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Determinants of Consumer Purchasing Intention toward Energy-Efficient Bulbs

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Abstract:
This paper is trying to examine the consumer purchasing intention factors of the Energy-Efficient Bulbs. Previous researches showed the importance of using Energy Efficient Bulbs to save both environment and energy, but this paper concentrates on the consumer intentions towards this product. Meanwhile, there are many factors that may affect the consumer decision of the energy efficient bulbs, but the results showed that Environmental Concern is the most important factor who affects the consumer intention; Environmental Advertisements is the second factor then the Environmental Knowledge. However, the Environmental Attitude and Price Concern have the least positive effect, but, Eco-Label has an insignificant effect. Moreover, Eco-Brand has a negative insignificant influence toward the purchasing decision of energy efficient bulbs. This should encourage corporations to improve their social responsibility, advertisements and knowledge to go green and to provide green products.

Keywords: *Energy efficient bulbs, consumer purchasing intention, environmental concern, knowledge, attitude, advertisement, Eco-label, brand, price concern*

1. Introduction

Light usage is considered to be almost 20 percent of the world's produced electricity. So, this percentage can be saved by using energy efficient bulbs instead of incandescent bulbs, since efficient bulbs tend to last longer, consume two-thirds less energy, and produce less heat by 70 percent. Therefore, using efficient bulb have a lot of advantages since it eliminates greenhouse effect, reduce energy cost and save the environment, which are very important issues. Although, replacing incandescent bulbs by energy efficient bulbs is vital, they are not fully adopted. Many governments have tried to promote the switch of bulbs, and some ways by banning the incandescent bulbs which are energy-inefficient and trying to substitute them with other energy saving technologies like LEDs (Uddin S, Shareef, 2013). Then when comparing incandescent bulbs with energy efficient bulbs, the result will be that the energy efficient bulbs are less costly and better on the environment, so it saves both money and the environment.

Therefore, we conducted this study with the aim of identifying, examining and better understanding the "Factors That Affects Energy-Efficient Bulbs Purchase Intention". This study will evaluate these factors with respect to the point of view of the consumers, in order to understand which factors specifically influence consumers to acquire specific attitudes that influence the purchase of energy-efficient bulbs. Hence, for the purpose of analyzing consumers perceptions, and its link with other factors, different models of attitude will be applied.

This research intentions are to explore the reasons that impact the purchasing intentions of energy-efficient bulbs, this section provides an overview, and covers the research objectives, research problem, research questions and research importance. Therefore, the research aims first to find out the determinants of energy efficient bulb purchase intention to help policy makers in expressing and executing strategies to boost energy-efficient bulbs purchasing. Second to understand the consumers awareness levels and their behavior against the environment. Third, it intends to discern which factors affect the consumer behavior of energy efficient bulbs more than other factors. Fourth to develop a framework that reflects the main factors influencing consumer behavior for energy efficient bulbs. And finally, in order to find out which of the following factors have a positive or negative impact on the purchasing decision of energy efficient bulbs; Environmental Concern, Knowledge, Attitude, Advertisement, Eco-label, Brand or Price Concern.

During the last decades global warming increased environmental pollution which resulted in a decline in flora and fauna. These are three main serious harm to the environment produced by the increase of consumer's ingestion of goods and services (Chen & Chai, 2010). Moreover, what makes the situation even worse, energy consumption also increased tremendously and because the main source of this energy is fossil-fuel generation, which is responsible for serious environmental problems, above all climate change. (Zundel & Stie, 2011). In addition, the ingestion of energy will bloom by 56% between 2010 & 2040, from 524 quadrillion British thermal units (Btu) to 820 quadrillion Btu (EIA, 2014), therefore adoption of new technologies is essential to significantly reduce electricity consumption (Reveiu & Kanalab, 2015).

Moreover, since electricity use for lighting accounts for 20% of overall electrical energy use (Uddin S, Shareef, 2011). Vast amount of Greenhouse gases (GHGs) and carbon dioxide emissions are the consequences of non-efficient lighting (Mills & Orlando, 2002). However, according to Lee-lakulthanit (2014) and Menanteau & Lefebvre (2000), there has been only limited implementation of energy efficient bulbs for a number of reasons like high initial cost. The research area of sustainable energy consumption has gained massive popularity over the years. In addition, energy saving products have been invented, these energy saving lights have the power to significantly decrease consumption of electricity, which is very beneficial for the environment. However, although there was a boost in their invention and production, unfortunately there haven't gained acceptance from consumers. Therefore, many studies have investigated the reason behind the slow adoption of these energy saving lighting, the outcomes were that encompassing human behavior, will results in an accurate representation of sustainable development scenarios (Reveiu & Kanalab, 2015).

Furthermore, there are a lot of compensation and advantages that are the consequence of using this new technology; however, consumers seem to be are oblivious to these advantages. Therefore, in order to rectify this situation one of the ways is information campaigns that can impact consumers purchase choices and enhance the new technology usage rate (Reveiu & Kanalab, 2015).

Finally, previous studies results were split on identifying the main motives that influences green product purchases. For example, there are studies that reported some product attributes like healthiness and quality, tend to motivate green products purchase (Aertsens et al., 2011; Chen et al., 2012). However, further studies have stated that instead of product attributes, humane values are the prime influencing factors (Padel & Foster, 2005; Tsarenko et al., 2013). Consequently, the key question that this research intends to answer is: What factors stimulates consumers to buy energy efficient bulbs? In addition, the sub-questions that this research will examine are: Does the Environmental Concern, Knowledge, Attitude, Advertisement, Eco-labels, Eco-Brands affect individual's energy efficient bulbs purchasing intention?

This research is important since it contributes on both academic and practical way. First, from the academic perspective, this research has explored the information of the factors influencing energy efficient bulbs adoption in Lebanon. As the Energy-Efficient Bulbs adoption has remarkable effect in reducing energy consumption, understanding the consumer behavior and the factors affecting it is essential. Therefore, by understanding the consumer buying intention of Energy-Efficient Bulbs, this study is very significant for policy makers, environmental groups and managers' in articulating and applying strategies to boost Energy-Efficient Bulbs purchasing. Moreover, this research will be helpful for students and future researchers planning to make further study in the same field of consumer behavior.

Second, this research provides practical implications for stakeholders in the Energy-Efficient Bulbs industry, which are Energy-Efficient Bulbs manufacturers, distributers and retailers. The result of this research helps identifying the aspects that affects the purchase decisions of Energy-Efficient Bulbs through differentiating between these factors and by which factors the decision-making influenced mostly. This research helps marketers in the decision-making procedure, and managers to draw market strategies and customize a clear message to stimulate the consumers' emotions and guide them to use the energy-efficient bulbs.

2. Literature Review

The literature review will clarify and highlight the key factors that influence consumers of energy saving green bulbs purchasing intention. Previous research findings will be used to link with the stated hypothesis in this section in order to realize and explain the relationships between them whether it is positive or negative.

2.1. Environmental Concern

Environmental concern is the consumer's emotional immersion with respect to different environmental matters (Lee, 2008). Yeung (2004) has reported that environmental concern denotes several things which are consumer's qualms, uncertainties, likes, dislikes and sympathy when it comes to the environment. Environmental concern is considered a vital variable that affects consumers decision making (Jain & Kaur, 2004), since previous studies established that consumers that are extremely anxious toward the environment are the ones that will take extra measures when purchasing products by calculating and examining how their purchases are likely to affect the environment in some way. (Follows & Jobber, 2000; Nath et al., 2013). The more a person exhibit a higher level of environmental concerns, an upsurge in environmentally friendly purchase behaviors will be observed (Manakotla & Jauhari, 2007; Dagher & Kassar, 2015).

Kim & Choi (2005), state that consumers who are inclined to purchase green products, are actually people who are conscious about the environment. These people have the tendency to buy green products more than those who aren't concerned about the environment. It has been noted that when it comes to what factor that impact people's motivations to behave and act in a way that enhance the problems that the environment faces, is the environmental concern factor (Seguin et al., 1998). Many prior studies have considered the concept of environmental concern and found that this factor has a positive effect on consumers decision making process (Joshi, & Rahman 2015), whereas, other studies have examined the intensity of the impact of environmental concern on purchase intention of green products (Magnusson et al., 2003). There is a conflict in previous studies on the subject of what actually are the prime motivators of green product purchases (Joshi, & Rahman 2015). When examining the factors that drive green products purchase, some studies have reported that humane values are the cause (Padel & Foster, 2005; Tsarenko et al., 2013); however, others found that attributes of a product such as the quality and the healthiness may be the drivers that motivates green products purchase (Aertsens et al., 2011; Chen et al., 2012). Follows et al. (2000) stated that consumers tend to evaluate various environmental factors when purchasing green products, since they generally have to comprise between either quality or environmental concern

2.2. Green Purchase Intention

Green purchase intention is when consumers possess an inclination to purchase green products (Joshi, & Rahman, 2015). Intentions to purchase green products are the results of motivational drivers that influences green purchase behaviors (Ramayah, Lee, & Mohamad, 2010). The ultimate purchase intention for any specific products, even if it might be more expensive than other options might be due to the influence of beliefs about the positive outcomes of purchasing this particular products and the individuals level of motivation that conform with those normative beliefs for example in an environment that global warming is considered an important concern, that fact will be a determinant in buying products that are green friendly (Hansen et al., 2004).

2.3. Environmental Knowledge

Familiarity and expertise are the two key components that constitutes consumer knowledge. Familiarity is the experience gained from related product is the first element of product knowledge, whereas, the second element which is expertise or the capability to complete product related tasks, is a prominent constituent of product knowledge (Alba & Hutchinson, 1987; Cordell, 1997). Product knowledge can be composed of components that are either objective or subjective. When it comes to the concept of environmental sustainability, establishing consumer attitudes can be strongly contributed by objective knowledge (Ha & Janda, 2012). Consumers who possesses little or lack of objective experience with specific brand of a certain product (durable products such as refrigerators or washing machines) in contrast of items that are frequently purchased, may acquire positive beliefs and perceptions regarding energy-efficient products, due to objective information (Farhar. 1996).

In previous studies, the most examined independent variable that influences the purchases of green products was found to be Knowledge (Joshi, & Rahman, 2015). About 80% of previous studies have indicated that both customer intention and actual purchase of green products are influenced by knowledge of the environmental issues (e.g., Chan et al., 2000; Eze et al., 2013). However, according to Joshi, & Rahman (2015) there are a few studies that have explored environmental knowledge effect on purchase intention of green products but did not result in any correlation between environmental knowledge and green purchase intention (Chan & Lau, 2000; Rahbar & Wahid, 2013; Wolsink, 2007). Nevertheless, other studies found that green purchase intention is negatively influenced by information deficiency (Connell, 2010; Padel & Foster, 2005).

2.4. Environmental Attitude

Environmental attitude is an intricate mental state that involves a set of beliefs and values that dictates how an individual behaves and acts in a style that is environmentally friendly. It means that environmental attitude uses consumer's cognitive judgment regarding the value that is linked with green living and environmental protection (Lee, 2009). When investigating both attitudes and behavioral results has indicated that there is a contradiction and inconclusive results (Dagher & Kassar, 2015). However, few studies have found that there seems to be a correlation that is considered positive between environmental attitude and green purchasing behavior (Mostafa, 2007), whereas, some studies have shown a moderate or unsubstantiated relation between these two variables (Lee, 2009).The contradicting and inconclusive outcomes were the results of previous researches that inspected the correlation between attitudes and actual purchasing practices when it comes to green purchase intention, reported a discrepancy between attitude and actual green purchasing behaviors (Tanner & Kast, 2003; Vermeir & Verbeke, 2006; Vermeir & Verbeke, 2008). Although several consumers exhibited a positive attitude concerning the concept of purchasing organic food products around 67%; however, these positive results did not translate into purchase behaviors, since only around 4% have in fact bought those organic products (Hughner, 2007). In addition, Defra (2006) have found that in UK that around 30% of consumers display concern for the environment which, yet unfortunately that concern did not translate into green purchase behavior. Hence, there exist a massive amount of discrepancy between what consumer think and what they actually do (Chen & Chai, 2010; Wheale & Hinton, 2007). This incongruity between consumers' auspicious attitude, and actual purchase behavior of green products is called 'green purchasing inconsistency' or 'green attitude-behavior gap'. It implies that environmentally friendly action will not necessarily become the outcome of consumers positive attitude towards green products (Joshi, & Rahman, 2015). That is why it is vital to investigate the reason behind the frail influence that environmental attitudes have on consumer green purchase behavior. Prior studies have stated that although individuals have the tendency to comprehend the significance of environmental issues, still their environmental attitudes do not automatically translate into green purchasing (Bamberg, 2003; Nordlund & Garvill, 2002). Consequently, prior research has failed to justify the cause behind the fact that consumer attitude doesn't always transform into actions, which is in this case green purchase (Gupta & Ogden, 2009). In addition, there hasn't been any inclusive examination of the wide-range of determinants and their impact on environmentally responsible purchasing (Memery et al., 2005).

2.5. Environmental Advertisement

An environmental advertisement can be defined as any primary compensated message that possess any sort of environmental claim. An example of an environmental claim is a product or service that is good and friendly to the environment, green idea or lifestyle, and/or corporate image shaped as environmentally responsible (Van-Dyke, 2012), thus an environmental advertisement is usually what promotes the afore mentioned environmentally claim. An environmental advertisement typically encompasses three fundamentals (Davis, 1994). The first element is a statement that demonstrates corporate environmental concern. Second, the advertisement illustrates the altered procedures that the corporation went through, in a method that displays its concern and devotion for the environment. The last element describes the corporation's precise environmental actions that were implemented and the outcomes that came out from

these actions, in which the organization receives recognition for. Thus, an environmental advertisement builds consumers values and assist in transforming these values into green purchasing behaviors (Baldwin, 1993).

Therefore, attitudes are shaped from beliefs and knowledge (Ha, & Janda, 2012), hence companies must take advantage of that fact and exploit informational advertisement that demonstrates energy saving consequences, which in turn will feed consumers belief and knowledge.

Consumers often encounter a challenge, since there is an actual deficiency regarding the existence of comprehensive information about environmentally friendly product (Pickett-Baker & Ozaki, 2008). One of ways that companies can undertake in order to solve this challenge, is to apply a factual comparative approach, that illustrates that the presented appliance that conserves energy does indeed saves a substantial amount of energy when compared with a regular non-energy saving appliance. Ha & Janda (2012) reported that overall, environmental awareness and normative influences will certainly have an optimistic impact on behavior. However, it is not enough to depend only on the former, thus promotions that concentrates on informational appeals should be also utilized.

However, studies such as Rahbar & Wahid (2011) have examined the factors that impact actual purchase behavior of consumers, and the outcome of this study was that certain tools of green marketing tools are the influencers. These green marketing tools are: eco labels, eco brand, environmental advertisement and trust in eco label and eco brand. The outcomes indicated that trust in eco label and eco brand are highly related. While the results were not significant, regarding the link between knowledge about eco labels and its influence on consumer purchase behavior. Besides, one more dimension of green marketing which is environmental advertisement was examined and was established to be no significant. Finally, Akehurst et al. (2012) considered the effect of socio-demographic and psychographic variables on consumers that are ecological sensitive and aware. The research reported that psychographic variables are more considerably efficient in influencing consumer behavior.

2.6. Eco-label

Eco-labelling is vital concept when it comes to green marketing strategy (Rex & Baumann, 2007), since eco-labelling is a form of business to consumer certification, which intention is to divulge related information about the performance of product sustainability. Eco-labelling purpose is to enlighten consumers about the product's green features, hence it will stimulate consumers to purchase green products (Young et al., 2010). Environmental labels possess three types that are assigned by the International Organization for Standardization (ISO). The International Organization for Standardization (ISO) (ISO 14024:1999) has arranged the current environmental labels into three categories. Type-I labels are usually "voluntary" and "multi-criterion-based" branding that have the purpose of recognizing the features of the product that is considered to be environmentally positive (Low et al., 2014). Type-II labels are established by organizations with a standpoint, that aims to define and assert their products and services' environmental benefits in the form of declarations, logos, commercials, etc. (Hussain & Lim 2001; Low et al., 2014). Type-III labels is composed of information about the product life-cycle effects that is certified by a qualified third party, and the that information is generally quantified. Moreover, consumers experience distrust toward the information supplied and remain doubtful about the procedures of certification, manufacturing, and labelling of several products (Nittala, 2014). Liu et al. (2012) proposed that the situation where consumers distrust the supplied information, eco labelling might in fact lack any influence on consumer green purchase behavior. Nittala (2014) recommended that dependable data should be supplied through product labels in a basic and user-friendly way.

In their study, Rahbar & Wahid (2011) inspected the effects of certain green marketing instruments on consumers real purchase behavior such as tools are: eco labels, eco brand, environmental advertisement and belief in eco label. The outcome of this study resulted in findings that indicated that faith in eco label and eco brand are notably correlated. Nevertheless, the association between knowledge about eco labels and the effect of consumer purchase behavior was not substantial.

2.7. Eco-Brand

The American Marketing Association defines brand as ''a name, term, sign, symbol, or design, or the combination of them, intended to identify the goods or services of one seller or group of sellers and to differentiate them from those of a competitor''. This definition can be comprehensive for eco-brand as well. Eco-brand can be considered as a name, symbol or design of products that are environmentally harmless. Exploiting eco-brands characteristics can assist consumers in distinguishing from other non-green products (Rahbar & Wahid, 2011). According to Williams (2004), "eco-branding is a communication label that specifies the information regarding the company's commitment to green production principles that adhere to consumer ethic, to market demands, to industry regulation, and to the regulatory environment as determined locally or internationally." Eco-branding guarantees that a product will be tested and compared with an explicit existing criterion for environmental performance to observe if it reaches these specified criteria. The manufacturers and service providers that supplies green products or services, usually guarantee their greenness through the usage of a certain statements or symbols. Also, a product or service can be awarded the 'eco label', this label is provided by third part companies (Singh et al., 2013).

According to the over traditional command-and-control approach (Dougbjerg et al., 2014), eco-branding, is considered an environmental policy tool that is driven by the market. In the recent years, Eco branding has been introduced worldwide. It has the ability to expose the peripheral influences and effects that the production, consumption and disposal of products have on the environment (Bougherara & Combris, 2009). Still, consumers mostly possess personal favorite brands and they usually prefer to buy them more than green brands (Young et al., 2010). In addition, consumer trust in a green brand is a vital purchase criterion, since it positively affects consumers purchase of green

products (Rahbar & Wahid, 2011). Only limited amount of studies exist that have explored the impact of brand image on the consumers intentions of green products, therefore, extra research is required and desirable in this field in order to achieve definite results.

2.8. Price Concern

Price is the amount of money that is anticipated, obligated, or given in imbursement for a product or service (Swani & Yoo, 2010). Some consumers consider the prices of ecofriendly products to be much higher than regular products (Chang, 2011). Hence, some consumers might regard the high prices of eco-friendly product as a deal breaker, which will lead to consumers to decide not to purchase environmentally sustainable products (Vermeir & Verbeke, 2006; Young et al., 2010).

Even though, customers that are mindful about the price, are typically amicable to purchasing products that are good for the environment if they are not priced at extremely high amount. However, companies usually charge a premium price for their products (Ha & Janda, 2012). Compared with green claims, consumers normally favor low priced green products and assign higher significance to price (Eze et al., 2013). Hence, if consumers' expectations regarding the price of the product is more than the actual price, that will result in consumers' green attitude to be weakened, which will lead to an increase the discrepancy between consumers attitudes and behaviors regarding green purchasing (Ha & Janda, 2012). Moreover, many studies have examined and reported that a higher price have the tendency to offset the ethical considerations of green products purchase, which in turn will enlarge the gap between attitude and behavior (e.g., Connell, 2010; Gleim et al., 2013; Padel & Foster, 2005; Vermeir & Verbeke, 2006). The absence of consumers financial resources will intensify the effect of price, which will induce a decrease in green products purchase (Connell, 2010). Nevertheless, green purchase intention was found to be affected by low price sensitivity (Aertsens et al., 2011; Eze & Ndubisi, 2013; Lea & Worsley, 2008). Contrary wise, elevated sensitivity towards the price, leads to an undesirable impact on consumers green Purchase Intention (Ma et al., 2013). Hence, the relationship between high price and green purchase intention behavior is negatively correlated.

3. Research Methodology

This section includes the research hypotheses, research variables and measures, the conceptual and operational definitions, the proposed theoretical framework, the research and finally the data collection.

3.1. Research Hypotheses:

Grounded on the previous literature review related to Energy-Efficient Bulbs intention factors, we can illustrate the following hypotheses:

- H1: A significant positive relationship exists between 'Environmental Concern' and Energy-Efficient bulbs purchasing intention.
- H2: A significant positive relationship exists between 'Environmental Knowledge' and Energy-Efficient bulbs purchasing intention.
- H3: A significant positive relationship exists between 'Environmental attitude' and Energy-Efficient bulbs purchasing intention.
- H4: A significant positive relationship exists between 'Environmental Advertisements' and Energy-Efficient bulbs purchasing intention.
- H5: A significant positive relationship exists between 'Eco-label' and Energy-Efficient bulbs purchasing intention.
- H6: A significant positive relationship exists between 'Eco-Brand' and Energy-Efficient bulbs purchasing intention.
- H7: A significant negative relationship exists between 'Price Concern' and Energy-Efficient bulbs purchasing intention.

3.2. Variables Definitions

The below table lists the research variables and their measures

Variables	Conceptual Definitions	Operational Definitions
Environmental concern (EC)	Environmental concern indicates "the degree to which people are aware of the environmental problems and support efforts to solve them and/or indicate the willingness to contribute personally to their solution" (Dunlap & Jones, 2002)	5 statements of Likert scale Lee, (2008)
Green Purchase Intention (PI)	GPI is the comparative sturdiness of the purpose of consumers to act in a certain behavior (Aman, et al., 2012).	5 statements of Likert scale (Lee, 2008)
Price Concern (PC)	Price is an expected, mandatory monetary value that is exchanged for the purpose of receiving a certain product (Swani & Yoo, 2010).	4 statements of Likert scale (Ishaswini et al., 2011).
Environmental Knowledge (EK)	Environmental knowledge is the knowledge of information and facts regarding the environment and its main ecosystems (Fryxell & Lo, 2003).	5 statements of Likert scale (Kang, 2013)

Variables	Conceptual Definitions	Operational Definitions
Environmental attitude (EA)	Environmental attitude is defined as the total of attitudes whether they are negative or positive related to behaviors that ere beneficial toward the environment. Examples of environmentally beneficial behaviors are values, resentments, uneasiness, and readiness to solve problems concerning the environment (Uzun, 2007)	4 statements of Likert scale (Lee, 2008)
Environmental advertisement (ED)	An environmental advertisement can be defined as any primary compensated message that possess any sort of environmental claim. An example of an environmental claim is a product or service that is environmentally friendly, green idea or lifestyle, and/or corporate image shaped as environmentally responsible (Van-Dyke, 2012)	4 statements of Likert scale (Rahbar, 2011)
Eco-label (EL)	An eco-label is defined as a "voluntary trademark that is awarded to products deemed to be less harmful to the environment than other products within the same category" (UNDP(CSD), 1996)	3 statements of Likert scale (Rahbar, 2011)
Eco-Brand (EB)	Eco-brand can be considered as a name, symbol or design of products that are environmentally harmless. Exploiting eco-brands characteristics can assist consumers in distinguishing from other non-green products (Rahbar & Wahid, 2011)	4 statements of Likert scale (Rahbar, 2011)

Table 1: Research Variables and Measures

3.3. Proposed Theoretical Framework

The conceptual framework is a usually a figure that demonstrates two types of variables which are the dependent and independent variables, then it ties them together in order to arrange a test on this research. The below mentioned conceptual framework is adapted and altered from the afore literature review; therefore, in total, this research contains seven independent variables which are: Environmental Concern, Environmental Knowledge, Environmental Attitude, Environmental Advertisement, Eco-label, Eco-Brand and Price Concern. These seven variables are arranged and constructed for the purpose of identifying their link and relationship with the dependent variable which is Energy-Saving Bulbs Purchase Intention.

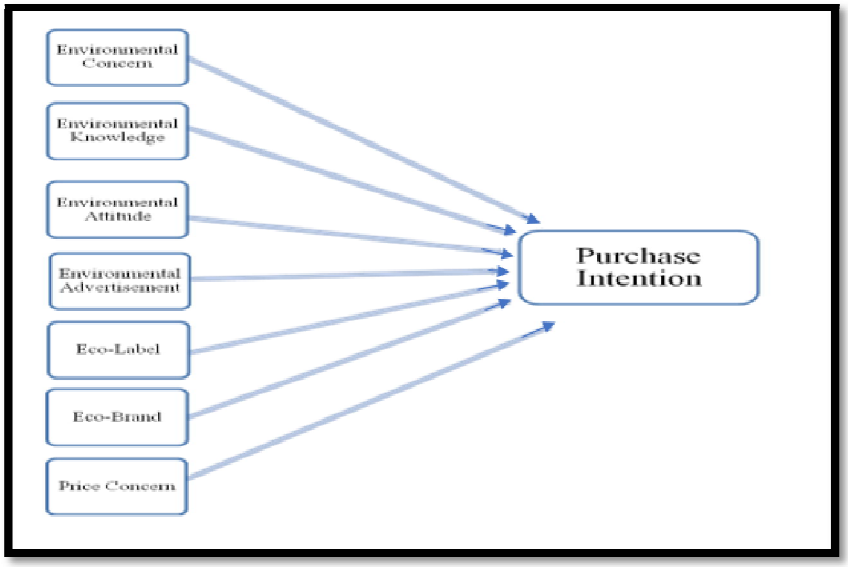

Figure 1: Proposed Framework
Source: The Researchers Themselfs

3.4. Research Sample

For this study, it will be appropriate to obtain the largest the sample to get more realistic and representative data, also to reduce the sampling error (Shiu et al., 2009, p. 329; Bryman & Bell, 2011, p. 187). We used non-probabilistic sample (Judgmental sample) consists of 400 adult participants from the greater Beirut area Lebanon. Data collected between March & April 2016. Throughout the survey, 400 questionnaires were distributed; however, only 300 were received and completed.

3.5. Data collection

The questionnaire consists of 37 questions that are divided into nine sections, the first section is the introduction, which contains the research survey's aim and topic, the second section consists of information requirements for

identification purposes (Shiu et al., 2009, p. 337). Hence this part includes questions regarding the respondents Age, gender, Marital Status, Education level and income. Followed by eight Sections contains questions regarding seven independent variables and one dependant variable.

3.6. Data Analysis & Hypothesis Testing:

This section mostly emphases on the analysis of the data. The attained findings are statistically calculated, and the outcome is developed into table form. Then, the data is analyzed by utilizing several statistical measures such as Cronbach's alpha, KMO test, Pearson correlation analysis, Simple regression and multiple regressions.

3.6.1. Reliability Test

According to Bryman & Bell (2011, p. 158) reliability is "the consistency of a measure of a concept", it is connected to the constancy and stableness of the data. In our data analysis, we are going to apply Cronbach's alpha for the purpose of examining and checking the reliability rate. The purpose of the reliability test is to be considered as a quality criterion that our results need to meet this criterion, in order to minimize errors and give stable results of the data collection. This test is established by calculating Cronbach's Alpha coefficient for each variable separately as represented in table 2:

Variable	Cronbach's Alpha	Number of Items
Environmental concern	.855	5
Purchase Intention	.816	5
Environmental Knowledge	.652	5
Environmental attitude	.588	4
Environmental advertisement	.810	3
Eco-label	.709	3
Eco-Brand	.788	3
Price Concern	.702	4

Table 2: Shows Cronbach Alpha Coefficients For The Variables

The dependable and reliable Cronbach's alpha coefficient should be greater than 0.5 to be satisfactory (Bryman, 2008). A low Cronbach's alpha coefficient indicates that there is no link between the scale items; thus, it is unwarrantable to summarize the items. The findings show that Cronbach's alpha is above 0.700 for six of the research variables, and the reliability among the items are consistent enough. However, there are two variables less than 0.7 (Knowledge 0.652 and Environmental Attitude 0.588), thus this might show a frail level of internal consistency among the items. In order to get higher Cronbach's Alpha items 14 and 15 for knowledge influence removed from the questionnaire, similarly item 19 of environmental attitude removed. Cronbach Alpha test reported once again, the results show that all its values above 0.7 as shown in table 3.

Variable	Cronbach's Alpha	Number of Items
Environmental concern	.855	5
Purchase Intention	.816	5
Knowledge	.729	3
Environmental attitude	.779	3
Environmental advertisement	.810	3
Eco-label	.709	3
Eco-Brand	.788	3
Price Concern	.702	4

Table 3: Shows Cronbach Alpha Coefficients after Removing the Irrelevant Items

As observed in the table 3, the Cronbach Alpha coefficient of environmental concern is .855, this indicates that 85.5% of the variability in a composite score (by merging those five items) would be deemed as a reliable score. Likewise, further items can also be incorporated without impacting the scale.

5.6.2. Validity Test:

Validity can be defined as the fact that "a measure of any concept really measures that concept" (Bryman & Bell, 2011, p. 159). In this study we are going to utilize two measures of validity which are the: The Kraiser-Meyer-Olkin (KMO) and the Bartlett's test of Sphericity. KMO measure how much is the sample thought to be adequate, it is usually arranged from numbers 0 to 1. Therefore, all values that are higher than 0.5 are considered to be satisfactory, thus they are accepted. Moreover, the purpose of the second measure which is the Bartlett's, is to examine and tests the null hypothesis that the original correlation matrix is an identity matrix. In order for factor analysis to be utilized, the validity test outcomes ought to have a significant value which is generally less than 0.05. However, the Sig. value in our analysis reasons that allows us to reject the null hypothesis since all the p-values were lower than 0.05. We conclude that in our data set, there is existence for correlations, hence it is suitable to apply factor analysis. The KMO of variables represented in the table 4:

Variables	KMO	Bartlett's Test of Sphericity	Significance(P-Value)
Environmental concern	0.851	624.498	.000
Purchase Intention	0.765	600.292	.000
Environmental Knowledge	0.657	195.1366	.000
Environmental attitude	0.703	255.371	.000
Environmental advertisement	0.71	298.935	.000
Eco-label	0.63	211.919	.000
Eco-Brand	0.675	282.383	.000
Price Concern	0.639	532.2938	.000

Table 4: shows KMO & Bartlett's

Also, all KMOs values were higher than 0.05. Therefore, we can deduce that the analysis offers proof of convergent validity. Convergent validity is a technique that convey internal consistency and exceedingly scales that are reliable and encompass convergent validity, which indicated that the scales are extremely reliable.

6. Exploratory Factor Analysis

Factor analysis inspects the inter-correlations that occur between large numbers of items (questionnaire responses) which leads to the items being decreased into smaller groups, known as factors. These factors are usually relatively alike and possesses the most correlated variables in terms of content or meaning. In this logic it is rather 'exploratory' in nature since as it permits the researcher to decide the fundamental dimensions or factors that occur in a group of data. To test validity EFA was applied with oblique approach using Pro-max method.

6.1. Conditions for Applying EFA

6.1.1. Sample Adequacy:

To make sure that the sample size is large enough, the Kraiser-Meyer-Olkin measure of sample adequacy was calculated (should be greater than 0.5). As shown in table 5 we obtained a KMO value of 0.870, hence this shows that the sample size is satisfactory.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.870
Bartlett's Test of Sphericity	Approx. Chi-Square	4415.658
	df	406
	Sig.	0

Table 5: Shows KMO Value

6.1.2. Variables Must Be Inter-Correlated

To test for inter-correlations, Bartlett's test of Sphericity was employed which examine and test the null hypotheses that the original correlation matrix is an identity matrix. This test should be significant (p-value < 0.05) we obtained a p-value = 0.000, which indicates that the test is significant, thus the variables are inter-correlated. All the requirements for EFA were satisfied. However, it is essential to remove the variables that have low communalities and repeated the process, then we obtained 8 components with Eigen values above 1 that explain 66.532% of the total variance. The first constituent explained 30.455% of the variance; the first 5 components explained most of the variance while the last 3 explained the least.

Component	Initial Eigen Values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	8.832	30.455	30.455	8.832	30.455	30.455	6.359
2	2.694	9.289	39.745	2.694	9.289	39.745	6.456
3	2.081	7.176	46.921	2.081	7.176	46.921	4.825
4	1.725	5.948	52.869	1.725	5.948	52.869	4.626
5	1.527	5.267	58.136	1.527	5.267	58.136	4.987
6	1.337	4.610	62.745	1.337	4.610	62.745	3.508
7	1.098	3.786	66.532	1.098	3.786	66.532	3.175
8	.935	3.225	69.756	.935	3.225	69.756	1.990

Table 6: Shows the Total Variance Explained

Extraction Method: Principal Component Analysis. When components interrelated, total variance cannot be achieved by adding the sums of squared loadings.

6.1.3. Communalities

Communalities indicate the value of communality, which must be higher than 0.5 in order for additional analysis to be considered, otherwise these variables must be removed from the following additional steps in the factor analysis process. In addition, communalities show how much the variance in the variables have been because of the mined factors. For instance, over 88.7% of the variance in Price_3 accounted, while 83.6% of the variance is accounted for Label_2 as shown in Table 7.

Item	Initial	Extraction
Concern_1	1.000	.569
Concern_2	1.000	.753
Concern_3	1.000	.636
Concern_4	1.000	.662
Concern_5	1.000	.608
Intention_1	1.000	.697
Intention_2	1.000	.622
Intention_3	1.000	.571
Intention_4	1.000	.689
Intention_5	1.000	.681
Knowledge_1	1.000	.712
Knowledge_2	1.000	.560
Knowledge_3	1.000	.650
Attitude_1	1.000	.747
Attitude_2	1.000	.741
Attitude_3	1.000	.655
Advertisement_1	1.000	.729
Advertisement_2	1.000	.666
Advertisement_3	1.000	.679
Label_1	1.000	.747
Label_2	1.000	.836
Label_3	1.000	.683
Brand_1	1.000	.700
Brand_2	1.000	.773
Brand_3	1.000	.713
Price_1	1.000	.672
Price_2	1.000	.806
Price_3	1.000	.887
Price_4	1.000	.788

Table 7: Communalities Using Extraction Method: Principal Component Analysis

Table 8 below displays the pattern matrix with a fresh factor structure in which the validity of the convergent and discriminant are obvious due to the existence of high loadings among the factors; moreover, no cross loadings among the factors exists.

Item	Component							
	1	2	3	4	5	6	7	8
Concern_2	.981							
Concern_4	.845							
Concern_3	.832							
Concern_1	.780							
Concern_5	.765							
Intention_2	.705							
Advertisement_1		.995						
Advertisement_2		.887						
Advertisement_3		.759						
Intention_3		.483						
Intention_1		.459						
Intention_4		.346						
Price_3			.973					
Price_2			.951					
Price_1			.883					
Knowledge_3				.928				
Knowledge_1				.852				
Knowledge_2				.822				
Attitude_1					.990			
Attitude_2					.853			
Attitude_3					.743			
Label_2						.884		
Label_1						.832		
Label_3						.604		
Brand_2							.818	
Brand_3							.758	
Brand_1							.627	
Price_4								.956
Intention_5								-.390

Table 8: Shows Pattern Matrix[a]
Extraction Method: Principal Component Analysis
Rotation Method: Promax with Kaiser Normalization
Rotation Converged in 7 Iterations

7. Descriptive Statistics

In order to compute the distribution frequencies, percentages and averages we applied test for descriptive statistics, it is in fact considered as a form of summarizing and one of the most commonly used tests. Moreover, this test is used for specific items related to demographic factors, some of these factors that are in our questionnaire are gender, age, income, education, and marital status. The result shown in the table 9 below:

Demographic		Frequency	Percentage	Cumulative Percentage
Gender	Male	147	49.0	49.0
	Female	153	51.0	100.0
Age	16-30	161	53.7	53.7
	31-40	71	23.7	77.3
	41-50	37	12.3	89.7
	51-60	26	8.7	98.3
	>60	5	1.7	100.0
Income	<500	63	21.0	21.0
	501 to 1,000	113	37.7	58.7
	1,001 to 1,500	68	22.7	81.3
	2,000 to 1,501	25	8.3	89.7
	3,000 to 2,001	23	7.7	97.3
	>3,000	8	2.7	100.0
Education Level	Can Read	9	3.0	3.0
	Primary	8	2.7	5.7
	Medium	32	10.7	16.3
	Secondary	57	19.0	35.3
	University	146	48.7	84.0
	Master	42	14.0	98.0
	PHD	6	2.0	100.0
Marital status	Single	146	48.7	48.7
	Married	141	47.0	95.7
	Separated	9	3.0	98.7
	Divorced	4	1.3	100.0

Table 9: Shows the Sample Demographic Factors

After distributing the questionnaire in the area of Beirut, we ended up with three-hundred respondents. The sample characteristics that we ended with, consists of 49% males, 51% females. 53.7% of them are between 16-30 years, most of them hold university degree 48.7%, 37.7% their income ranges between 501-1000$ and 48.7% of them are single.

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Environmental Attitude	300	1.00	5.00	4.0011	.73885
Environmental Concern	300	1.00	5.00	3.8887	.70735
Intention	300	1.00	5.00	3.5847	.78218
Environmental Advertisement	300	1.00	5.00	3.4844	.85308
Price Concern	300	1.00	5.00	3.4378	.87929
Environmental Knowledge	300	1.00	5.00	3.3100	.88791
Eco-Brand	300	1.00	5.00	3.0344	.82550
Eco-Label	300	1.00	5.00	2.7911	.89013
Valid N (list-wise)	300				

Table 10: shows the Variables Descriptive Statistics.

According to Table 10 the Environmental Attitude has the highest mean among the other variables with 4.00, Followed by Environmental Concern Environmental Advertisement, Price Concern, Knowledge, Eco-Brand and Eco-Label respectively. The Eco-label has the lowest mean in the 7 variables which is 2.7911. This demonstrated that most respondents have stated that they have positive environmental attitude which will be translated into positive purchase decision of Energy-Efficient Bulbs. In contrast, Eco-label has the least important level.

8. Pearson Correlation Analysis

Variable		Concern	Intention	Knowledge	Attitude	Advertisement	Label	Brand	Price
Concern	Pearson Correlation								
	Sig. (2-tailed)								
Intention	Pearson Correlation	.596**							
	Sig. (2-tailed)	.000							
Knowledge	Pearson Correlation	.119*	.443**						
	Sig. (2-tailed)	.040	.000						
Attitude	Pearson Correlation	.451**	.467**	.150**					
	Sig. (2-tailed)	.000	.000	.009					
Advertisement	Pearson Correlation	.396**	.572**	.246**	.343**				
	Sig. (2-tailed)	.000	.000	.000	.000				
Label	Pearson Correlation	.248**	.408**	.411**	.282**	.458**			
	Sig. (2-tailed)	.000	.000	.000	.000	.000			
Brand	Pearson Correlation	.384**	.392**	.135*	.422**	.484**	.475**		
	Sig. (2-tailed)	.000	.000	.019	.000	.000	.000		
Price	Pearson Correlation	.219**	.387**	.224**	.257**	.347**	.319**	.412**	
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	

Table 11: Shows the Correlations Matrix
***. Correlation Is Significant at the 0.01 Level (2-Tailed)*
**. Correlation Is Significant at the 0.05 Level (2-Tailed)*

Table 11 displays the Pearson Correlation Matrix between the independent variables and the dependent variable. The Correlation ranges from 0.596 to 0.387, with a significant value (p-value equal to 0.000 for all of them). Furthermore, the environmental concern and advertisement have the highest significant correlation coefficient with the dependent variable 0.596, 0.572, also shows that p-value equal to 0.000 while lower than alpha 0.05. Moreover, the lowest correlation coefficient value is 0.387 between the price and the dependent variable, which indicates that the Price Concern influence weakly the purchase intention of Energy-Efficient Bulbs.

Also, table 11 shows that the Correlation Coefficient among environmental knowledge, Attitude, Eco-Label, Eco-Brand, Price Concern and Energy-Efficient Bulbs Purchase Intention are 0.443, 0.467, 0.408, and 0.392 with a significant value (p-value equal to 0.000). However, the results indicate that they are positively influencing the dependent variable but with a lower degree than environmental concern and advertisement.

9. Simple Regression

In our study, we are going to apply the simple linear regression which contains the universal model: y = ax + b, with Y as dependent variable an X as independent variable, with the purpose of examining and illustrating the link between two specific variables For inspecting the outliers we considered and calculated the standardized residuals for every model, then all the values that were larger than ±3 were not included thus they were excluded.

Model	R	R Square	Adjusted R Square	Std. Error of The Estimate
Environmental Concern	0.596	0.355	0.353	0.62923
Environmental Knowledge	0.443	0.196	0.193	0.7026
Environmental Attitude	0.467	0.218	0.215	0.69286
Environmental Advertisement	0.572	0.327	0.325	0.64273
Eco-Label	0.408	0.167	0.164	0.71525
Eco-Brand	0.392	0.153	0.151	0.72088
Price Concern	0.387	0.15	0.147	0.72228

Table 12: shows the Model Summary
Dependent Variable: Intention

9.1. Environmental Concern (EC)

According to Table 12, the correlation coefficient between the Environmental Concern and the purchasing intention is 59.6%, also R Square is 35.5%, which means that 35.5% of the changes in the purchase intention can clarified

by the Environmental Concern. Furthermore, this result indicates that we still have 64.5% of the variation in the purchasing intention must be explained by some other factors. F-test (F=164.029) shows that this model is statistically significant (p value < 0.000) as indicated in Table 4.12

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64.943	1	64.943	164.029	.000[a]
	Residual	117.986	298	.396		
	Total	182.929	299			

Table 13: shows Environmental Concern (EC) ANOVA b
a. Predictors: (Constant), Concern
b. Dependent Variable: Intention (PI)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Constant	1.023	.203		5.029	.000
	Concern	.659	.051	.596	12.807	.000
a. Dependent Variable: Intention						

Table 14: Shows Environmental Concern Coefficients'
Model (1): PI = 1.023 + 0.659 EC + 0.051
The Regression Coefficient Is Statistically Significant T-Value Is 5.029 (P-Value < 0.000)

Consequentially, the following sections represent the simple regression outcomes and models for the remaining independent variables.

9.2. Environmental Knowledge (EK)

The correlation coefficient between the environmental knowledge and the purchasing intention is 44.3%, also R Square is 19.6%, which shows that 19.6% of the changes in the purchase intention can be justified by environmental knowledge. Furthermore, this result indicates that we still have 80.4% of the variation in the purchasing intention must be interpreted by some other factors. F-test (F=72.567) indicates that this model is statistically significant (p value < 0.000).
Model (2): PI = 2.294 + 0.390 EK + 0.046

The regression coefficient is statistically significant t-value is 14.631 (p-value < 0.000).

9.3. Environmental Attitude (EA)

The coefficient about the correlation between the environmental attitude and the purchasing intention is 46.7%, also R Square is 21.8%, which indicates that 21.8% of the changes in the purchase intention can clarified by the environmental attitude. Furthermore, this result indicates that we still have 78.2% of the variation in the purchasing intention must be justified by some other factors. F-test (F=83.034) indicates that this model is statistically significant (p value < 0.000)
Model (3): PI = 1.607 + 0.494 EA + 0.033
The regression coefficient is statistically significant t-value is 16.420 (p-value < 0.000).

9.4. Environmental Advertisement (ED):

The correlation coefficient between the environmental advertisement and the purchasing intention is 57.2%, also R Square is 32.7%, which means that 32.7% of the changes in the purchase intention can clarified by the environmental advertisement. Furthermore, this result indicates that we still have 67.3% of the variation in the purchasing intention must be justified by some other factors. F-test (F=144.821) indicates that this model is statistically significant (p value < 0.000).
Model (4): PI =1.758 + 0.524 ED + 0.044
The regression coefficient is statistically significant t-value is 11.246 (p-value < 0.000).

9.5. Eco-label (EL)

The correlation coefficient between the Eco-label and the purchasing intention is 40.8%, also R Square is 16.7%, which means that 16.7% of the changes in the purchase intention can be described by the Eco-label. Furthermore, this result indicates that we still have 83.3% of the discrepancy in the purchasing intention must be clarified by some other factors. F-test (F=59.574) indicates that this model is statistically significant (p value < 0.000).
Model (5): PI = 2.584 + 0.359 EL + 0.046

The regression coefficient is statistically significant t-value is 18.981 (p-value < 0.000).

9.6. Eco-Brand (EB)

The correlation coefficient between the Eco-Brand and the purchasing intention is 39.2%, also R Square is 15.3%, which means that 15.3% of the changes in the purchase intention can be described by the Eco-Brand. Furthermore, this result indicates that we still have 84.7% of the discrepancy in the purchasing intention must be clarified by some other factors. F-test (F=54.013) indicates that this model is statistically significant (p value < 0.000).
Model (6): PI = 2.458 + 0.371 EB + 0.051
The regression coefficient is statistically significant t-value is 15.482 (p-value < 0.000).

9.7. Price Concern (PC)

The correlation coefficient between the price concern and the purchasing intention is 38.7%, also R Square is 15%, which indicates that 15% of the changes in the purchase intention can explained by the price concern. Furthermore, this result indicates that we still have 85% of the variation in the purchasing intention must be explained by some other factors. F-test (F=52.644) indicates that this model is statistically significant (p value < 0.000).
Model (7): PI = 2.40 + 0.345 PC + 0.048
The regression coefficient is statistically significant t-value is 14.237 (p-value < 0.000).

10. Multiple Regressions

Multiple regression analysis was applied in order to test and examine the hypotheses and the relationships between 7 independent variables, consisting of Environmental Concern, Environmental Knowledge, Environmental Attitude, Environmental Advertisement, Eco-label, Eco-Brand and Price Concern all called predictors, and the dependent variable "Energy-Efficient Bulbs Purchase Intention".
With the generalized regression equation: $Y = a + b_1*X_1 + b_2*X_2 + ... + b_p*X_p$

10.1. Checking Multiple Regressions Assumptions:

10.1.1. Multicollinearity of Independent Variables

Multicollinearity must not occur; the fact is that the correlation matrix shows that the in the regression model the predictors process r-values that are less than 0.6.
Collinearity was examined by employing indicators such as tolerance and VIF (variance inflation factor) indicators, the acceptable VIF values must be less than 3 and tolerance levels should be minimum 0.10 (Tabachnick & Fidell, 2001). However, the VIF values were very low and the tolerance value were quite high. We can deduce that among the independent variables, multicollinearity is not violated.

Model		Collinearity Statistics	
		Tolerance	VIF
1	Concern	1.000	1.000
2	Concern	.986	1.014
	Knowledge	.986	1.014
3	Concern	.843	1.187
	Knowledge	.939	1.065
	Advertisement	.803	1.245
4	Concern	.731	1.368
	Knowledge	.935	1.070
	Advertisement	.776	1.288
	Attitude	.761	1.314
5	Concern	.730	1.371
	Knowledge	.915	1.093
	Advertisement	.733	1.364
	Attitude	.750	1.334
	Price	.839	1.192

Table 15: Shows Collinearity Statistics
a. Dependent Variable: Intention

10.1.2. Normality, Linearity, Homoscedasticity

The scatterplot clearly shows a consistent pattern, which is a sign of homoscedasticity and linearity. The normal P-P plot and histogram of regression standardized residual show that the majority of the scores are focused in the center and along the 0 point, so the normality condition of residuals is satisfied.

To find outliers Mahalanobis distance was calculated for each case, we have seven independent variables, so the critical value is 24.32, even though the maximum value was 39.460, the mean was 6.077, accordingly the outliers are acceptable.

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.0526	4.9425	3.5847	.61044	300
Std. Predicted Value	-4.148	2.224	.000	1.000	300
Standard Error of Predicted Value	.040	.184	.077	.025	300
Adjusted Predicted Value	1.0586	4.9696	3.5843	.61103	300
Residual	-1.21500	1.46641	.00000	.48904	300
Std. Residual	-2.455	2.963	.000	.988	300
Stud. Residual	-2.523	3.068	.000	1.005	300
Deleted Residual	-1.34532	1.57199	.00036	.50568	300
Stud. Deleted Residual	-2.547	3.113	.000	1.008	300
Mahal. Distance	.949	39.460	6.077	4.96	300
Cook's Distance	.000	.128	.004	.011	300
Centered Leverage Value	.003	.135	.023	.019	300

Table 16: Shows Residuals Statistics
a. Dependent Variable: Purchasing Intention

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.780[a]	.609	.600	.49487

Table 17: Shows Model Summary
a. Predictors: (Constant), Price, Concern, Knowledge, Attitude, Label, Advertisement, Brand
b. Dependent Variable: Purchasing Intention

The multiple regression results in table 17demonstrates that the correlation coefficient among the seven independent variables (predictors) and the dependent variable is 78%, also R Square is 60.9%, which means that 60.9% of the changes in the purchase intention can clarified by the predictors. Furthermore, this result indicates that we still have 39.1% of the variation relating to the purchasing intention that should be clarified by some other factors. Table 2.17 shows the F-test for the model (F=64.996) which indicates that this model is statistically significant (p value < 0.000). Therefore, the researchers conclude that the independent variables have the major influence on the dependent variable.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	111.420	7	15.917	64.996	.000[a]
	Residual	71.509	292	.245		
	Total	182.929	299			

Table 18: Shows ANOVA [B]
a. Predictors: (Constant), Price, Concern, Knowledge, Attitude, Label, Advertisement, Brand
b. Dependent Variable: Intention

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.623	.208		-2.988	.003
	Concern (EC)	.414	.048	.374	8.649	.000
	Knowledge (EK)	.248	.036	.281	6.891	.000
	Attitude (EA)	.152	.046	.143	3.302	.001
	Advertisement (ED)	.254	.042	.277	6.036	.000
	Eco-Label (EL)	.011	.041	.013	.279	.780
	Eco-Brand (EB)	-.039	.046	-.041	-.850	.396
	Price Concern (PC)	.109	.037	.122	2.944	.004

Table 19: Shows Coefficients
a. Dependent Variable: Intention (PI)

According to regression analysis the higher the beta (slope) the higher the effect of the independent variable (predictor) on the dependent variable. Table 19 indicates that Environmental Concern is the first most essential factor that influence Energy-Efficient Bulbs purchase Intention since its beta is 0.414. While, Environmental Advertisements is the second highest factor its beta of 0.254. The third factor affecting the dependent variable is Environmental Knowledge its beta is 0.248. Yet, Environmental Attitude influence, Eco-Labels and Price Concern factors are the least, but Environmental

Attitude is slightly higher than both Eco-Labels and Price Concern, which is beta 0.152 and the lastly less important, is Eco-Labels, which have a beta of 0.011. Eco-Brand has a negative beta, which means that Eco-Brand and Energy-Efficient Bulbs purchase Intention are negatively associated / correlated. The result of table 19 coefficients indicated that the important factors that influences consumers Energy-Efficient Bulbs purchase Intention is accordingly the Environmental Concern, Environmental Advertisements, Environmental Knowledge, Environmental Attitude, Price Concern, and Eco-Labels.
From the coefficients table we obtain the following model:
PI = -.623 + 0.414 EC + 0.254 ED + 0.248 EK + 0.152 EA + 0.109 PC + 0.011 EL -.039 EB + 0.504

All regression coefficients are positive and statistically significant except for Eco-Brand which has negative insignificant coefficient -0.39 and its p-value is 0.396, also Eco-Labels has insignificant coefficient p-value is 0.780. Environmental Concern is the strongest contributor in explaining Energy-Efficient Bulbs purchase Intention with the largest coefficient 0.414.

11. Hypotheses Testing

H1: A significant positive relationship exists between 'Environmental Concern' and Energy-Efficient bulbs purchasing intention.

Based on table 19, Environmental Concern has the highest positive Beta (slope) compared with the remaining independent variables, also it is significant (p-value = 0.000) at the level of confidence 5%. Moreover, the last result can be approved by the simple regression model (1), which demonstrates that Environmental Concern has the highest, significant, positive Beta based on table 13& 14. Therefore, H01 is rejected and H1 is accepted, which means that Environmental Concern has significant positive relationship towards Energy-Efficient Bulbs Purchase Intention.

- H2: A significant positive relationship exists between 'Environmental Knowledge' and Energy-Efficient bulbs purchasing intention.

Based on table 19, Environmental Knowledge has a significant positive Beta which is 0.248 also p-value is 0.000 at the level of confidence 5%. Moreover, the last result can be approved by the simple regression model (2), which demonstrates that Environmental Knowledge has a significant, positive Beta and the whole model is significant under the level of confidence 5%. Therefore, H02 is rejected and H2 is accepted, which means that Environmental Knowledge has significant positive relationship towards Energy-Efficient Bulbs Purchase Intention.

- H3: A significant positive relationship exists between 'Environmental attitude' and Energy-Efficient bulbs purchasing intention.

Based on table 19, Environmental attitude has a significant positive Beta which is 0.152 also p-value is 0.001 at the level of confidence 5%. Moreover, the last result can be approved by the simple regression model (3), which specifies that Environmental attitude has a significant, positive Beta and the whole model is significant under the level of confidence 5%. Therefore, H03 is rejected and H3 is accepted, which means that Environmental attitude has significant positive relationship towards Energy-Efficient Bulbs Purchase Intention.

- H4: A significant positive relationship exists between 'Environmental Advertisements' and Energy-Efficient bulbs purchasing intention.

Based on table 19, Environmental Advertisements has a significant positive Beta which is 0.254 also p-value is 0.000 at the level of confidence 5%. Moreover, the last result can be approved by the simple regression model (4), which indicates that Environmental Advertisements has a significant, positive Beta and the whole model is significant under the level of confidence 5%. Therefore, H04 is rejected and H4 is accepted, which means that Environmental Advertisements has significant positive relationship towards Energy-Efficient Bulbs Purchase Intention.

- H5: A significant positive relationship exists between 'Eco-label' and Energy-Efficient bulbs purchasing intention.

Based on table 19, Eco-label has a low insignificant positive Beta which is 0.011 also p-value is 0.780 which is higher than 5% level of confidence. Moreover, the simple regression model (5) shows that Eco-label has a low Beta and a low coefficient of determination which is 16.7%. Therefore, H05 must be accepted and H5 is rejected, which means that Eco-label dose not contribute to explain Energy-Efficient bulbs purchasing intention.

- H6: A significant positive relationship exists between 'Eco-Brand' and Energy-Efficient bulbs purchasing intention.

Based on table 19, Eco-Brand has a low negative insignificant Beta which is -0.039 also p-value is 0.396 which is greater than 5% level of confidence. Moreover, the simple regression model (6) shows that Eco-Brand has too low Beta and too low coefficient of determination which is 15.3%. Therefore, H06 must be accepted and H6 is rejected, which means that Eco-Brand dose not contribute to explain Energy-Efficient bulbs purchasing intention.

- H7: A significant negative relationship exists between 'Price Concern' and Energy-Efficient bulbs purchasing intention.

Based on table 19, Price Concern has a low significant positive Beta which is 0.109 also p-value is 0.004 which is lower than 5% level of confidence. Moreover, the simple regression model (7) shows that Price Concern has a low Beta and a low coefficient of determination which is 15%. Therefore, H07 must be reject and H7 is accepted, which means that Price Concern contributes weakly to explain Energy-Efficient bulbs purchasing intention.

12. Conclusion

All regression coefficients are positive and statistically significant except for Eco-Label feature's coefficient (p-value=0.780) and Eco-Brand (p-value=0.396) which couldn't be explained by this model. Environmental concern is the strongest contributor in explaining Energy-Efficient Bulbs Purchase Intention with the largest coefficient 0.414; the

second contributor is Environmental Advertisements with a coefficient of 0.254. However, Environmental Attitude and Price concern were small contributors in the explanation of the dependent variable.

12.1 Discussion and Recommendations

In this part, highlighted finding will be discussed and argued in order to identify and justify either the acceptance or the rejection of our proposed hypotheses. In addition, this section should be connected and associated with the previous literature for the purpose of determining by what means does our researches add and contribute to the current and existing knowledge and literature on Energy-Saving Bulbs purchase intention. Future research recommendation will also be deliberated in this part.

12.1.1. Environmental Concern

Environmental concern annotates how much is a consumer involved in issues related to the environment, it explores consumer's affective and emotional response when it comes to the issue of protecting the environment. One of the most accurate factors that influences Energy-Efficient Bulbs purchase intention is environmental concern. Knowing that, previous studies findings were split on the causes that serve as major stimulus regarding purchases of green products. There are researches that have conveyed that product characteristics like the wellbeing and the quality initiate the process of green products purchase (Aertsens et al., 2011; Chen et al., 2012); however, other studies have acknowledged humane values as the prime influencing factors (Padel and Foster, 2005; Tsarenko et al., 2013).In case of Energy-Saving Bulbs, the result of this study agrees with previous studies (Follows & Jobber, 2000; Nath et al., 2013; Jain & Kaur, 2004) that human values and environmental concern is a significant motive to buy Energy-Saving bulbs. However, we agreed with previous studies that stated that consumers usually comprise between environmental concern and green product features (Joshi, & Rahman 2015), since the mean values of environmental attitude and environmental concern were about 4 and 3.9 respectively while the mean of purchase intention was 3.5 which prove that consumers that exhibit high levels of environmental and social concern, but somehow not succeed in translating this positive attitude into actual buying behavior.

This outcome is identical with prior reserah that concluded that customers that care more about the environmental and social results, exhibits the tendency to search for green features, while consumers that actually care more about individual consequences rather than environmental and social, are prone to searching for useful and practical attributes in a certain product. Such consumers don't usually indicate green Purchase Intention although they might have the inclination in exhibiting high levels environmental and social concerns (Joshi, & Rahman 2015). Thus, in this situation, these consumers reflections dominate their optimistic environmental and social attitudes (Follows et al., 2000) and this answer the question of why certain customers display high levels of environmental and social concern but are unsuccessful in the process of translating this supportive attitude into actual buying behavior.

12.1.2. Environmental Knowledge

Our findings show that customers that process adequate knowledge about the environment are willing to buy Energy-Efficient Bulbs more than consumers with limited environmental knowledge and this outcome is unswerving with previous researches that are about the impact of environmental knowledge on green purchases intention. According to Joshi, & Rahman (2015) knowledge was discovered to be the furthermost examined independent variable that impact the green purchase intention. In addition, about 80% of the previous studies indicated that knowing about the problems that the environment faces can have a positive effect on the intention and actual purchase of green products of consumers (e.g., Chan et al., 2000; Eze et al., 2013). According to Joshi, & Rahman (2015) there exist limited studies that failed to report any correlation between consumer environmental knowledge and the intention to purchase green products (Chan & Lau, 2000; Ramayah & Rahbar, 2013; Wolsink, 2007). Moreover, there are further studies that also stated that information shortage can have an undesirable influence on green Purchase Intention (Connell, 2010; Padel & Foster, 2005). The case of Energy-Saving bulbs is not an exception, and our findings agrees with (Joshi, & Rahman 2015) findings and contradict with previous studies that didn't find any positive relation between green products purchase intention and environmental knowledge. For example, knowledge of wind power environmental paybacks was examined, and the outcomes were that it was not positively related to attitudes regarding wind power projects (Bang et al., 2000; Wolsink, 2007). Finally, our finding and most of the previous findings recommend and suggest that environmental knowledge is a predictor on consumer Energy-Efficient Bulbs purchase intention and behavior.

12.1.3. Environmental Attitude

Although the majority of our respondents remember to switch the lights off before exiting the room (mean of this question was 4.2 of scale with 5 is strongly agree) yet the regression found weak positive relation between environmental attitude and Energy-Efficient Bulbs purchase intention. This result confirms with our discovered data after we investigated previous studies done about this topic. Previous research has presented that individuals comprehend the significance of environmental issues; however, their environmental attitudes do not automatically convert to green purchasing (Bamberg, 2003; Nordlund & Garvill, 2002). A research done by Rokka & Uusitalo (2008) stated that even though consumers processes high levels of environmental consciousness, this doesn't indicate that they will for sure purchase green products. Since their ideal choice of products relies on the ecological perceptions and assessment of the several product attributes. Additionally, situational factors can also hinder environmentally responsible purchasing and reduces the effect of an optimistic environmental attitude. Although the regression result was weak, but we found positive relationship between environmental attitude and Energy-Efficient Bulbs purchase intention and this contradict with previous studies

were not cable in identifying a reason that explains why positive consumer attitude is not successful into being converted into a green purchase (Gupta & Ogden, 2009).

12.1.4. Environmental Advertisements:

Our findings coincide with prior studies; thus, it states that environmental advertisements play a positive role towards energy-efficient bulbs purchasing intention; moreover, consumers suggest that environmental advertisements can be more effective in knowledge enhancement and assistance in decision formulation (Akehurst et al, 2012). Therefore, green product purchasing behavior can be enhanced by environmental advertisement. Our findings contradict with previous research, which concluded that low credibility of green advertisements among consumers is a major factor the leads to failure in applying environmental advertisements in order to enhance Purchase Intention (Mahmood, 2014). According to Ansari & Joloudar (2011),

The way green products have been advertised and promoted, is the reason behind the failure of transforming consumers into green products purchasers, however, this is not the case for Energy-Saving bulbs because the advertisements made the product and the purpose clear for the consumer.

12.1.5. Eco-Label

Eco-labelling or eco-certification notifies consumers about the product's green features, and drives purchase of green product (Young et al., 2010). However, our statistics result was not significant, and we haven't discovered any significant relation between Eco-labels and Energy-Efficient Bulbs purchase intention. This may due to lake of knowledge about the Eco-labels. According to our study, only 54% agreed that they are aware of environmental labels. So, we can't confirm the other studies results which found negative relation between Eco-Label and green products purchase intention, for example, according to (Nittala, 2014) consumers distrusts the data and information presented and are normally are doubtful about how certain products are produced, labelled, and certified. Another reason may be due to un-reliable information and absence of user-friendly eco-labels. According to Rahbar & Wahid (2011), reliable information and user-friendly eco-labels have the ability to shape consumer trust and boost sustainability.

12.1.6. Eco-Brand

According to our study, only 54% agreed that they are aware of green brands; however, we cannot conclude any positive or negative relation between eco-brand and energy-saving bulbs intention because we did not find a significant statistical relation between the two variables. Knowing that, previous studies defined brand image regarding green products as "a whole range of impressions, conceptions and apprehensions towards a brand in the customers' memory which is correlated to the sustainability and eco-friendly concerns" (Chen, 2010).According to Rahbar & Wahid (2011), consumer trust in a green brand and products is a vital purchase condition, since it have a positive influence on consumer purchases of green products. Also, we can't agree with prior studies that discovered a negative relationship between green produces purchase intention and eco-brands. For example, consumers usually acquire personal preferences towards a brand which becomes a favorite brand, which in situation of purchases, these favorite brands will outweigh green brands (Young et al., 2010). In our research process we found a lack of researches that inspected the impact of brand image on consumers' green Purchase Intention, this indicates that in order to achieve conclusive results in this area, more research is required.

12.1.7. Price Concern

Price of any certain product is always an important variable, that have a significant effect on consumer decision making. Even though, Although, our sample admit the fact that Energy-Efficient Bulbs have high prices, yet they are more than ready to spend more for Energy-Efficient Bulbs because they found it good investment in the long run. We demonstrated that price concern and willingness to pay has significant positive relationship towards Energy-Efficient Bulbs Purchase Intention. Our results are rather similar to prior researches about consumers keenness in paying an extra amount of money in exchange for green products. Existing literature have presented, that when comparing the prices of green products versus conventional products, people tend to contemplate about the expensiveness of green products (Chang, 2011, p. 20); nevertheless, they are prepared to spend more for products that may impact the environment in a good way.

Moreover, our results confirm with prior previous studies that reported that when consumers process low price sensitivity negatively leads to a decrease in green Purchase Intention (Aertsens et al., 2011; Eze & Ndubisi, 2013), and high price sensitivity negatively impact green purchase behavior of consumers (Ma et al., 2013).Thus, it is clear that when the prices of green products relatively high this will affect negatively on green purchase intention and behavior. Our findings were inconsistent with previous research that indicated that price is considered as a hurdle to the purchase of green products (Connell, 2010) and that higher price dwarfed ethical considerations and broadened the discrepancy between green product purchase attitude and behavior (e.g., Connell, 2010; Gleim et al., 2013; Padel & Foster, 2005; Vermeir & Verbeke, 2006).

12.2. Conclusion and Recommendation

The focal purpose and aim of this study were to determine the "Factors Affecting Energy-Efficient Bulbs Purchase Intention". We found that Environmental concern; Environmental Advertisements and Environmental Knowledge are the main factors affecting consumer's energy-efficient bulbs purchase intention. Moreover, in the case of "Energy-Efficient Bulbs" price concern is not a barrier to consumer's purchase intention. Referring to the results obtained from this study, the research reports and recommends several issues, which are Environmental Concern have a tendency to possess a

major role in the implementation of Energy-Efficient Bulbs. Hence this outcome should encourage corporations in to improving their social responsibility, going green, providing green products, using social media to promote for green bulbs. In addition, Environmental Knowledge and advertisement plays significant roles. So, Environmental Knowledge has a vital part in consumers "Energy-Efficient Bulbs Purchase Intention"; therefore, governments, green groups and green products' providers ought to increase the awareness and responsiveness level of consumers toward environmental issues. Expanding the awareness will lead to a more Energy-Efficient Bulbs adoption by and this will increase the consumer's environmental concern. Mass media and advertisements offers an excellent prospect for novel and current businesses to participate and invest in green products, and in turn, it enhances and assist in expanding consumers knowledge about climate change and environmental change. Therefore, Environmental Advertisements plays a vital role in the purchase intention,

Inconclusion, from the outcomes of this study, we can conclude that consumers have limited knowledge about Eco-Labels, so government should develop campaigns to alert and increase consciousness of the public toward Eco-Labels. Also, it ought to monitor the integrity and ensure the reliability of messages that are passed in Eco-Labels. This will positively affect the green products purchase intention as well as the energy-saving bulbs.

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