et al* 2003; Schiffman, & Kanuk, 2007), that individuals act and react on the bases of their perception not on the basis of object reality. Hence, it is imperative that marketers understand the whole notion of perception and it's related concept to more readily determine what factors influences consumers to buy.

Finally, the result from the test of hypothesis four shows that there is no significant relationship between new product development and consumer learning as evidenced in the P – value (0.059) which is greater than (0.05) our significance level as shown in (**Table 1.4**). Moreso, the value of correlation coefficient is (0.783). Research has shown that organizational learning is associated with the development of new knowledge which in turn may improve performance or not significantly influence consumer adoption behaviour (Schiffman & Kanuk 2007). When people act, they learn, learning describes changes in an individual's behaviour arising from experience.

## CONCLUSION AND RECOMMENDATIONS

Customers today are highly informed and more demanding than before. Responsiveness to customer needs and changing market conditions has become more important for the success of firms and calls for the introduction of new products and services together with innovation capacity for a firm (Robertson and Yu, 2003).

From the forgone discussions and observed findings and analysis, we confidentially conclude that a significant relationship exist between new product development and consumer innovative behaviour in the population of consumers of technology based electronic products in Rivers State of Nigeria. Furthermore there is a strong positive correlation between the criterion and predictor variables. Customer personality and perception significantly impacts on new product development and adoption; while customer learning do not have any significant relationship in new product development in the context of this study. Hence, concerted effort should be directed at improving company product brand and image that are consistent with consumer perception and personality since they contribute highest and are also significant to the adoption of innovations as evidenced in the P-value (0.020). Consequently, based on the findings and conclusion of this study, the following recommendations are provided:

- (1) Technology based electronic companies in Nigeria should always look at ways of evolving new products that will attract and enhance consumer adoption behaviour.
- (2) Nigeria technology based electronic home appliance companies should always take into cognizance the individual consumer personalities and preferences in the designing and evolving of new products.
- (3) The companies should regularly improve product brand/image and intensify marketing communication strategies to positively and continuously create an enduring perception of their products on the minds of the consumer.
- (4) There should be periodic sales promotional activities and efficient use of the promotional mix-elements to inform, educate and remind prospects/customers of product features, advantages and benefits. This when strictly adhered to will increase customer learning which will resultantly enhance innovation patronage and adoption.

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