

# Green Awareness and Consumer Purchase Intention of Environmentally-Friendly Electrical Products in Anambra, Nigeria

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## Abstract

The tremendous increase in demand for consumer goods and services across the world in the last decade has resulted to depletion of natural resources and damage of the environment severely. Evidence in the extant literature have shown relationship between green awareness and green purchase intention but studies on how green awareness influences purchase intention of environmentally-friendly electrical products in a typical developing country context are still lacking. The main objective of this study is to empirically investigate the effect of green awareness on consumers' purchase intention of environmentally-friendly electrical products. In order to achieve this objective, survey research design was adopted and the population of study comprises post-graduate students of Nnamdi Azikiwe University, Awka, Nigeria. A sample size of 345 respondents was statistically drawn out from the population size of 2499 students using Taro Yamane's formula. Stratified random sampling was adopted and the research instrument was a questionnaire. The reliability of the research instrument was tested using Cronbach's alpha coefficient. Hypotheses were tested using multiple regressions. It was found out that environmental concerns, green social influence and brand strength have positive and statistically significant effect on consumers' purchase intention of environmentally-friendly electrical products. We conclude that this study provides empirical evidence that green awareness has a positive and significant effect on consumers' purchase intention of environmentally-friendly electrical products. We recommend that government through her regulatory agencies should enforce laws and guidelines that will educate and influence public awareness on the need to act pro-environmentally, also marketers should promote environmentally-friendly products by encouraging consumers to prefer products that safeguard their environment through the use of peer groups, reference groups and social media.

**Keywords:** \*Green Awareness, \*Consumer Purchase Intention, \*Environmentally-Friendly Electrical Products, \*Environmental Concern, \*Green Social Influence, \*Brand Strength, \*Green Regulations and Guidelines, \*Post-graduate Students, \*Awka, Nigeria.

## 1. Introduction

Over the last decade, consumer consumption of goods and services has increased tremendously across the world, leading to depletion of natural resources and severe damage to the environment (Chen & Chai, 2010). Some of the serious repercussions of environmental damage are global warming, increased environmental pollution, and decline in flora and fauna (Chen & Chai, 2010). Various countries across the globe are beginning to realize this threat and have started working towards minimizing the harmful impact of their business activities on the environment

This realization and concern towards the environment and society has led to the emergence of sustainable development which emphasizes the need to promote sustainability and advocates that form of development which minimizes negative impact on the environment and society. Sustainable development further encourages eco innovation and green consumption. Eco innovation focuses on incorporating environmental sustainability practices at every stage of creation of goods and services (Veleva & Ellenbecker, 2001). Green consumption on the other hand, is normally related to environmentally responsible consumption where consumers consider the environmental impact of purchasing, using, and disposing of various products, or using various green services (Moisander, 2007).

Environmentally responsible purchasing is vital as unplanned purchasing of goods can severely damage the environment. Grunert (1995) reported that consumer household purchases were responsible for 40% of the environmental damage. Consumers possess the capability to prevent or decrease environmental damage by purchasing green products. Previous research indicates that consumers have a positive attitude towards environmental protection (Arvola et al., 2008; Ellen, Webb & Mohr, 2006; Liu et al., 2012; Vermeir & Verbeke, 2006). In fact, consumers have, in the past, expressed their demand for green products to companies (Bockman, Razzouk & Sirotnik, 2009; Schmeltz, 2012).

Although the number of individuals willing to purchase green products has increased in the last few years, there is little evidence to suggest that purchase of green products has increased; despite environmental concern and positive attitude of customers towards sustainability and green products, market share of green products remains confined to just 1-3% of the entire market (Bray, Johns & Killburn, 2011). This suggests that

environmental considerations play a minor role in consumer purchasing decisions and people generally overlook environmental impacts of their purchases (Mohr, Webb & Harris, 2001).

In Nigeria, Green marketing is still in its infancy as only limited number of consumers mainly in the upper-upper class seem to direct their brand choices towards green products in Nigeria (Quick pulse, 2011; Olamiyu, 2012). In spite of global awareness towards the environment and green marketing, evidences in Nigeria revealed that only 5% of the population is engaged in green purchase behaviour (Haruna & Kamariah, 2015). Most Nigerians are only aware of environmental problems that directly affect them and their immediate environment and are largely unaware of how their behaviour might contribute to global ecological changes such global warming and ozone layer depletion (Yemisi, Akinola & Faith; 2008). Therefore, Understanding consumer acceptance of green products is a very important study and how consumers make their purchasing decision with respect to environmental impact, and how, when and where they buy green products is the focus of green consumerism.

## 2. Statement of Problem

In Nigeria a lot of energy is wasted because households, public and private offices and industries use more energy than is actually necessary to fulfil their needs. One of the reasons is that they use old and inefficient equipment and production processes. The other reasons are unwholesome practices that lead to energy wastage (Sunday, 2012). The lack of energy efficient behaviour among Nigerians is due to a clear inconsistency between attitudes towards green consumption and actual behaviour. This phenomenon is called the attitude-behaviour-gap. For example while, in different surveys, 30% to 50% of consumers indicate their intention to buy sustainable products, the market share of these goods is often less than 5% of the total sales (Carrington, Neville & Whitwell., 2010; Young, Hwang, Mcdonald, & Oates , 2010).

The reasons for this behaviour gap have not yet been sufficiently researched. On the one hand it is possible that the respondents answer to comply with accepted social norms and this is not reflected in their individual consumption behaviour (Carrington et al., 2010). On the other hand there may be special barriers emanating from anti-green beliefs which spur negative or low environmental concern, social influence from a community that is not green oriented, lack of recognized competing green brands and low enforcement of green regulation by government. All these factors; especially in everyday consumption complicate sustainable behaviour.

Evidence in the extant literatures (Haruna & Kamariah, 2015; Noushan & Syed, 2015; Muhammad, Khokhar & Asad, 2014; Irawan & Darmayanti, 2012) investigated influential factors such as concern for environment, social influence, brand strength and green regulations and their relationship towards green purchase intentions but studies relating to how green awareness from these factors influences consumption in a more energy efficient manner through the purchase of environmentally-friendly electrical products in Nigeria are still lacking. More so, these studies are alien to a typical developing economy like Nigeria, therefore it is urgent and legitimate to carry out a context specific study on the subject matter. It is against this backdrop that this paper analyzed the effect of green awareness on consumers purchase intention of environmentally-friendly electrical products in Anambra state.

## 3. Objective of the Study

The main objective of this study is to empirically investigate the effect of green awareness on consumers purchase intention of environmentally-friendly electrical products in Anambra State. Specifically, this study seeks:

- a. To determine the effect of environmental concerns on consumers purchase intentions of environmentally-friendly electrical products.
- b. To ascertain the effect of social influence on consumers purchase intentions of environmentally-friendly electrical products.
- c. To know the effect of brand strength on consumers purchase intentions of environmentally-friendly electrical products.
- d. To find out the effect of green regulations and guidelines on consumers purchase intentions of environmentally-friendly electrical products.

## 4 Research Questions

- a. What is the effect of environmental concerns on consumers purchase intentions of environmentally-friendly electrical products?
- b. What is the effect of social influences on consumers purchase intentions of environmentally-friendly electrical products?
- c. What is the effect of brand strength on consumers purchase intentions of environmentally-friendly electrical products?
- d. What is the effect of green regulations and guidelines on consumers purchase intentions of environmentally-friendly electrical products?

## 5. Hypotheses

**H<sub>1</sub>:** there is no positive significant effect of environmental concern on consumers purchase intentions of environmentally-friendly electrical products.

**H<sub>2</sub>:** there is no positive significant effect of social influence on consumers purchase intentions of environmentally-friendly electrical products

**H<sub>3</sub>:** there is no positive significant effect of brand strength on consumers purchase intentions of environmentally-friendly electrical products

**H<sub>4</sub>:** there is no positive significant effect of green regulations and guidelines on consumers purchase intentions of environmentally-friendly electrical products

## 6. Scope of the Study

The scope of the study should be set at three levels; geography or area, content, and unit of analysis. This three-level scope is consistent with the view expressed by Andrade (2009). Therefore this study focuses on examining the effect of Green awareness on Consumers Purchase Intention of environmentally-friendly electrical products (energy-saving electrical bulbs) in the Nigerian market with empirical focus on post-graduate students of the Nnamdi Azikiwe University Awka, Anambra State. We choose this sample because of their educational stance in comprehending green issues.

## 7. REVIEW OF RELATED LITERATURE

### Green Product & Energy Efficiency (Energy Saving Bulbs)

Green product can be defined as a product which is sustainable, devoid of use of pesticides, made with recycled material and simple packaging (Ottman, 1998). Therefore, green consumers can be defined as those who focus on the purchase and consumption process especially as it relates to the production process and the disposal of products, as well as their impact on the ecological environment.

Energy efficiency means improvement in practices and products that reduce the energy necessary to provide services like lighting, cooling, heating, manufacturing, cooking, transport, entertainment, etc. Energy efficient products essentially help to do more work with less energy (SECCP, 2002.). The desire to minimize initial cost force many consumers to purchase cheap and inefficient appliances. This has been a major factor working against the shift from incandescent bulbs to energy saving bulbs is the cost. Energy saving bulbs is far more expensive than incandescent bulbs. For example; the cost of energy saving bulbs in the Nigerian market is about N800 compared to an incandescent bulb which cost about N50-N100. Many consumers will prefer to go for the cheaper ones not minding the long-term benefit of using efficiency bulbs.

The use of incandescent bulbs for lighting is energy intensive. Only about 5% of total energy used by an incandescent bulb is converted light energy, the remaining 95% is converted to heat energy (Lebot, 2009). The energy rating of the incandescent bulbs found in the Nigerian market range from 40 W to 200 W, thus we have the ones for 40 W, 60 W, 100 W and 200 W.

In Nigeria a lot of energy is wasted because households, public and private offices and industries use more energy than is actually necessary to fulfil their needs. One of the reasons is that they use old and inefficient equipment and production processes. The other reasons are unwholesome practices that lead to energy wastage (Sunday 2012).

Investment in energy efficient products can provide additional economic value by preserving the resource base especially combined with preventing the use of technologies mitigating environmental problems. Therefore, energy consumed in Nigeria can be drastically reduced if Nigerians replace their incandescent bulbs with energy efficiency bulbs.

### Green Purchase Intention

Green purchase intention (GPI) is simply defined as an intention to buy a service or product which is less or not harmful for the society and environment. After customers and consumers have been influenced by environmental consciousness and green knowledge by society, the next step is the consumers' green purchasing intention (Mida, 2009).

Studies on green purchase intention showed that intention is an influential predictor of green purchase behaviour because purchase intention strongly affects the likelihood of decision to buy the product (Chen, 2010). Moreover, the theory of planned behaviour by Ajzen (1999) explained that purchase intention is a crucial element in ascertaining the real or actual buying behaviour of an individual. Intention thus, is the main point/pivot on which behaviour revolves.

### Components of Green Awareness

Green awareness or Eco literacy is important in green purchasing decision making process and consumers purchasing intention (Mida, 2009). As Kang and James (2007) state, product awareness and knowledge, or in other words, environmental consciousness is a form of social orientation that can be defined as "the effort to concentrate on the long-run, well-being of individuals and society, through the reduction of negative consequences associated

with a product". Mida (2009); Gan, Wee, Ozanne and Kao, (2008); both agree that environmental awareness has a direct impact on customers' willingness to pay for a green product and it is directly linked to green purchasing behaviour. Studies have shown that awareness of eco-labels has a positive correlation between knowledge of green product and consumers' intention to purchase ecological products (Juwaheer, 2012; Rashid, 2009; Thorgersen, 2002). Therefore, educating the consumer is seen as an appropriate method to establish credibility in terms of being environmentally friendly (Laroche, Bergeron, & Barbaro-Forleo, 2001).

#### **i. Environmental Concern**

Lee (2008) defined environmental concern as the "degree of emotional involvement in environmental issues". Environmental concern also refers to emotional disposition of consumers such as the anger toward destruction of nature (Aman, Harun, & Hussein, (2012). In this study, environmental concern can be referred as the emotional involvement of the consumers in environmental issues; their awareness and willingness to solve those problems. Kim and Choi (2005), Padel and Foster (2005), Tsarenko et al (2013), Nittalia, (2014) , Zhao et al. (2014) reported a positive and direct impact of consumers' environmental concern on green purchase intention and behaviour. Two studies found that ecological affects positively influenced green purchase intention (Chan and Lau, 2000; Kanchanapibul et al., 2014). Environmental concerns and responsibility were found to have a positive and direct impact on ecological knowledge, purchase intention and actual purchase behaviour (Makoutouni, 2002; Padel and Foster, 2005; Wang, Liu, and Qi, 2014; Zhao et al., 2014).

#### **ii Green Social Influence**

Wahid, Rahbar, & Tan, (2011) stated that social influence is a proxy of subjective norm. In other words, social influence has the same meaning with subjective norm. Also, Klobas and Clyde (2001) stated that social influence consists of friends, family, educators, employers, professional colleagues, experts and the media. In this study, social influence can be referred as the change of an individual attitudes or behaviours through the influence of others

Various studies ( Vermer and Verbeke, 2008; Welsch and Kuhling , 2009; Smith and Paladino, 2010; Eze and Ndubuisi, 2013; Salazar, Oerlemans, and Biezen, 2013 ) have examined the influence of social norm and reference groups on purchase intention and actual purchase behaviour. Some studies authenticated that subjective or social norms and reference groups have a positive correlation with purchase intention and actual purchase of green products (e.g. Eze et al., 2013; Liu et al., 2012; Welsch et al., 2009) while two studies found that societal norm had a negative relationship with purchase intention and actual purchase behaviour (Connell, 2010; Lee, 2011).

Social norms was also found to have an indirect influence on consumer green purchase behaviour as it influenced green attitudes that further affected green purchase behaviour (Gadenne et al., 2013; Smith et al., 2010; Tarkiainen and Sundqvist, 2005; Welsch et al., 2009; Salazar et al, 2013). Findings further reveal that social and reference groups, especially peers and other individuals with close proximity to consumers have a stronger influence on consumers' green purchase decision-making process (Lee, 2010; Salazar et al., 2013; Tsarenko et al., 2013).

#### **iii. Brand Strength**

Brand strength is a company's performance in the market regarding green productions and has a major influence on consumers' purchasing intention. This matter has been recognized by researchers due to the important role that brand strength plays in explaining consumer behaviour, including attitude formation, consumer satisfaction, and brand loyalty (Foxall et al., 1998; O'Cass, 2000).

The brand name has a major effect on the consumers' perception in choosing the most ideal products. Basically, brand names represent a list of available attributes of the specific product (Jiang, 2004). Likewise, Gan et al. (2008) stated that the product attributes have a major influence on consumers' purchase intentions because product attributes are showing which particular consumer needs it can satisfy.

Consumers generally have personal favourite brands and they prefer them over green brands (Young et al., 2010). Also, consumer trust in a green brand is an important purchase criterion which positively influences their purchase of green products (Rahbar and Wahid, 2011).

#### **iv. Green Regulations**

These are legislations and laws which government formulate to intervene in environmental issues. Study showed that environmental laws and regulations encourage consumers to procure green products the most and that there is a positive relationship between government regulations and green purchase intention. (Consumers Motivation in Purchasing Green Products, 2010). These are Legislations and Laws which government formulate to intervene in environmental issues Environmental behaviour could be influenced by government actions. Government awareness is a significant factor in influencing and predicting citizen's environmental attitude and behaviour. Also, Tan and Othman, (2014) found a positive relationship between government regulations and green purchase intention. The role government plays in environmental preservation cannot be overemphasized. It is important that government initiates and promote sustainable activities to the community for awareness purposes which may later on translate into green purchase intention.

### Theoretical Framework

In an attempt to explain consumer green purchase behaviour, previous studies have focused on describing the underlying values, attitude and behavioural intentions toward environmentally friendly products (Foxall and Pallister, 2002; Vermeir and Verbeke, 2006; Wheale and Hinton, 2007). The theory of reasoned action (TRA) by Ajzen and Fishbein (1980) and the theory of planned behaviour (TPB) by Ajzen (1985) were the two prominent theoretical approaches followed by most of the studies. A few studies employed other versions of hierarchical values-beliefs-attitude-behaviour models. Many studies have followed TPB for exploring consumer attitude, intentions and actual buying behaviour with regard to green products (Arvola et al., 2008; Smith and Paladino, 2010; Tanner and Kast, 2003; Tarkiainen and Sundqvist, 2005). However, majority of the studies observed a weak relationship between the expressed positive attitude of consumers toward purchasing green products and their actual purchase behaviour, generally referred to as the attitude-behaviour gap (Tanner and Kast, 2003; Vermeir and Verbeke, 2008; Webster, 1975; Wheale and Hinton, 2007).

Various theories exist which assert that attitude alone does not affect behaviour; there are other factors that not only influence behaviour, but also the strength of the attitude-behaviour relationship. (Guagnano et al., 1995; Olander & Thøgersen, 1995). The argument is that consumer green behaviour is not only determined by attitude, but also by contextual factors. Favourable contextual factors strengthen whereas unfavourable contextual factors diminish the strength of the attitude-behaviour relationship.

Recently, Phipps et al. (2013) introduced reciprocal deterministic theory to understand sustainable consumer behaviour. This model emphasized the importance of past behaviour and considered it as an indicator of future sustainable behaviour. The model suggests that personal factors such as attitude, along with past sustainable behaviours and socio-cultural environments, affect future sustainable behaviour. It is thus clear from the above discussion that consumer behaviour is not only affected by attitude, but also by various other personal and situational factors. Further, these factors can either strengthen or weaken the strength of attitude-behaviour relationship.

As the literature showed, apart from attitude, subjective norms and control belief there are some other factors that have an indirect influence on the green purchasing intention such as environmental concerns, green brand strength and regulatory laws and guidelines (Chen & Chai, 2010; Noushan & Syed, 2012; Tan, Fanidauty, Harun & Othman, 2014). These factors play significant role in instigating green awareness towards purchasing decision and intentions and as such forms the conceptual frame work of this study. Hence, understanding of these variables and terms are very important even from the marketing point of view because it leads to a better presentation of environmentally-friendly products based on the consumers need and expectations.

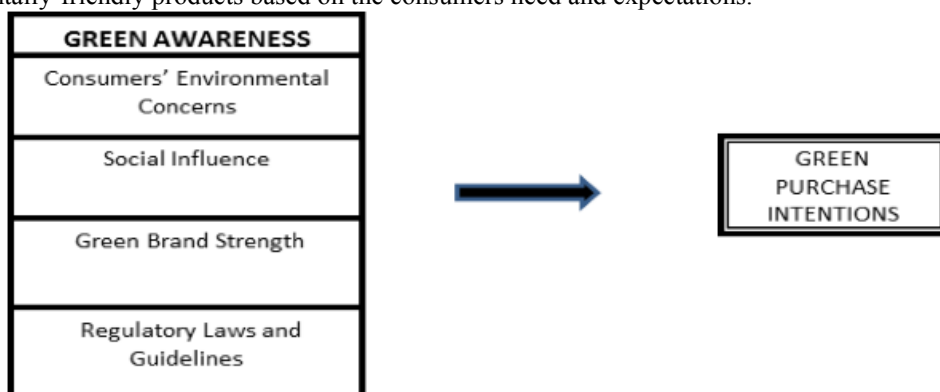


FIG 2.1: The Proposed Research Model

### Empirical Review

With regards to social influence, Baruja and Sajedul (2011) carried out a study on young consumers purchase intention of green products; results indicated that parental influence is the top predictor among all the variable studied and from the correlation analyses top three predictors such as parents, peer, and environmental knowledge clearly played an important role in influencing young consumers' purchase intentions of buying green products.

In a study by Othman (2011) it is indicated that socially desirable acts such as buying green products were motivated by social norms. The author argued that the increasing of social pressure can convert the behavioural intention into actual behaviour.

Moreover, Ernest and Braimah (2011) examined the awareness of green marketing issues and whether it impacted on their purchase decisions. 200 respondents were interviewed from 4 satellite markets within Accra. The findings indicate that Ghanaian consumers have a low level (15.5%) of awareness of green marketing issues and it affected the purchase decision of only 7%. Price was ranked ahead of green concerns as influencing purchase decisions. It was established that younger consumers are more likely to be influenced by green issues. The authors recommended that Ghanaian consumers' awareness of green issues can be enhanced if green brands producers and

campaigners develop strategic promotional activities.

Maha and Ahmed (2012) in an empirical study on the main factors affecting the green brand preference in the telecom industry in Egypt developed a conceptual framework highlighting the dimensions of the green brand preference focusing on four constructs; green brand image, green satisfaction, green trust, and green awareness authenticated that consumers tended to disagree that they are aware of environmental promotions or that they recognize the meaning of environmental slogans and labels for their preferred brand. It was also found that the correlation between green awareness and green brand preference is the weakest. On the other hand; there was a strong correlation and a positive effect of the other factors (green brand image, green awareness and green trust) and green brand preference.

A study carried out in Jakarta indicated that social influence was the second lowest determinants on the green purchase behaviour among the university students (Irawan & Darmayanti, 2012). The author concluded that the topic of environmental issue particularly environmental-friendly products was not encouraging among the group of university students in Jakarta. Thus, social influence does not have significant effect on green purchasing behaviour. However, the author suggested that the green marketers should consider this factor because young consumers were peer oriented in nature.

Chai, Heng, Jian and Muhammad (2012) examined consumers' awareness and consumption intention towards green foods in Malaysia. The results indicate that most of the respondents are aware of the green concept. The results also show that there are significant differences among the respondents' awareness towards green food and age, geographical area, education level and income. Thus, most of the respondents were aware of the green concept which is a strong indicator of consumers' intention to go green in food consumption.

A study in Nigeria by Haruna and Kamariah (2012); findings indicated that knowledge of green products, perceived behavioural control and availability of green products will heighten green purchase intention. In this study, the relationship between Green trust, Green brand image, green perceived value and Green purchase intention are found to be significant.

Moreover, a study by Aman et al. (2012) had been conducted to examine the influence of environmental knowledge and concern on green purchasing intention on 384 Sabahan consumers. The research finding also showed that environmental concern has significance influence on the green purchasing intention. This study used attitude as the mediating variable. The authors figured out that the higher level of environmental concern has positive impact on consumers' attitude and hence this attitude will lead to the green purchase intention.

However, Muhammad, Khokhar & Ali Asad (2014) in study on Green Awareness Effects on Consumers' Purchasing Decision in Pakistan examined the influence of consumers' environmental concerns, awareness of green product, price and brand image on their purchasing decision of green products. A total of 300 completed responses were collected in the survey. Responses were randomly drawn from students in a university campus in the Multan, Pakistan and results authenticated that consumers' awareness of price and brand image significantly influences their purchasing decision of green products. A person having some concern for the environment and its brand image would have a stronger preference to buy a green product.

Also, Lasuin and Ching (2014) in study on Factors Influencing Green Purchase Intention among University Students Malaysia investigated the relationship between environmental concern, social influence, self-image and moderating effect of demographic factors (gender and ethnic group) on green purchase intention among university students. Using multiple regression analysis result revealed that environmental concern and self-image showed positive significant relationship toward green purchase intention. The authors suggest that more attention should be given to encourage green purchasing behaviour in Malaysia, especially among the young generation.

In assessing the variables that influence the intention of green purchase; Tan, Fanidautty, Harun and Othman (2014) carried out a study on the factors that significantly contribute the most to the intention to buy green products. Empirically testing the impact social influence, environmental attitude, environmental concern, perceived environmental problem, perceived environmental responsibility, perceived environmental behaviour, concern for self-image and role of government on green purchase intention. After regression analysis the coefficient of determination  $R^2$  shows that 48.7% of the variance of intention to green purchase is explained by the variance of social influence, environmental attitude, environmental concern, perceived environmental problem, perceived environmental responsibility, perceived environmental behaviour, concern for self-image and role of government.

Conclusively Rizwan, Ahmad, and Mehboob (2013), carried out a research work on green purchase intentions with the aim of identifying the important factors that influence the green purchase intentions of the people of Pakistan. Multiple regression analysis is used to check the effects of green awareness, green perceived trust, green perceived risk, green perceived value and environmental responsibility on green purchase intention. Regression analysis showed that green perceived value is the top predictor of Pakistan adolescent' green purchase intentions. The relationship between green awareness and green purchase intention was insignificant and weak. The relationship between green perceived trust and green perceived risk was not supported and relationship between green perceived trust and green perceived value was very stronger.

## MATERIALS AND METHODS

### Research Design

Survey research design was adopted in this study- this consists of asking questions, collecting and analyzing data from supposedly representative members of the population at a single point in time with a view to determining the current status of that population with respect to one or more variable under investigation.

### Population of the Study

The population of the study comprises of post-graduate students in the academic session of 2015/2016 of the Nnamdi Azikiwe University Awka; Anambra State. There are a total 2499 post-graduate students in our population (UNIZIK SPGS, 2016). For this purpose students were selected on gender basis with respect to their various faculties. The six faculties of the University main campus were selected. They are:

1. Faculty of Management Sciences
2. Faculty of Arts
3. Faculty of Natural Sciences
4. Faculty of Engineering
5. Faculty of Social Sciences
6. Faculty of Education

### Sample Size Determination

Since the population of study is finite (known), the researchers employed Taro Yamani's formula to determine the sample size. The sample size is calculated thus:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size;

N = the population size;

e = level of precision (tolerable error margin)

\* 95% confidence level and  $p = 0.05$  are assumed (read from the standard normal distribution table)

Substituting in the formula, we have

$$n = \frac{2499}{1 + 2499(0.05)^2}$$

$$n = 344.80 \sim 345$$

Therefore the sample size is 345 post-graduate students

### Sampling Method

Since the population of the study is finite (known) and has a sampling frame, the researchers employed stratified random sampling technique. This was adopted because of the heterogeneous nature of the population. The researchers divided the population into homogeneous subsets (faculties) and then simple random sampling procedure was used to select respondents from each subset for inclusion into the sample. Proportionate stratified sampling was employed because every faculty is represented in the sample according to its proportion in the parent population.

### Research Instrument

The research instrument was questionnaire. The questions in the survey were designed based on the constructs under study. As it is shown in table below, the questionnaire comprises two sections. Section A comprises demographic profile of the respondents while section B comprises questions on the main constructs of the study namely, environmental concern, social influence, brand strength, green regulations and green purchase intention and these would make use of the 5- point Likert-scaled questions by using contents Like "Strongly Agree", "Agree", "Undecided", "Disagree" and "Strongly Disagree".

**Table 3-1: Questionnaire Formation**

Question	Related to
<b>A1 – A5</b>	Demographic
<b>B1 – B4</b>	Environmental Concerns
<b>B5 – B8</b>	Social Influences
<b>B9 – B12</b>	Brand Strength
<b>B13 - B16</b>	Green Regulations and Guidelines
<b>B17 – B20</b>	Purchase Intentions

Source: Researcher's own elaboration

Questions A1 to A5 are to identify the Demographic profiles of the respondents. Questions A7 to A9 is to identifying the Target Respondents. Questions B1 to B3 are designed to cover the environmental concerns of consumers. Questions B4 to B6 are aimed to cover social influences. Questions B7 to B10 are measuring the brand strength while questions B11 to B13 are designed to assess Green Regulations and Guidelines. Lastly questions

B14 to B17 covers the purchase intentions of consumers. Questionnaire would be adopted as the data collection instrument

#### Validity and Reliability of Research Instrument

Before the final survey was conducted, a pilot test was carried out to improve the questionnaire. The pilot test for the questionnaire was completed in a day where ten respondents are asked to give their opinions regarding problems they have faced while reading or understanding the questionnaire. The test sample age group was between 28 - 32 years old. The sample did make corrections and suggestions which were relevant and effectively corrected. Also draft copies of the questionnaire were given to the supervisor and other research experts to go through and make comments which would be used in drafting the final questionnaire. All statements under each construct were reliably tested using Cronbach's Alpha score with an acceptable coefficient of 0.6 and above. This is consistent with the argument that the scale is reliable if alpha value is between 0.6 to 0.7 (Hair, 2006).

#### Method of Data Analysis

The data were run using the SPSS (Statistical Package for Social Science) software. The outputs were first analysed by profiling demographic variables. Multiple Regressions is used to measure the impact of the independent variables on the dependent variable.

#### Proposed Measurement Model

Green Purchase Intentions = f (environmental concerns, social influence, brand strength, green regulatory guidelines)

Thus,

$$GPI = \alpha + EC_{X1} + SI_{X2} + BS_{X3} + GR_{X4} + e_i$$

Where  $\alpha$  = constant and;

$e_i$  = error margin

### DATA ANALYSIS

#### Descriptive Analysis of Sampled Population

**Table 1: Analysis of Sample Population**

Category	Frequency	Percentage (%)
Total Distributed	345	100
Questionnaires Retrieved	314	91
Suitable for Analysis	308	89

Field Survey; (2016)

Table 1 illustrates the analysis of the sample population. 345 questionnaires were distributed to the target participants of the six faculties. Mixed response was observed from the students as many enthusiastically participated in the research process and answered the questionnaire with keen interest and diligence and a few showed little interest in the research. Out of 345 questionnaires 314 were retrieved. 6 responses were invalid due to incomplete data while 308 representing 89% of the sample size was suitable for analysis

#### Respondents' Demographic Profile

**Table2: Profile of Respondents**

Profile	Category	Frequency	Percentage (%)
Gender	Male	151	49
	Female	157	51
Age	<30	107	35
	31 – 40	142	46
	41 – 50	46	15
	51 >	13	4
Marital status	Single	234	76
	Married	69	22
	Divorced	5	2
Post-Graduate Class	PGD	87	28
	MSc	197	59
	MBA	18	11
	Ph.D	6	2

Field Survey; (2016)

From Table 2, the sample was comprised of 49% male and 51% female. About 35% of the respondents were in the age range of below 30, followed by the age group of 31-40, 41-50 and above 50 years old, which accounted for approximately 46%, 15% and 4%, respectively. Comparing marital statuses of the respondents, approximately 76% of the respondents are single meanwhile 22% are married and 2% represents those divorced. The respondents belong to various post-graduate classes where 28% of respondents are in PGD and 59% are in MSc class



meanwhile MBA and Ph.D classes are 11% and 2%, respectively.

### Descriptive Analysis

**Table 3: Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Environmental Concern	308	13	19	15.40	1.628
Social Influence	308	13	19	15.95	1.639
Brand Strength	308	14	18	16.29	1.390
Green Regulations	308	10	19	15.47	2.500
Purchase Intentions	308	15	19	17.78	1.195
Valid N (listwise)	308				

Tables 3 provide the mean and standard deviation scores of independent variables and dependent variables adopted in this study. To answer the questions, the respondents were asked to rate each of the five constructs on a five-point scale ranging from strongly agree (5) to strongly disagree (1). Overall, the mean scores for the variables range from 15.40 to 17.78

### Reliability Analysis

**Table 4: Reliability Statistics**

Construct	No. Of items	Cronhbach's Alpha
Environmental Concern	4	.757
Social Influence	4	.703
Brand Strength	4	.701
Green Regulations & Guidelines	4	.685
Purchase Intention	4	.753

SPSS Result; (2016)

Table 4 shows the reliability coefficients of the main constructs of the study. All the constructs have the value of higher than 0.7 except for Green Regulations & Guidelines which shows value of 0.685, and this shows that the reliability among items was consistent with the argument that the scale is reliable if alpha value is between 0.6 to 0.7 (Hair, 2006). Thus, it serves as a reliable foundation for further testing and subsequent analysis.

### Regression Result

**Table 5: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.798 <sup>a</sup>	.636	.610	.726

a. Predictors: (Constant), Green regulations, Green brand strength, Green social influence, Environmental concern

In Table 5, The Model Summary shows that the multiple correlation coefficient (R), using Environmental Concern, Social Influence, Brand Strength, Regulations and Guidelines predictors simultaneously, is .79 and Adjusted R<sup>2</sup> is .61, meaning that 61% of the variance in Green Purchase Intention can be predicted from the combination of Environmental Concern, Social Influence, Brand Strength, Regulations and Guidelines predictors.

**Table 6: ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	278.885	4	69.721	132.415	.000 <sup>b</sup>
	Residual	159.540	303	.527		
	Total	438.425	307			

a. Dependent Variable: Purchase Intentions

b. Predictors: (Constant), Green Regulations, Brand Strength, Social Influence, Environmental Concern

In table 6, the ANOVA shows that F=132.415 and is statistically significant. This indicates that the predictors combine together to predict green purchase intention. Also model is considered to be good fit if significance value falls between 0% - 5%. The table shows the sig. value of .000 which means that relationship between independent and dependent variable is highly significant hence the model is good fit.

**Table 7: Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	7.317	.819		8.933	.000
Environmental Concern	.124	.033	.169	3.777	.000
1 Social Influence	.223	.027	.467	8.281	.000
Brand Strength	.349	.038	.406	9.182	.000
Green Regulations	-.037	.030	-.051	-1.228	.220

a. Dependent Variable: Purchase Intentions

The regression equation of this model is formulated as follows:

$$Y = \alpha + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 - \beta_4x_4$$

$$\text{Thus; } Y = 7.317 + .124x_1 + .223x_2 + .349x_3 - .037x_4$$

Where Y= Purchase Intention,

X<sub>1</sub>= Environmental Concern,

X<sub>2</sub>= Social Influence,

X<sub>3</sub>= Brand Strength and;

X<sub>4</sub>= Regulations and Guidelines

Four hypotheses were proposed and results were enumerated below:

**H<sub>1</sub>** (There is positive significant impact of environmental concern on consumers purchase intentions of environmentally-friendly electrical products): the coefficient i.e. Beta (β) for environmental concern is .124. So for every unit increase in environmental concern, a 0.12 unit increase in green purchase intention of energy saving bulbs is predicted, holding other variables constant. This coefficient value is significantly different from 0 because its p-value is 0.000, which is smaller than 0.05. Thus H<sub>1</sub> is accepted, signifying that environmental concerns have a positive significant impact on consumers purchase intentions.

**H<sub>2</sub>** (There is positive significant impact of green social influence on consumers purchase intentions of environmentally-friendly electrical products): the coefficient i.e. Beta (β) for green regulations is .223. This coefficient value is significantly different from 0 because its p-value is 0.000, which is smaller than 0.05. Thus H<sub>2</sub> is accepted, signifying that green social influence has a positive significant impact on the green purchase intention

**H<sub>3</sub>** (There is a positive significant impact of brand strength on consumers purchase intentions of environmentally-friendly electrical products): the coefficient i.e. Beta (β) for brand strength is .349. This coefficient value is significantly different from 0 because its p-value is 0.000, which is smaller than 0.05. Thus H<sub>3</sub> is accepted, signifying that green brand strength does influence purchase intentions of consumers.

**H<sub>4</sub>** (There is positive significant impact of green regulations and guidelines on consumers purchase intentions of environmentally-friendly electrical products): the coefficient i.e. Beta (β) for green regulations and guidelines -.037 is not significantly different from 0 because its p-value is 0.220, which is larger than 0.05. Thus H<sub>4</sub> is rejected, signifying that green regulations and guidelines have a negatively not significant impact on purchase intentions of environmentally-friendly electrical products.

## Conclusions

Major environmental problems and depletion of natural resources forced human civilization to focus on environmentally responsible consumption. More organizations are producing environmentally friendly products today and consumers are also showing increased willingness to purchase such products. However, a majority of previous studies report that consumers' favourable attitudes do not translate into actual buying actions and most of the consumers do not purchase green products. This study reveals a valuable adaptation of green awareness constructs especially for consumer purchase intention among post-graduate students of higher institution of learning. Our study provided empirical support that environmental concern; brand strength and social influence have significant effects on consumer purchase intention for environmentally-friendly electrical products in Anambra state. The results of research unfolded new realities before the researcher the variable, Green Regulations and Guidelines did not turn to be an imperative ingredient in green purchase intention of environmentally-friendly electrical products. This may be due to the fact that Government has not been outstanding in enforcing its regulations and policies to effectively educate consumers on the need to act pro environmentally most especially as it relates to the purchase intentions of environmentally-friendly electrical products by consumers.

## Recommendations

Government through its environmental regulatory agencies and commission should enforce laws and guidelines that educate and influence public awareness on the need to act pro environmentally through energy efficiency and even in their consumption behaviour. It is also imperative for marketers to come into play and promote energy efficient products by developing consumers to prefer what is good for their environment. However, this is an

extensive procedure and will take elongated time to nurture the concern for environment. It was also found that family, friends and the media had a strong influence on consumers purchase intention of environmentally-friendly electrical products. Government should also play its part in encouraging in development and production of environmental friendly and efficient products. It can also encourage imports of such products by decreasing duties and taxes so that consumers as well as general public prefer to buy environment friendly products.

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#### **Webography**

[www.son.gov.ng](http://www.son.gov.ng)

[www.nesrea.gov.ng](http://www.nesrea.gov.ng)

[www.energy.gov](http://www.energy.gov)

[www.energysavingtrust.org.uk](http://www.energysavingtrust.org.uk)

**APPENDIX  
 QUESTIONNAIRE**

**SECTION A:**

1. Gender: Male  Female
2. Marital Status: Single  Married  Divorced
3. Age: < 30  31 – 40  41 – 50  51 >
4. Post-graduate class: PgD  MBA  MSc  Ph.D

**SECTION B**

Please tick (✓) the appropriate choice below

		5	4	3	2	1
		<b>Strongly Agree</b>	<b>Agree</b>	<b>Undecided</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
	<b>Environmental Concern</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
1	The performance of energy saving bulbs meets my expectation of eco friendliness.					
2	When I buy energy saving bulbs I check if it is eco friendly (eco-label)					
3	Environmental protection will help people have better quality of life					
4	I am worried about how all of my activities affect the environment.					
	<b>Green Social Influence</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
5	I have learnt about energy saving bulbs from people around me like my friends, family or colleagues					
6	I will be perceived as socially unattractive if I do not act pro environmentally					
7	The social media through the internet, newspapers, and television adverts makes me aware of eco friendly brands (energy saving bulbs)					
8	I am socially responsible when I encourage people to purchase and use energy saving bulbs					
	<b>Brand Strength</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
9	Innovative and new image of eco-friendly product created by some companies tend to attract consumers in going green.					
10	The attributes of energy saving bulbs are more appealing than non-green bulbs (incandescent bulbs)					
11	A strong brand image gives me confidence towards purchasing their product					
12	I intend to buy eco friendly brands even at a premium price					
	<b>Green Regulations &amp; Guidelines</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
13	I am familiar with eco-friendly logos, signs and symbols					
14	The government through regulatory agencies and guidelines are responsible for stimulating green behaviour					
15	I intend to buy electric bulbs from companies with green certifications only					
16	Environmental laws and guidelines has been helpful in creating consumers' general awareness about green products					
	<b>Purchase Intentions</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
17	My awareness of environment influences my purchase intention of eco-friendly brands					
18	I am always eager to patronize those brands which are environment friendly					
19	It is likely for me to always buy energy saving bulbs now and in the future					
20	I intend to buy environmentally friendly bulbs because it is energy saving.					

## APPENDIX 2 Regulatory Agencies Standard Organization of Nigeria



The Standard Organisation of Nigeria (SON) is the sole statutory body that is vested with the responsibility of standardising and regulating the quality of all products in Nigeria. It addresses the concern of unsafe products entering the country and requires all imported products whose standard specification were declared compulsory by SON, to be inspected for conformity to the relevant Nigerian standard before release into the Nigerian market.

### B: National Environmental Standards and Regulations Enforcement Agency (NESREA)



As a regulator, the NESREA plays a key role in addressing the challenges posed by our natural and built environment such as floods, erosion, industrial pollution, sanitation and waste management. It also provides expert advice to governments, institutions and organisations on environment and environment related matters.

### C: Models of Incandescent and Energy-Saving Bulbs

