

Factors Affecting Environmental Knowledge and Green Purchase Behavior of Energy Saving Light Users in Bangladesh: An Empirical Study

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Abstract

Green purchase behavior has been emerged as one of the most promising realms of consumer research in recent years and could prove to have significant value towards researchers, marketers, and consumers. Thus, the study aims to analyze the factors that affect the environmental knowledge and green purchase behavior of energy-saving light (ESL) users in Bangladesh. Research data were collected from 210 respondents using a self-administered questionnaire with a judgmental sampling technique to select the respondents. Structural equation modeling (SEM) with confirmatory factor analysis (CFA) and structural model was used to examine the empirical data and test the proposed hypotheses via AMOS 23 software. The study investigated the impacts of peer influence, green advertising, and environmental knowledge on the green purchase behavior of consumers. The results illustrate that peer influence and green advertising are found to have significant and positive effects on environmental knowledge which also influences ESL users' green purchase behavior. Moreover, consumers' environmental knowledge partially mediates the relationships among peer influence, green advertising and green purchase behavior of ESL users. Therefore, the findings can help marketers and policymakers to formulate effective strategies to change consumers' conventional consumption patterns and contribute to a sustainable environment.

Keywords: Environmental Knowledge, Green Purchase Behavior, Energy Saving Light Users, Bangladesh

Introduction

Environmental issues like climate change, damaging to the ozone layer, depletion of natural resources, loss of agricultural lands, etc. are some of the major concerns which drive to change our traditional consumption behavior towards environmental sustainability (Jaiswal & Kant, 2018). As a result, consumers' green consumption behavior and its impacts on ecology have emerged as new disciplines of marketing. (Ottman, 1998; Jones, Clarke-Hill, Comfort, & Hillier, 2008; Peattie & Belz, 2010; Lai & Cheng, 2016).

According to IEA (2018), in most of the developing countries, electricity demand is rising continuously because of economic growth. Since then, 72% of this economic growth was facilitated by fossil fuels in the year of 2017 which led to an increase in energy emissions of the earth by 1.4%. Accordingly, this high electricity consumption causes more electricity generation and sometimes to meet unmet and peak demand for electricity requires the use of fossil fuels (Khan, 2019). In a study, Khan (2018) found that intensive use of fossil fuels as an alternative to electricity is one of the main causes of carbon emission. Some of the earlier studies investigated in the context of energy management opportunities in the developed countries through adopting smart home technologies to minimize this excessive electricity consumption (Ford, Pritoni, Sanguinetti, & Karlin, 2017; Chou, Chiang, Wu, Chu, & Lin, 2017; Nyholm, Puranik, Mata, Odenberger, & Johnsson, 2016; Keshtkar, Arzanpour, & Keshtkar, 2016).

Therefore, it is important to examine the factors influence consumer green purchase behavior which is an integral element to develop environmental knowledge. Consumers' green purchasing and pro-environment behavior have been examined in several industrialized economies (Allcott & Taubinsky, 2015; Bradford, Courtemanche, Heutel, McAlvanah, & Ruhm, 2017; Ford et al., 2017). Although a few numbers of studies have been conducted in the context of developing Asian countries. Hence, consumers' purchasing behavior towards eco-friendly products is still not well investigated in developing countries and found to be an area of investigation (Khan, 2019; Chou et al., 2017; Yadav & Pathak, 2016; Kumar, Manrai, & Manrai, 2017).

In the context of ESL, some of earlier studies have been conducted towards measuring consumers green purchase behavior (Allcott & Taubinsky, 2015; Bradford et al., 2017; Nakano et al., 2018) and found that consumers' purchasing of ESL is influenced by their level of ecological knowledge they hold. Similarly, some studies on the same context found that purchasing ESL is often influenced by several key factors like friends and relatives, salespersons, celebrity, price, perceived benefits, availability, promotional tools, and credibility (Hafez, 2017; Khorasanizadeh, Parkkinen, Parthiban, & Moore, 2015; Khan & Abas, 2011).

To unfold the effects of key determinants and bridge among them to fill the research gap, this study was intended to investigate the green purchase behavior of ESL users in Bangladesh. According to the author's knowledge, no such study has been examined to determine the factors affecting the green purchase behavior of ESL users in Bangladesh. This study utilized this as a research gap and proposes a conceptual model to determine the factors influencing consumer's green purchase behavior towards ESL.

The rest of the study arranged as follows; Section 2 illustrates the review of the literature and develops hypotheses based on the conceptual framework. Section 3 presents the methodology of the study including research design, development of measurement scale, sampling technique, and data collection. Section 4 shows the analysis of data and the results of the hypotheses testing. Section 5 illustrates the discussion of the study based on the

results. Section 6 demonstrates the limitations of the study with future research directions. Finally, section 7 presents the concluding part.

Review of Literature

Prior studies found that consumers' green behavior has been widely studied in different socio-economic contexts (Kang et al., 2013; Kanchanapibul, Lacka, Wang, & Chan, 2014; Lai & Cheng, 2016; Rahman, 2019; Chan, 2001; Mostafa, 2007). Agyeman (2014) found that consumers' buying behavior towards green products is significantly affected by environmental concerns, quality, brand name, convenience, durability, and packaging. On the other hand, environmental advertisements, price, ecological packaging are found to be significant to determine consumers' green purchase intention (Ansar, 2013).

Some researchers demonstrated that environmental concerns and green advertising motivate buying behavior and attitudes of purchasers towards eco-friendly products (Diglel & Yazdanifard, 2014; Davari & Strutton, 2014). Consequently, green consumers play environmentally-friendly behavior and show a willingness to purchase eco-friendly products (Boztepe, 2012). Additionally, D'Souza, Taghian, Lamb, & Peretiatkos (2006) illustrated that green products' packaging and labeling help to form better environmental knowledge and facilitate to understand how to use them in proper ways. Furthermore, some researchers on the realm of consumer researches have illustrated that factors like environmental concern, perceived consumer effectiveness, environment knowledge, etc. are key determinants to measure green purchase behavior (Straughan & Roberts, 1999; Mostafa, 2007; Choi & Kim, 2005; Paul, Modi, & Patel, 2016; Kumar, Manrai, & Manrai, 2017).

Based on the above arguments, it is found that consumers' green purchase behavior is affected by a wide ranges of factors; environmental concerns, environment knowledge, perceived consumer effectiveness, brand name, environmental advertising, ecological packaging, peers, etc. (Mostafa, 2007; Choi & Kim, 2005; Paul et al., 2016; Kumar, Manrai, & Manrai, 2017; Ansar, 2013; Agyeman, 2014 ; Diglel & Yazdanifard, 2014; Davari & Strutton, 2014). Therefore, the study illustrates the following factors are found to have an impact on ESL users' green purchase behavior.

Peer Influence

Peer influence is defined as persons' attitudes, actions and believes which are affected by the other people who are regarded as peers (Makgosa & Mohube, 2007; Ahmad, Yousif, Shabeer, & Imran, 2014). These surrounded people like kith and kins, colleagues, salespeople, and celebrities often influence consumer purchase behavior (Maram & Kongsompong, 2007). However, peer influence can be categorized as informational, utilitarian and value-expressive (Bearden & Etzel, 1982; Childers & Rao, 1992; Lessig & Park, 1978; Makgosa & Mohube, 2007; Park & Lessing, 1977; John & Christopher, 2013). In the context of ESL, Hafez (2017) argued that Bangladeshi consumers' green purchase behavior is often influenced by friends, relatives, salespersons, and celebrities. Thus, the study formulates the following hypotheses

H1a: Peer influence has a significant and positive effect on environmental knowledge.

H1b: Peer influence has a significant and positive effect on green purchase behavior.

Green Advertising

Green advertising is one of the best ways to reach those customers who are already involved in green behaviors (Davis, 1994). Earlier studies found that green advertising and packaging

have significant impacts on the consumer's purchase behavior and help to change their perceptions and increase chances to buy green products (D'Souza et al., 2006). Similarly, other researchers believed that green packaging has a significant impact on consumer purchase intention that helps customers go for a final purchase decision (Barber, 2010; Devi, Pudaruth, & Monique, 2012). On the other hand, the consumers who don't have prior knowledge of any green product, green advertising may help to form an understanding of the ecological impacts of those products. As a result, green advertising may lead consumers to take an interest in green products (Agyeman, 2014). In the context of ESL, Nakano et al. (2018) found that there is a correlation between consumers' purchase behavior towards ESL and the information they hold. Therefore, the study found a relationship between green advertising and environmental knowledge which leads to green purchase behavior. Therefore, the study postulates the following hypotheses

H2a: Green advertising has a significant and positive effect on environmental knowledge.

H2b: Green advertising has a significant and positive effect on green purchase behavior.

Environmental Knowledge

We can define environmental knowledge as a set of concepts, philosophies, facts, and interconnected relationships that focus on the environment and ecological aspects (Fryxell & Lo, 2003; Conraud-Koellner & Arturo Rivas-Tovar, 2009). In another way, environmental knowledge can be defined as the thoughts, opinions, relationships that people know and possess regarding the environment and act in collective duties that are required to obtain sustainable development (Chan & Lau, 2000; Sawant, 2015; Rokicka, 2002). Environmental knowledge plays a vital role to create inertia among consumers to buy green products (Mostafa, 2009). Nelson, Taylor, and Strick (2009) found that there is a strong relationship between environmental knowledge and pro-environmental behavior of consumers. Previous researchers found this environmental knowledge can be classified as general or specific (Polonsky, Vocino, Grau, Garma, & Ferdous, 2012). Some studies found that several researchers mentioned environmental knowledge as specific knowledge (Brosdahl & Carpenter, 2010) on the other hand, others found environmental knowledge as general knowledge (Laroche, Bergeron, & Barbaro-Forleo, 2001; Mostafa, 2007). Some researchers stated that environmental knowledge is both specific knowledge and general knowledge (Fryxell & Lo, 2003). However, a large number of people still don't know much about ecological problems since they have very poor knowledge about ecological and environmental issues. Therefore, consumers do not know properly how to act environmentally responsible (Kempton, Boster, & Hartley, 1995). In the context of ESL, consumers' green purchase behavior is significantly affected by their level of environmental knowledge. Therefore, environmental knowledge has a positive relationship with consumers' green purchase behavior. Hence, the study proposes the following hypothesis

H3: Environmental knowledge has a significant and positive effect on green purchase behavior.

Green Purchase Behavior

Green purchase behavior can be defined as individuals' cognitive actions that influence consumers to purchase eco-friendly products (Rahman, 2019; Chan, 2001; Mostafa, 2007). Consumers' green purchase behavior is significantly influenced by their level of purchase

intention and willingness that they hold. As a result, consumers' purchase intention and willingness are used to evaluate their green purchase behavior (Joshi & Rahman, 2015). Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975) and Theory of Planned Behavior (TPB) (Ajzen & Fishbein, 1980) have been widely used to validate green purchase behavior (Zhou et al., 2013; Paul et al., 2016; Yadav & Pathak, 2016; Prakash & Pathak, 2017; Hsu et al., 2017). In the context of ESL, some of the earlier previous studies also investigated green purchase behaviors from different contexts (Hafez, 2017; Khorasanizadeh et al., 2015; Khan & Abas, 2011).

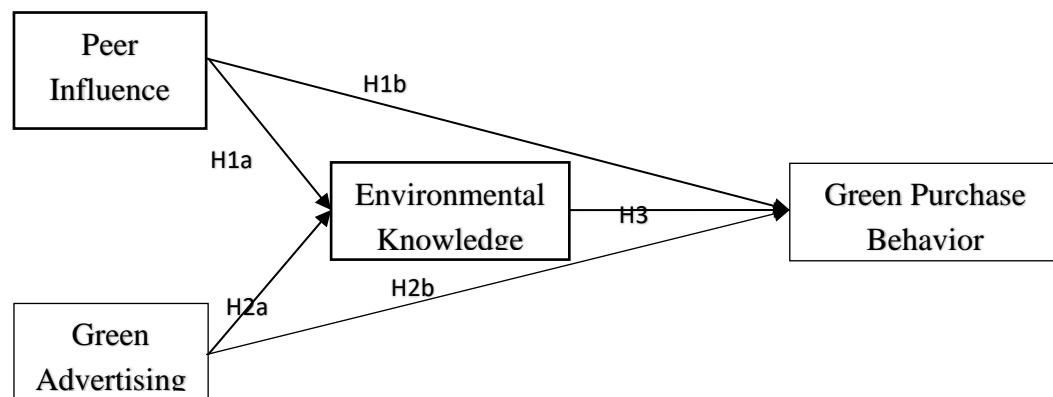


Figure 1: Research Model (Source: Authors' Contribution)

Methodology

Research Design

The research design of this paper was descriptive and single cross-sectional in nature. Dulock (1993) found that descriptive research is employed to describe the characteristics, behaviors, and functions of a market. Furthermore, it is conducted to investigate the percentage units in a specified population showing a certain behavior, regulate the perception of the sample characteristics, examine the degree to which variables are related and make specific predictions.

Item Development

A structured survey method with structured questionnaires was employed to collect data from the respondents. Each of the questionnaires includes 16 items for all constructs involved in the proposed model. To fit the ESL context, all the measurement items (Appendix A) were adapted from earlier studies with minor modifications in wording. All the constructs investigated in this study; peer influence scale with four items was taken from (Khare, 2015), green advertising scale with five items was taken from (Haytko & Matulich, 2008), environmental knowledge scale with four items was taken from (Mostafa, 2006), and four items of green purchase behavior were taken from (Lee, 2008). A Five-Point Likert Scale (Strongly Disagree=1, Disagree=2, Neutral=3, Agree=4, and Strongly Agree=5) was used to operationalize all the measurement items.

Sampling Technique and Data Collection

In this study, the Judgmental sampling technique was employed as it is less costly, convenient, and quicker than other nonprobability sampling techniques. All consumers who have had the experiences of purchasing and using ESL in Bangladesh were considered as the population for

this study through the data were collected from targeted samples in Barishal city through personal survey method. A total of 225 respondents participated in the study and all of them participated in willingly and they were given flexibility and withdrawal rights whenever they wanted. Additionally, the respondents were not provided any gifts or benefits to removing response biases. To determine the sample size of this study, a rule of thumb technique was employed as Barclay, Higgins, and Thompson (1995) illustrated that a rule of thumb specifies the minimum sample size as 10 times the largest number of predictors for any dependent variable in the model. Kline (2011) also suggested that the sample size should be a minimum of 10 cases per parameters or items for estimates. From 225 responses, 7 questionnaires were not returned and 8 were incomplete questionnaires. Thus, 210 questionnaires were finally employed for analyzing the study. However, SEM was employed to determine the inter-related dependence of relationships among constructs via AMOS 23 software. Also, CFA was conducted to test the measurement model along with the reliability and validity test of the proposed model and the structural model was used to estimate the regression weights to determine the relationships among constructs and test the proposed hypotheses.

Data Analysis and Results

The following Table 1 shows that among 210 respondents 58% of respondents were male and 42% of respondents were female. In the case of educational levels, bachelor shows the highest frequency with 57% and others show the least frequency of 2% of the total respondents. The income level of 15001-20000 TK covers 40% which is the highest percentage in this category. On the other hand, the income level of 10001-15000 TK covers 8% which is the least percentage in this category. However, all respondents selected in the study were above 18 years old. Additionally, 41% of respondents' usage experience of ESL falls between 3 years to 5 years.

Table 1

Demographic Characteristics of the Respondents

Variables	Respondents N= 210	Frequency (%)
Gender		
Male	122	58
Female	88	42
Education Level		
Undergraduate	44	21
Bachelor	119	57
Masters	42	20
Others	5	2
Monthly Income		
≤10000 TK	28	13
10001-15000 TK	16	8
15001-20000 TK	84	40
20001-25000 TK	55	26
25001 TK +	27	13
Usage Experience		
0-2 years	43	20
3-5 years	86	41
More than 5 years	81	39

Testing Reliability and Validity of the Constructs

The reliability of the constructs denotes the degree to which a set of indicators yields consistency of the measurement items. Cronbach's Alpha is used to determine the internal consistency of the factors. As per Table 2, the Cronbach's α values of all the constructs in this study were above 0.7. According to Robinson, J.P., Shaver, P.R., and Wrightman (1991), the Alpha value should be higher than 0.7 which is considered as the criterion for measuring internally consistent established factors. Cronbach's Alpha values need to be higher than 0.7 for measuring internal consistency (Hair, Anderson, Tatham, & Black, 1998). Thus, the Cronbach's α values were higher than the general benchmark value of 0.7. So the factors considered in the study were reliable.

Table 2

Standardized Factor Loadings, Cronbach's Alpha, Composite Reliability (CR) and Average Variance Extracted (AVE) Scores

Constructs	Items	Item Loadings	Cronbach's α	CR	AVE
Peer Influence	PI1	.76	.734	0.756	0.510
	PI2	.74			
	PI3	.64			
Green Advertising	GA1	.87	.884	0.898	0.639
	GA2	.79			
	GA3	.75			
	GA4	.71			
	GA5	.88			
Environmental Knowledge	EK1	.83	.752	0.863	0.613
	EK2	.76			
	EK3	.72			
	EK4	.81			
Green Purchase Behavior	GPB1	.74	.902	0.903	0.701
	GPB2	.81			
	GPB3	.92			
	GPB4	.88			

Notes: PI = Peer Influence, GA= Green Advertising, EK = Environmental Knowledge, GPB = Green Purchase Behavior

On the other hand, convergent validity indicates a single dimension of meaning being measured for determining reliability and validity. Larcker (1981) found that convergent validity is assessed through the factor loadings and AVE of the constructs. Besides, CR and AVE values estimated well suited in the study to measure the validity and reliability of the constructs. The accepted CR cut off values should be above .7 (Malhotra & Dash, 2011). and AVE values should be above .5 (Fornell & Larcker, 1981). All indicators comprised of the factor loadings were close to .6 and above .6 which are recommended as the acceptability of the convergent validity (Chin, Gopal & Salisbury, 1997).

Table 3

Discriminate Validity Results of the Measurement Model

	Green Advertising	Environmental Knowledge	Peer Influence	Green Purchase Behavior
Green Advertising	0.799			
Environmental Knowledge	0.387	0.783		
Peer Influence	0.475	0.433	0.714	
Green Purchase Behavior	0.447	0.324	0.413	0.838

Discriminant validity denotes that the constructs should not be highly correlated with every construct that might lead to the overlapping of constructs (Fornell & Larcker, 1981). The correlation between constructs below .8 and .85 is regarded as adequate to determine discriminant validity (Brown, 2006). Table 3 illustrated that all values are in acceptable ranges to determine the discriminant validity. Hence, the overall results of the study showed adequate reliability and validity.

Testing the Measurement Model: Goodness of Fit Statistics

The measurement model with the multi-item scales of peer influence, green advertising, environmental knowledge, and green purchase behavior was tested through CFA by using the maximum likelihood estimation technique. The value of Chi-square ($\chi^2 = 144.017$, p-value < .05) and relative Chi-square ($\chi^2/df = 1.47$, p-value < .05) illustrated the acceptable fit of the measurement model with large sample. To determine the good fit, the criteria were taken from the previous studies of the authors (Bentler, 1990; Browne & Cudeck, 1992; Halim et al., 2010). The other indices of determining the goodness of fit index showed the good fit of the study. Furthermore, Comparative Fit Index (CFI) = .975 (CFI > .95), Normed Fit Index (NFI) = .926 (NFI > .90), Tucker-Lewis coefficient index (TLI) = .969 (TLI > .90), Goodness-of-fit Index (GFI) = .921 (GFI > .90), Adjusted Goodness-of-fit Index (AGFI) = .891 (AGFI > .90), Root Mean Square Residual (RMR) = .031 (RMR < .08) and Root Mean Square Error of Approximation (RMSEA) = .047 (RMSEA < .08) indicated the proper model fit of the study.

Structural model: Goodness of Fit Statistics and Hypothesis Tests

The structural model of the study was tested with the maximum likelihood technique to test the hypotheses. Additionally, to determine the good fit of the model, the author used the criteria recommended by other authors (Bentler, 1990; Browne & Cudeck, 1992; Halim et al., 2010).

The results of the study illustrated that values of Chi-square ($\chi^2 = 127.156$, p-value < .05) and relative Chi-square ($\chi^2/df = 1.298$, p-value < .05) showed good fit. The other indices of determining the goodness of fit indices were found to have a good fit. CFI (.982), NFI (.925), TLI (.977), GFI (.93), AGFI (.903), RMR (.028), and RMSEA (.038) were found to have an appropriate fit of the study. However, SEM is known as a multivariate technique that estimates a series of interrelated dependence relationships (Byrne, 2010). It shows the causal relationships among the constructs through a series of structural equations or regressions. Figure 2 represents the regression weights of the structural model. It shows the path coefficients of the independent variables and dependent variables.

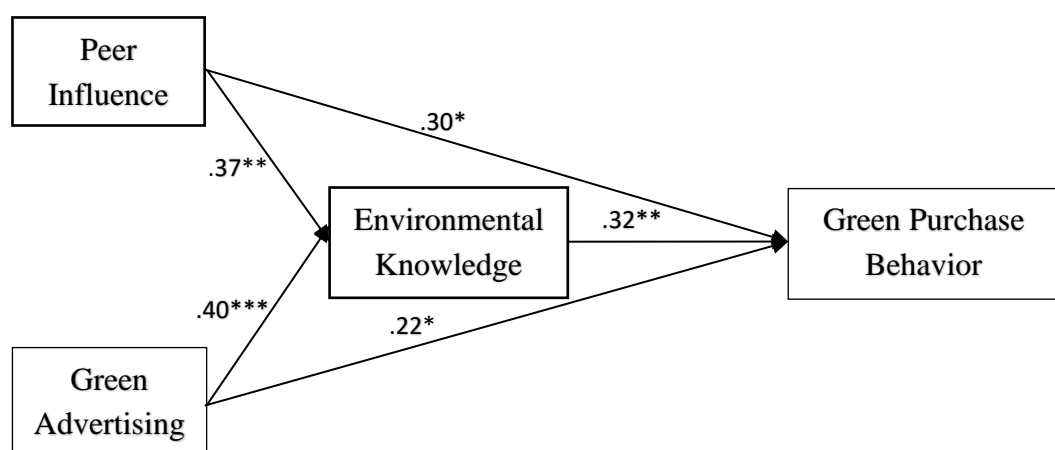


Figure 2: The Structural Model with Parameter Estimates

Notes: Parameter estimates *p<0.05 ** p<0.01 ***p<0.001

Table 4

Structural Parameter Estimates

Hypotheses with Path	Coefficients	Standardized Estimate(β)	T-Value	P-Value	Results
H1a. Peer Influence → Environmental Knowledge		.374	2.991	.003	Supported
H2a. Green Advertising → Environmental Knowledge		.398	4.599	***	Supported
H3. Environmental Knowledge → Green Purchase Behavior		.316	2.852	.004	Supported
H1b. Peer Influence → Green Purchase Behavior		.300	2.373	.018	Supported
H2b. Green Advertising → Green Purchase Behavior		.221	2.485	.013	Supported

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 4 illustrates the results of the hypotheses testing with the paths and their beta coefficients with p-values. As shown in Table 4, H1a shows that peer influence has a positive and significant effect ($\beta=0.374$; $t=2.991$; $p<.01$) on environmental knowledge. That means the influence of friends, colleagues, family members, and other kith and kin play an important role in the environmental knowledge of ESL users. Similarly, H1b, which shows the relationship between peer influence and green purchase behavior, is found to have a significant effect ($\beta=0.30$; $t=2.373$; $p<.05$). Thus, H1a and H1b were supported for the study. On the other hand, H2a which postulates a positive effect of green advertising on environmental knowledge is found to have a significant effect ($\beta=0.398$; $t=4.599$; $p<.001$). Consequently, consumers can form a proper understanding of ESL because of its green advertisements. Furthermore, H2b which shows that green advertising has a positive effect ($\beta=0.221$; $t=2.485$; $p<.05$) towards green purchase behavior is found to be significant. Therefore, H2a and H2b were supported for the study. Additionally, H3, which shows the direct relationship between environmental knowledge and green purchase behavior, is found to have a significant effect ($\beta=.316$; $t=2.852$; $p<.01$). Thus, H3 was supported in this study. Through SEM with the bootstrapping technique, the direct, indirect and total effects of the constructs were evaluated. From that point, direct, indirect and total effects of peer influence and green advertising on environmental knowledge following consumers' green purchase behavior are demonstrated. Accordingly, Table 5 shows that the standardized direct effects of peer influence and green advertising are found to have a significant effect on ESL users' green purchase behavior. Additionally, the standardized indirect effects of peer influence and green advertising expose that green purchase behavior is significantly influenced by environmental knowledge. Therefore, the direct, indirect and total effects of the constructs illustrated that peer influence and green advertising are partially mediated with green purchase behavior in the context of ESL.

Table 5
Direct, indirect and total effects of the Mediators

	Peer Influence	Green Advertising	Environmental Knowledge
Total Effects			
Environmental Knowledge	.296**	.428**	---
Green Purchase Behavior	.303	.341**	.289*
Direct Effects			
Environmental Knowledge	.296**	.428**	---
Green Purchase Behavior	.217*	.218*	.289*
Indirect Effects			
Green Purchase Behavior	.086**	.124**	---

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Discussion

The study aimed to investigate and verify the effects of peer influence, green advertising, and environmental knowledge on the green purchase behavior of ESL users in Bangladesh. The findings of the study indicated that ESL users are significantly influenced by peer influence, green advertising, and environmental knowledge. The results of the study support the results of previous studies (Maram & Kongsompong, 2007; Haytko & Matulich, 2008; Hafez, 2017; Mostafa, 2009; Diglel & Yazdanifard, 2014; Davari & Strutton, 2014).

Theoretical Contributions

The study intends to clarify the relationship between peer influence and green purchase behavior with the moderating effect of environmental knowledge which plays an important role in the green purchase behavior of ESL users in Bangladesh. Previous studies illustrated that consumers who have environmental knowledge in using any products are motivated to buy green products (Maichum, Parichatnon, & Peng, 2016). As a result, the relationship between environmental knowledge and consumers' green purchase behavior is found to be significant, which is supported by the earlier studies (Straughan & Roberts, 1999; Mostafa, 2007; Choi & Kim, 2005; Paul et al., 2016; Kumar, Manrai, & Manrai, 2017). It is often found that consumer's environmental knowledge and their purchase intention are shaped by their peers' views and opinions (Mohiuddin, Al Mamun, Syed, Masud, & Su, 2018). Additionally, Khare (2015) illustrated that consumers' green purchase behavior is significantly and positively influenced by peer influence. On the other hand, to make a green purchase decision, consumers require proper knowledge about the significance of using ESL comparing with other incandescent lights (Nakano et al., 2018; Allcott & Taubinsky, 2015). Furthermore, the results of the study found that green advertising has a significant influence on environmental knowledge and green purchase behavior illustrating similar results with the

previous studies (Rahbar & Wahid, 2011; Bickart & Ruth, 2012). Thus, green advertising presenting the ecological impacts of adopting ESL can improve consumers' environmental knowledge which may motivate them to buy green products (Mostafa, 2009) like ESL. As the impacts of global warming, climate change, carbon emission, and depletion of natural resources drive consumers to be aware of environmental issues and to make green purchase behavior (Jaiswal & Kant, 2018), their thoughts and views might be shaped by proper illustration like; buying a traditional incandescent light is not only buying a single lamp but also a tube of carbon which leads to increase global warming.

Implications for Practitioners

The results of the study illustrate some crucial implications for business managers as well as practitioners from different perspectives. The findings demonstrated that consumers' environmental knowledge and green purchase behavior, in the context of using ESL, are significantly influenced by peer influence and green advertising. For this reason, marketers may enhance consumers' ecological knowledge by applying green advertising to modify consumers' behavior as previous researchers have illustrated the extents to which green advertising is found to be effective (Yoon, Kim, & Baek, 2016; Bickart & Ruth, 2012; Atkinson & Rosenthal, 2014). Additionally, companies associated with ESL may focus on green advertising, green packaging, green labeling, and other green promotions because these activities help to realize the importance of green purchasing (Wahid, 2002). In contrast, marketers should avoid deceptive advertisements regarding environmental protection with regard to green products (Aji & Sutikno, 2015). Thus, in green advertising marketers should emphasize highlighting the genuine functional benefits as well as the environmental values of ESL. Because green advertising guides consumers into informed purchase decisions by enhancing environmental knowledge (Rahbar & Wahid, 2011).

Likewise, marketers can emphasize on creating positive word of mouth (PWOM), which generates customer loyalty and trust (Issock Issock, Mpinganjira, & Roberts-Lombard, 2019), and effective communication by claiming environmental and social values of using ESL that will influence consumers to buy ESL instead of traditional incandescent lights. Therefore, these efforts of the marketers may help to create a buzz among consumers that might lead to influence them towards green purchase behavior. By the same token, marketers, who support making by profit promoting ESL, should effectively disseminate ecological messages, emphasizing the environmental values of the products in the society. Moreover, these efforts of the marketers may strongly influence the individual intention to buy green products because of the persuasion of social groups (Chan & Lau, 2002).

Limitations and Directions for Future Research

The study investigated the effect of, peer influence, green advertising, and environmental knowledge on green purchase behavior of consumers only in the context of using ESL in Bangladesh. Additionally, the sample frame was only limited within Barishal city. Therefore, the generalization of the paper might be different if any similar study is conducted in other parts of Bangladesh and abroad. Furthermore, the study was conducted with 210 samples with four constructs which can be extended like environmental concerns, social norms, attitudes, etc. to get more acceptable generalizations. Besides, the study investigated only 16 items, but adding more items may yield different results.

Conclusion

Bangladesh, an uprising developing country, is going through several issues and the environmental issue has emerged as one of the alarming issues in recent decades. Therefore, these environmental issues are getting worse day by day due to unplanned purchasing and consumption of harmful products. The findings of the study demonstrated that peer influence, green advertising, and environmental knowledge are found to be a significant influence on the green purchase behavior of ESL users in Bangladesh. Additionally, peer influence and green advertising significantly influence ESL users' environmental knowledge. Furthermore, consumers' environmental knowledge partially mediates the relationship between peer influence and green purchase behavior and green advertising and green purchase behavior. The findings may help practitioners to form generalization about the consumption patterns and purchase behaviors of ESL users in Bangladesh. Furthermore, business managers may get support to design successful marketing strategies to deal with the environmental challenges of the modern business world.

Appendix A: List of Measurement Items

Constructs	Items and Statements	Sources
Peer Influence	PI1: My friends often discuss the environmental issues related to ESL with me. PI2: My friends, often, recommend ESL to me. PI3: My friends often share their experiences and knowledge about ESL with me.	(Khare, 2015)
Green Advertising	GA1: I believe that green advertising is a good source of information about ESL. GA2: I know that green advertising is good at addressing environmental problems. GA3: Because of the green advertising of ESL I believe they are safer to use. GA4: I have more confidence in advertised green products than in unadvertised green ones. GA5: I think green advertising presents a true picture of the product being advertised.	(Haytko & Matulich, 2008)
Environmental Knowledge	EK1: I know more about environmental issues than the average person. EK2: I know the reasons to select ESL which helps to protect the environment. EK3: I understand the environmental phrases and symbols on the package of ESL. EK4: I know that buying ESL is environmentally safe.	(Mostafa, 2006)
Green Purchasing Behavior	GPB1: I prefer ESL over non-green products when their product qualities are similar. GPB2: I buy ESL because they are environmentally-friendly. GPB3: I buy ESL even if they are more expensive than the non-green ones. GPB4: When I want to buy an ESL, I look at the ingredients label to see if it contains environmentally damaging things.	(Lee, 2008)

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