

## **EXAMINING THE INFLUENCE OF KNOWLEDGE AND ATTITUDE ON THE INTENTION TO ADOPT ENVIRONMENTALLY SUSTAINABLE BEHAVIOUR**

Bello Birchi Abdullahi

Department of Technical Education,  
Hassan Usman Katsina Polytechnic, Katsina-Nigeria

### **ABSTRACT**

This article reports on a study undertaken to explore the influence of knowledge and attitude, on students' intention to environmentally sustainable behaviour. The study utilized an extension of the theory of planned behaviour (TPB) to analyze intention to perform behaviour related to environmental sustainability. The extended model incorporated knowledge about environmental sustainability. Two hundred and eighty four (284) respondents Nigerian public polytechnic were analyzed about their knowledge and attitude toward intention to environmentally sustainable behaviour. The result shows that knowledge is practically important and a good predictor of students' intention to environmentally sustainable behaviour ( $\beta=0.396$ ), even though attitude maintained a higher position in the predicting power ( $\beta =0 .414$ ) to intention. Overall, a significant model emerged ( $F (2, 282) = 144.219, p < 0.000$ ), with a model that explains 47% variance. In the result, all the two predictor variables (attitude and knowledge) were found to be practically significant in predicting students' behavioural intention to environmental sustainability.

**Keywords:** Knowledge, Attitude, Intention, Sustainable environment.

### **1. INTRODUCTION**

The global society is going through a phase where individuals, groups, organizations, industries and governments are becoming more environmentally conscious at home and the workplace, as well as at the campuses of institutions of higher of learning. Efforts and attention by public

institutions and modern industries nowadays reflect the growing importance and need for sustaining a healthy environment. The Internet literature and academic journals are saturated with discussions on these issues of greening the environment and with solutions on how to go green, ranging from simple

tips switching off electrical/electronic equipment when not in use to physical acts of greening the environment by planting more trees to offset carbon emissions, to big ideas such as green buildings, virtualization, cloud computing, renewable energies, and intelligent computation (Omer, 2008; Wu, Giles, and Wang, 2013; & Sheikhalishahi and Grandinetti, 2012). ). It is desirable that we must be environmentally conscious of our society by reducing electricity consumption and environmental waste resulting from uses of computer and other electronic devices.

It was identified through survey in institutions of higher learning across U.S., Canada, Australia, Europe and the U.K have already created green environmental initiatives awareness among students through green plans and sustainability campaigns which is already shaping the lives and practices of campus populations (Harris *et al.* 2011). Some institutions are very serious about energy reduction and have gone as far as erecting carbon-neutral buildings. A case in point is the University of Copenhagen (UCPH) in which in 2009, Denmark successfully built an energy-efficient center for its student services (Harris *et al.*, 2011). The building is completely carbon free and powered by a combination of solar energy. Many school leaders and other stake holders in education in the developed countries nowadays, believe in the benefit of going green and support greening effect, and if not for

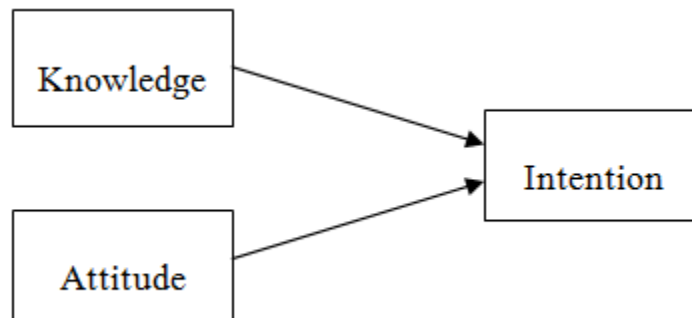
resources limitation, everything might have been green (Dennis and Lisa, 2013).

## **2. LITERATURE REVIEW**

Pro-environmental behavior model was pioneered by United States in the early 1970, which was based on environmental knowledge leading to environmental awareness and concern, which lead to pro-environmental behavior (Kollmass and Agyeman, 2002). According to the model, knowledge holds the key to the formation of environmentally proactive attitudes, and that environmental knowledge is the key to driving the green movement (McDougall, 1993; Laroche, et al., 2002). The model assumed that when people are educated about environmental issues and its consequences would automatically behave in a proactively environmental behavior. Thus, people would therefore understand the consequences and exhibit a behavior that is consonant with the values and need of their immediate environment. This model has been used by the UK government in its campaigns to develop public understanding of sustainable environment in the 1970s and 1990s, and is still being use by most Non-governmental organizations (NGOs) for their environmental enlightenment campaigns strategies on the assumption that more knowledge will lead to more proactive behavior (Owens, 2000). Knowledge, according to Blackwell, Miniard, & Engel, (2001) is the amount of information held in a person's memory.

A number of surveys show that a lack of knowledge is the biggest barrier to the adoption of green computing practices which is a solution in the IT industry, and that this state of ignorance is a cause for worry as it impacts a country's economic recovery via reduced energy consumption and prevention of wasteful spending (Kollmass and Agyeman, 2002). Many did not even know what the requirements were for purchasing green systems for their companies and had completely no knowledge of green environmental effect of computing by which to judge the green products promoted in the market (McDougall, 1993). This ignorance about green information technology was cited as the key obstacle in the adoption of green practices among IT managers in the UK.

Researches has proved that attitude toward a behavior is determined by beliefs about the consequences of the behavior and the evaluation of those consequences. In other words, intention to perform a behavior is a function of basic determinants and one's attitude toward the behavior and knowledge of the consequences (Ajzen,1975; 1991). Ajzen further asserts that an individual's positive or negative feelings about performing the target behaviour determine his/her intention to perform such behaviour. This theory was tested by many researches and found to be true instances. The figure 1, below represents the conceptual framework of the study in which, knowledge and attitude were hypothesized to influence students' intention to environmental sustainability.



**Figure 1: Conceptual Frame**

### 3. STATEMENT OF THE PROBLEM

Studies around organizations showed that human and environmental sustainability are integrated processes and can mutually enhance each other (Benn, Dunphy, and Griths, 2006). The environmental

sustainability within organization cannot be affected without the desire of all stake holders within the organization. Students in tertiary institutions who form a larger segment of ICT users are very important unit of the organization that has to be taken into consideration in the management of this competitive society in achieving

environmental sustainability. Integration is necessary if organization is to support environmental and socially sustainable development (Benn, et al. 2006). However, students cannot begin environmental sustainability process without the commitment of school management through sensitization. Organizational leaders must initiate new ideas of the environmental sustainability. It is in most cases the responsibility of the leaders that can directly decide to introduce new idea into organization, set specific goals, and encourage innovative initiatives from subordinate and other stake holders.

Organizations all over the world can be sensitized through an organized green initiative awareness programs for the youth to understand their corporate social responsibility towards saving the environment. School managers being handlers of large segment of potential users of ICT must begin to realize the benefit in conserving energy and power, and should put environmental sustainability on top of their agenda through using environmentally friendly products that help in reducing their carbon footprint (Stefanski, 2008). However, there is little information available on students' environmental literacy especially in relation to environmental sustainability specifically in Nigeria, and what influence students' intention to adopt an environmentally friendly behaviour in their daily activities. This study, therefore, attempts to fill this gap in the literature by looking into whether knowledge and attitude

influenced Nigerian students' decision to adopt environmentally sustainable behaviour particularly in their campus activities.

#### **4. RESEARCH OBJECTIVES**

The overarching objective of this study is to investigate the utilization of the theory of planned behaviour (TPB) Ajzen, (1991) in analyzing students' environmental behaviour and to investigate the predictive strength of possible relevant additional variable. In pursuance to the objective of the study, the following research questions were formulated thus:

***R1,** Does students' knowledge about green environment influence their intention to adopt environmentally sustainable behavior?*

***R2,** Does students' attitude toward green environment influence their intention to adopt environmentally sustainable behavior?*

#### **5. METHODOLOGY**

##### **5.1. Measurement of knowledge**

Knowledge is defined as the amount of information held in the memory that affects the way individuals assess, interpret and react to the stimuli around them (Blackwell et al, 2001). Brucks (1985) provided a categorization of knowledge by breaking it down to subjective and objective types. Subjective knowledge is an individual's perception or self-assessment of what and

how much he or she knows about a subject. Objective knowledge refers to accurate factual information stored in the memory. In brief, perceived or subjective knowledge reflects what individuals think they know about a subject, while objective knowledge is a measure of what they actually know about it.

In this study, the researcher intend to assess whether students knowledge of environmental sustainability influenced their intention to adopt environmentally sustainable behaviour, which was assessed through 5-points Likert scale items that required students to agree or disagree with the environmentally sustainable behaviour.

### **5.2. Attitude measurement**

According to Ajzen's (1992), theory of planned behaviour, an individual's behavior in adoption or rejection of a phenomenon is determined by one's intention to perform the behavior, and this intention is influence by the individual's attitude. In this study, attitude refers to students' overall stance towards sustainable environmental behaviour, which includes their personal feeling of like or dislike towards it, and their evaluative judgment about its benefits and disadvantages. In other words, intention to perform a behavior is a function of two basic determinants, one personal in nature and the other is familiarity and informational, that is attitude toward the behavior and knowledge of the consequences of environmentally sustainable behaviour. Students' attitude in

this study was assessed through 5-points Likert scale items that required students to agree or disagree with the environmentally sustainable behaviour.

### **5.3. Population Sample**

Three-hundred and ten ( $N=310$ ) polytechnic students from a Nigerian public polytechnic took part in the survey out of which 295 (95%) questionnaires were returned. After screening the responses to the questions, eleven questionnaires were discarded due to poor responses of either omission or multiple choices, leaving 284 (91.6%) of the original number of questionnaires distributed. The respondents of the study were randomly sampled from five colleges of the polytechnic, and comprised of both males ( $n = 183$ ) and females ( $n = 101$ ). All the polytechnic students were targeted to participate in the survey; therefore every student had equal and likely chance to participate in the survey.

### **5.4. Instrument**

The study utilized an adopted and modified questionnaire to suit the environmental sustainable behaviour with two sections. Section A, contained demographic items requesting details about gender, college, level and field of study. Section B contained ten (10) Likert-type items (five for each construct) that requested students to rate their level of agreement or disagreement on the adoption of environmentally sustainable behaviour. The response categories used

were “Strongly agree”, “Agree”, “Undecided”, “Disagree” and “Strongly disagree.” The items were validated by a number of experts for environmental sustainability content and psychometric properties. The internal consistency of the data of the ten items was assessed utilizing a reliability test (i.e. Cronbach's  $\alpha$ ), and was found fit with  $\alpha = 0.89$ , which is very good for an exploratory study (Straub, Boudreau, and Gefen, 2004; Golafshani, 2003; Kirk & Miller, 1986).

### 5.5. Data Collection and Analysis

Data were collected through two different means. First in the colleges, lecturers were approached to help and administer the questionnaires in class which they gave some minutes to students to fill them out on the spot and returned them after class. This method had ensured quite a good response rate. Second the researcher gives the questionnaire to students randomly identified by departments and colleges,

which was done with the help of some class representatives. This gives a bit short of return. Analysis of the data involved a combination of descriptive statistics (i.e. percentages and frequency counts) for the demographic data of the respondent, and multiple regression analysis to address the research objectives one and two respectively.

### 6. RESULT OF THE STUDY

A total of 284 cases were analyzed, from which a significant model emerged ( $F(2, 282) = 144.219, p < 0.000$ ). The adjusted R was 0.468 (Table 1). All the two predictor variables were found to be significant (see Table 2), ( $\beta = 0.414, p = 0.000$ ), and knowledge ( $\beta = 0.396, p = 0.000$ ). In the result, it can be observed that the size  $\beta$  suggests that attitude has the highest impact ( $\beta = .414$ ) in the explanation of the variance of the intention to environmentally sustainable behaviour when compared to the variance explained by knowledge in the model.

**Table 1: Model Summary**

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	.682	.470	.468	4.25

Predictor: (Constant), Total Know, Total Att. = BI

Dependent Variable: Total Intention (BI)

**Table 2: Regression Analysis: Coefficients (Dependent variable: Intention.**

Model	Unstd Coefficients		Std Coefficients	t	Sig
	B	Std Error	Beta		
(Constants)	3.171	.794		30.138	.000
Total Attitude	.276	.053	.414	8.560	.000
Total Know	.238	.031	.396	7.812	.000

Dependent Variable: Total Intention

**Table 3: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7065.593	2	3532.797	144.219	.000
	Residual	6907.845	282	24.496		
	Total	13973.438	284			

Predictors: (Constant), Total Know, Total Att.= (BI)

Dependent Variable: Total Intention Score

Overall, the dependent variable (intention to environmentally sustainable behaviour) was explained by the model (Table 2), that is total attitude and total knowledge. The value is 0.468, which means that the model explains 47% of the variance of students' intention to environmentally sustainable behaviour. Therefore, knowledge is found to be significant and practically important and a good predictor of students' intention to environmentally sustainable behaviour, even though attitude still maintained its position in the predicting power of intention.

## 7. CONCLUSION AND DISCUSSION

In general, attitude was observed to be the most consistent predictor of variance in

behavioural intention to environmental sustainability, whilst both attitude and knowledge significantly predicted the intention to environmentally sustainable behaviour. The case of recommending the inclusion of knowledge in TPB can be considered as particularly important, since it is very much a good predictor of behavioural intention. However, implication of the result is that, the study was targeted at Nigerian polytechnic students, and particularly on environmental sustainable behaviour. Therefore, to generalize the predictive power of knowledge, other studies should be channel to other socially group and on the intention to different phenomena.

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