Gender Differences and Environmental Friendliness among Secondary School Students in Benin Metropolis, Nigeria

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Abstract

The paper investigated gender differences and practice of environmental friendliness (PEF) among senior secondary school (SSS) students in Benin Metropolis, Nigeria. The sampling population comprised 480 SSS1 students from twenty-four (24) public and private schools in Benin Metropolis. The data was analyzed using percentage, independent t-test and the Ordinary Least Square (OLS). Besides the male students were found to engage in more environmental unfriendly practices than the female students. The findings from the independent t-test showed significant gender differences in four PEFs with regard to: use of waste bins, urinating around school buildings, writing and pasting posters on the walls and bush burning. The OLS results showed that gender, school administration environmental knowledge and attitude had significantly negative impact on PEF. Moreover, whereas the interaction of gender on environmental knowledge has significant and positive impact on PEF, the interaction of gender with environmental attitude has significantly negative association on PEF. Therefore, the paper has implication in the redesign of the school curriculum to address the introduction of affective based teaching methods to help correct the negative students’ attitude/behaviour.

Keywords
gender environmental friendliness environmental knowledge environmental attitude Nigeria

1. Introduction

A lot of studies have examined gender differences in environmental behaviour (Zelezny et al., 2000; Xiao & Hong, 2010), consumers green purchase (Mostafa, 2007; Lee, 2009; Dagher et al., 2015; Khoiruman & Haryanto, 2017) and sustainable consumption behaviour (Khan & Trivedi, 2015). Most of the studies conducted in the West concluded that women and girls engage, display or participate more pro-environmental (Steel, 1996) and eco-friendly behaviour (Banerjee & McKeage, 1994; Riechard & Peterson, 1998; Tindall et al., 2003; Sharma & Verma, 2013), purchase (Lee, 2009), values (Deng et al.,

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2006), use a green hotel (Han et al., 2011) and recycle (Diamantopoulos et al., 2003) than men. However, other studies found males were more (e.g. Aoyagi-Usui et al., 2003; Eisler et al., 2003). While some studies recorded significant relation, others found no relationship between gender and environmental behaviour (e.g. Berenguer et al., 2005; Blankenau et al., 2007). Thus, empirical results on gender and environmental behaviour are mixed (Hunter et al., 2004).

Although some studies have investigated the environmental behaviour of students (e.g. Riechard & Peterson, 1998; Tikka et al., 2000; Sharma & Verma, 2013) a research gap exists as to whether males or females in secondary schools in a developing country like Nigeria are more environmentally friendly. Therefore, the objective of the paper is to examine gender differences in the practice of environmental friendliness among secondary schools students in Benin Metropolis.

Sharma & Verma (2013) defined environmental friendliness as ‘any action of an individual or a group directed towards the remediation of environmental issues and problems’. This means that any action carried out by an individual that can lead to solving problems in the environment can be termed environmental friendliness. Environmental friendliness refers to the awareness on the need to protect the environment from harm or contamination. According to Edinyang et al. (2013), an environmental friendly society refers to “the society that is aware of the need to protect its environment by not harming or contaminating its surrounding”. They argued that a law abiding society “keeps its surrounding clean and safe all the time for national development. In such a society, people do not urinate, defecate, spit, dump refuse, burn refuse and do anything such like, anyhow and anywhere”. According to Manaktola & Jauhari (2007), green purchase and consumerism is synonymous with environmental friendliness, eco-friendly and environmentally responsibility. Nevertheless environmental friendliness is relative. This is because some people may behave in more environmentally friendly ways in some aspects of their lives and be less environment-friendly in other aspects. Also when comparing people’s environment-friendly practices, it may be discovered that some people are more environment-friendly than others.

Lynn (2014) identifies three dimensions of environmental friendliness as behaviour at home; transport behavior; and purchasing behaviour. According to Lynn (2014), “different types of people act in more environmentally friendly ways in each dimension. For instance, young people will tend to be more environmentally friendly in their transport behaviour but less environmentally friendly in their behaviour at home. Environment-friendly behaviour can be seen in the way people consume products that tend to promote environmental sustainability. It can be argued that in more developed nations, people tend to be conscious of their environment and will therefore do everything to protect the environment. But this may not be so with developing nations like ours where people tend to be non-challant in their attitude to issues relating to the environment. Some examples of behaviours that are environment-friendly include the following: traditional recycling behaviour such as recycling of household garbage, pro-environmental dispositional behaviour such as re-use of containers and consumer durables and public resource conservation behaviour such as water and electricity minimization activities (Roberts & Bacon, 1997). Xiao & Hong (2010) found Chinese women demonstrated greater participation in environmental behaviors inside the
home (e.g., recycling), while outside of the home (e.g., environmental organization donations) no gendered patterns were exhibited.

Despite the benefits accruable from environment-friendly practices, it can still be observed that very many people in the society do not embrace this practice. Some unsustainable environmental practices in Nigeria that are inimical to environmental friendliness include: bush and urban waste burning, indiscriminate dumping of solid waste, human and animal wastes and felling of trees, walking through lawns and non-usage of walk ways, urinating and defecating in public places including back of school buildings, throwing faeces over the fence, littering the surroundings with papers, writing on the walls, and pasting of posters on public places etc.

The consequences of unfriendly environmental practices include: the loss of high quality health, global warming, coastal/river bank erosion, land degradation and/or soil fertility loss, decline in agricultural production, biodiversity depletion, decline in fishing activities, oil spillage, flaring of gas, water, land, noise and light pollution. The socio-economic problems from environmental degradation include poverty, unemployment, communities-oil company conflicts, intra-community conflicts, decay in societal values, poor transportation and high cost of fuel, infrastructural decay, and high rate of crimes, urban flooding and erosion, destabilization of the ecosystem due to destruction of plants and animals, depletion of stratospheric ozone layer, acid rain and desertification (Adedeji & Eziyi, 2010; Chen & Chai, 2010).

To Eilam & Trop (2012), the “intention to act” is seen as a determinant of environmental friendliness. “Intention to act” here refers to the deliberate and planned actions of environment-friendliness. The acquisition of attitude is also perceived as a “step along the way” towards environmental friendliness. For Sharma (2013), the determinants of environment-friendly practices include emotional and spiritual intelligence. According to him, “emotional intelligence makes one sensitive towards a thing or human being and to deal with his/her own emotions and others’ effectively and appropriately, while spiritual intelligence leads to that state of mind in which one thinks about the welfare of all.

Again early childhood socialization, caregiver roles or bread winner roles and whether private and public oriented behaviour tend to influence gender environmental behaviour (Davidson & Freudenburg, 1996). Socialization theory, which mainly explains gender differences, suggests that the behavior of individuals is conditioned by the process of socialization, which is shaped through the gender expectations of that particular cultural context (Zelezny et al., 2000). Some of the determinants of environmental friendliness among individuals include knowledge, attitude, motivation and perceived effectiveness of pro-environmental behaviour. Others determinants are gender, type of studies or degree, price sensitivity, informal education sources (such as television, newspapers, family etc.), the environmental structure and services of a country. Other factors that can contribute to the adoption of environmentally sustainable attitudes and practices among individuals as opined by Ballantyne & Packer (2005) include arousing people’s emotions in development of environmental attitude, changing beliefs of the people about their own ability (or inability) to make an impact on environmental problems, and enhancing environmental conceptions held by
individuals—such that previously negative conceptions are replaced with new conceptions about the environment.

Environmental friendliness can also be enhanced through the intervention of the government and this can be achieved when the various tiers of government become responsive to environmental issues by taking drastic actions to regulate the activities of man in the environment. This can be done through the formulation of environmental policies geared towards preserving the environment. A number of factors can be seen to determine environmental behaviour (that is, environmental practice). Two of such factors include environmental sensitivity and emotional affinity. Environmental sensitivity has been found to be a significant predictor of environmental behaviour and one that predisposes people to future practices towards environmental protection (Hungerford & Volk, 1990). Emotional affinity towards nature is also seen to be a strong predictor of nature-protective behaviour. In other words, place attachment (that is, an individual’s emotional attachment to a natural setting) is significantly related to environmentally responsible behaviours (Kals et al., 1999).

Environmental knowledge and attitude have also been found to impact on environmental behaviour. Environmental attitude is generally understood as the rational judgment of people toward the value of environmental protection (Lee, 2009). Attitudes is a major determinant of environmental behaviour (Kotchen & Reiling, 2000; Fisher et al., 2012). Zelezny et al. (2000) reported that women have greater environmental attitudes than men across different countries. Some studies have found a positive or negative significantly gender differences in environmental attitude. For instance (Tikka et al., 2000) reported that men have more negative attitude towards the environment than women. The level of environmental knowledge tends to depend on gender (Arcury, 1990; Tikka et al., 2000) as men have been found to possess more environmental knowledge than women (Gendall et al., 1995).

Previous researches have examined gender differences in a variety of environmental and behavioural variables. According to Vicente-Molina et al. (2013), men have more knowledge about environmental issues than women although women tend to be more environmentally friendly than men. These differences may be due to the different socialization patterns of boys and girls (Schahn & Holzer, 1990). Zelezny et al. (2000) conducted a study on gender differences across 14 countries and found significant gender differences in environmental attitudes, with women being consistently more environmentally friendly than men. Vicente-Molina et al. (2013) argued that most studies done on the relationship between gender and the environment have found that women participated more in pro-environmental behaviour. Females tend to have more positive attitudes and demonstrate more responsible actions towards the environment than the male folk (Schlegelmilch et al., 1996; Adeolu et al., 2014). It is reported by Ifegbesan (2010) that women were significantly more likely to be concerned with environmental problems than men. The females are made to carry out most cleaning activities at homes than the males. However, in Liere & Dunlap (1980) study, gender was not a significant predictor of environmental concerns and attitudes as other socio-demographic variables.

Sharma & Verna (2013) conducted a study on “technology awareness and environment friendly behaviour of adolescents in Dayalbagh, Agra”. They found that
the environmental friendly behaviour of youth is high among senior secondary students; and that girls displayed more environment-friendly behaviour than the boys. The reason given for this is that girls have the habits of cleanliness and constructive behaviour than their male counterparts. It has been argued that women are more likely to present pro-environmental behavior (Laroche et al., 2001; Mostafa, 2007). In a study of 231 pre-college students, Riechard & Peterson (1998) found that female students had significantly higher perception of environmental risk scores than male students. Female guests were more likely to be socially responsible and engage in environmentally friendly practices while traveling than their male counterparts are (Finisterra do Paço et al., 2009). Female Generation Y (those born after 1980) guests are also more likely to expect environmentally friendly foods than male guests while staying at green hotel.

Dagher et al. (2015) found that whereas gender, environmental attitude (EA) and environmental concerns (EC) have significant impact on green purchasing behaviour (GPB), the moderation of gender with EA and EC had significantly negative impact on GPB. Sarkawi et al. (2017) found that gender had significant impact on environmental friendly behaviour (EFB) unlike the educational level. Sundström & McCright (2014) found that women in Sweden reported greater environmental concern than men in the general public municipal and county councils but not at the national polity or parliament. Tindall et al. (2003) found no substantial gender differences in level of activism but reveal that women engage in significantly higher rates of EFB such as domestic chores, childcare, buying organic produce or using environmentally friendly household cleaning products than men. Hunter et al. (2004) found that women tend to engage in more environmental behaviors than men in many nations, particularly private behaviors.

With regard to environmental friendly practices, studies conducted by Ottman (1993) in America showed the support that people had for protection of the environment. In the studies, 54% of Americans read labels to see if products are environmentally safe, 57% sought out products and packaging made from recycled materials, and 34% boycotted companies that were careless toward the environment. Other studies found that 79% of Americans considered themselves environmentalists, 82% stated they have recycled, 83% stated they have changed their shopping habits to help protect the environment, and 67% said they would be willing to pay 5% to 10% more for environmentally compatible products (Roberts & Bacon, 1997); 61.5% said they will pay more in Australia (Suchard & Polonski, 1991). Therefore, the specific research questions of the study are: 1) Is there significant gender differences among secondary school students in Benin metropolis with regard to environmental friendliness? 2) What is the impact of interaction of gender with environmental knowledge and attitude on environmental friendly practices?

2. Methods

The population of this study comprised all senior secondary school students (SSS) in forms one (that is, SSS 1 students) of public schools and government approved private schools in Benin metropolis. The population was made up of 17,121 students. The choice of the target population was informed by the possibility that the students have
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Successfully completed primary and junior secondary schools where Social Studies is taught as a core subject, and that the students already have been exposed to basic elements of environmental education. Besides, some prior studies have used students college students, adolescents, university students (Riechard & Peterson, 1998; Mostafa, 2007; Sharma & Verma, 2013) due to accessibility and homogeneity of group. The sample size for the study comprised 480 students who were sampled from the population of the study. This comprised students from both public and government approved private schools.

The multi-stage sampling technique was used for selection of the study sample size of 480 as follows: First, all the public schools were listed according to their local government areas where they are domiciled since the Benin metropolis is made up of three local governments (Oredo, Egor and Ikpba-Okha) in Edo State. Second, all the schools were listed and randomly selected according to their types (that is, single-sex schools and co-educational schools). One boys-only school, one girls-only school and two co-educational schools were selected from each of the three local government areas thereby making a total of twelve (12) public schools in the three local government areas. Third, four private schools were selected from each of the local governments in the metropolis, making a total of twelve (12) private schools. In all, a total of twenty-four (24) schools were selected. Thereafter, twenty (20) students were randomly selected from each of these schools making a total of 480 students that formed the sample size for the study.

The instrument used for this work was a self-constructed questionnaire titled - A Questionnaire on Knowledge, Attitude and Practice of Environmental Friendliness among Secondary School Students in Benin Metropolis (QKAPEFASSBM). The instrument consists of two sections A and B. Section A consisted of items that helped the researcher elicit socio-demographic information of respondents on students’ class, gender, school type and the local government areas where the schools were domiciled. While section B consisted of three sub-sections containing statements related to students’ knowledge, attitude and practice of environmental friendliness respectively. Students were requested to tick appropriate responses as it applied to them in sections A and B respectively. The question items in section B have a corresponding four-point Likert scaled responses of strongly agree (SA), agree (A), disagree (D) and strongly disagree (SD) which were coded as SA = 4, A = 3, D = 2 and SD = 1 respectively.

The research instrument was validated by three expert in the Department of Curriculum and Instructional Technology, Faculty of Education, University of Benin. Their inputs, opinions, suggestions and recommendations were incorporated into the instrument so as to ensure its face and content validity. To determine the reliability of the research instrument, the instrument was pilot-tested on twenty students that did not form part of the main sample of the study. A Cronbach alpha of 0.67 was obtained signifying that the instrument was reliable. The copies of the questionnaire were administered personally by one of the researcher and other three research assistants who were given orientation on what to do. The research instrument was administered on the students and collected immediately. The Statistical Package for the Social Sciences (SPSS) 20.0 was used for data analysis. The Student t-test of difference between the means of two independent samples was used to test for gender differences in
practice of environmental friendliness while the Ordinary Least Square was used to test the impact of 1) gender and 2) the moderation of gender on environmental attitude and knowledge on environmental friendliness.

The hypotheses are stated as follows: 1) There will be no significant gender differences in the practice of environmental friendliness among secondary school students in Benin metropolis. 2) The moderating effect of gender with environmental attitude has positive impact on the practice of environmental friendliness among secondary school students in Benin metropolis. 3) The moderating effect of gender with environmental knowledge has positive impact on the practice of environmental friendliness among secondary school students in Benin metropolis.

Based on Xiao & Hong (2010) and Dagher et al. (2015), the models of the relationship between gender and the practice of environmental friendliness are specified below.

\[ PEF = f (Gender, Schtype, SchAdmin, Location) \] … (1)
\[ PEF = f (Gender, Schtype, SchAdmin, Location, EA, EK) \] … (2)
\[ PEF = f (Gender, Schtype, SchAdmin, Location, EA, EK, Gender*EA, Gender*EK) \] … (3)

Where:
- \( PEF \) = Practice of environmental friendliness represented by 10 statements
- \( Schtype \) = Boys school (1), girls school (2) and co-educational school (3)
- \( Gender \) = Gender represented as male (1) and female (2)
- \( Location \) = Rural (1) and urban (2)
- \( SchAdmin \) = School administration represented as government (1) and private (2)
- \( EA \) = Environmental attitude represented by 8 statements
- \( EK \) = Environmental knowledge represented by 14 statements
- \( Gender*EA \) = Interaction of gender and environmental attitude
- \( Gender*EK \) = Interaction of gender and environmental knowledge

3. Results and Discussion

This section comprises the analysis of questionnaire responses, test of hypotheses and discussion of the results. From Table 1, it can be observed that 162 representing 33.75% of total respondents exhibit unfriendly environmental practices while the remaining 318 of the respondents representing 66.25% of the total respondents tends to exhibit environment-friendly behaviour. On the average more of the boys (104) tend to engage in unfriendly environmental practices than the girls (75). More boys or males than girls or females were found to burn refuse and bushes for meat, write and paste posters indiscriminately on the walls, defecate in public places and back of school buildings, walk through school lawns and fields and urinate around school building. The result supports Tikka et al. (2000) that males tend to have more negative attitude and behaviour. On the other hand the female students out-perform the males in terms of unfriendly environmental practice regarding dropping dirt on the floor and not making use of the baskets or waste dust bins and baskets. A greater number of girls keep their environment clean compare to the boys.
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Table 1 Agree Frequency Counts, Percentages and Mean of Students’ Practice of Environmental Friendliness

| S/N | Statements                                                                 | Male Agree | Female Agree | Total Agree | Total Mean |
|-----|----------------------------------------------------------------------------|------------|--------------|-------------|------------|
| 1.  | I partake in environmental sanitation exercise often                        | 219 (46)   | 213 (44)     | 432 (90)    | 3.27       |
| 2.  | I always drop dirt on the floor or ground as the case may be               | 44 (9)     | 48 (10)      | 92 (19)     | 1.79       |
| 3.  | I always keep my environment clean at home and school                       | 225 (47)   | 232 (48)     | 457 (95)    | 3.58       |
| 4.  | I do not make use of waste baskets or dust bins at home and in school       | 209 (44)   | 223 (46)     | 432 (90)    | 3.45       |
| 5.  | I used to urinate around school buildings                                  | 39 (8)     | 16 (3)       | 55 (11)     | 1.49       |
| 6.  | I always walk through the school lawns and fields                          | 86 (18)    | 78 (16)      | 164 (34)    | 2.077      |
| 7.  | I defecate in public places like the back of buildings, or in nylon bags if there are no toilet facilities and when the toilets are not washed | 34 (7)     | 18 (4)       | 52 (11)     | 1.44       |
| 8.  | I can write whatever I like and paste posters indiscriminately on the wall of my school | 20 (4)     | 9 (2)        | 29 (6)      | 1.39       |
| 9.  | I burn bush so as to hunt for meat                                          | 28 (6)     | 12 (3)       | 40 (9)      | 1.432      |
| 10. | I burn refuse (wastes) when there are no waste managers to remove them     | 137 (29)   | 126 (26)     | 263 (55)    | 2.51       |

Average Total 104 (22) | 75 (16) | 179 (38) | 2.28

*Percentages in parentheses*

The results of the independent t-test is showed in Table 2. From the Table 2, it can be observed that based on their practice of environmental friendliness, the composite mean for boys is 22.75 while that of girls is 22.12. There is significant gender difference with regard to their practice of environmental friendliness (t = 2.054; p = 0.041). Specifically, there are significant gender differences in four out of the ten environmental friendly practices: I do not make use of waste baskets or dust bins at home and in school (t = 2.069; p = 0.039); I used to urinate around school buildings (t = 2.398; p = 0.017); I can write whatever I like and paste posters indiscriminately on the wall of my school (t = 2.435; p = 0.015); and I burn bush so as to hunt for meat (t = 3.000; p = 0.003). The finding agree with studies carried by Zelezny et al. (2000) and Ifegbesan (2010) in Ogun State that gender is a significant predictor of pro-environmental behaviour or environmental friendliness. Besides, the finding supports prior studies like Riechard & Peterson (1998) and Sharma & Verma (2013) that college girls and female adolescents tend to exhibit more pro-environmental friendly behaviour than the boys and males.

The descriptive statistics and correlation analysis is shown in Table 3. The result from Table 3 shows the descriptive statistics (mean and standard deviation) and the correlation of the independent variables (gender, school type and administration, location, environmental attitude and knowledge) with PEF. The mean values of 22.44 and 26.25 showed that senior secondary students in Benin Metropolis, Nigeria have low environmental attitude and PEF. However, they have a fair knowledge of the environment. A further analysis of EA and EK shows no significant gender differences. Females with mean of 44.37 had more environmental knowledge than the males with
mean of 43.77. This contrasts with prior that men had more environmental knowledge (Gendall et al., 1995; Mostafa, 2007; Tikka et al., 2000; Xiao & Hong, 2010). For environmental attitude, the men tend to have higher mean values of 26.34 compared to the females with mean of 26.16. This contrast Zelezny et al. (2000) that women had more environmental attitude than men.

Table 2  The Means and Independent Sample t-Test for Difference in the Practice of Environmental Friendliness among Students Based on Gender

| S/N | Statements | Male Mean | Female Mean | t-Value Agree | P-Value  
|-----|------------|-----------|-------------|---------------|---------
| 1.  | I partake in environmental sanitation exercise often | 3.28 | 3.27 | 0.058 | 0.954  
| 2.  | I always drop dirt on the floor or ground as the case may be | 1.83 | 1.80 | 0.677 | 0.499  
| 3.  | I always keep my environment clean at home and school | 3.55 | 3.60 | 0.711 | 0.478  
| 4.  | I do not make use of waste baskets or dust bins at home and in school | 3.38 | 3.54 | 2.069** | 0.039  
| 5.  | I used to urinate around school buildings | 1.58 | 1.40 | 2.398** | 0.017  
| 6.  | I always walk through the school lawns and fields | 2.10 | 2.05 | 0.459 | 0.646  
| 7.  | I defecate in public places like the back of buildings, or in nylon bags if there are no toilet facilities and when the toilets are not washed | 1.50 | 1.38 | 1.504 | 0.133  
| 8.  | I can write whatever I like and paste posters indiscriminately on the wall of my school | 1.47 | 1.32 | 2.435** | 0.015  
| 9.  | I burn bush so as to hunt for meat | 1.54 | 1.33 | 3.000*** | 0.003  
| 10. | I burn refuse (wastes) when there are no waste managers to remove them | 2.56 | 2.45 | 0.965 | 0.335  
|     | Total | | | 22.75 | 22.12 | 2.054 | 0.041  

Notes: **, *** significant at 5% and 1% respectively

Table 3  Descriptive Statistics and Correlation Analysis

| Variables | Mean | Std. Deviation | VIF | Correlation of Independent Variables with Practice of Environmental Friendliness (PEF) | 
|-----------|------|----------------|-----|----------------------------------------| 
| Environmental Friendliness (PEF) | 22.44 | 3.37 | – | 1.000 | 
| Gender | 1.50 | 0.50 | 1.056 | -0.094** | 
| School Type | 2.63 | 0.697 | 1.484 | 0.126 | 
| School Admin | 1.50 | 0.501 | 1.516 | -0.200** | 
| Location | 2.00 | 0.817 | 1.017 | -0.032 | 
| Environmental Attitude (EA) | 26.25 | 3.00 | 3.277 | -0.293*** | 
| Environmental Knowledge (EK) | 44.07 | 5.07 | 1.701 | 0.122*** | 

Notes: ***, *** significant at 5% and 1% respectively

The correlation analysis shows that whereas gender, school administration, location and environmental attitude were negative and significantly related to the PEF, environmental knowledge was positive and significantly related with the PEF. School type had no significant relationship. The low correlation values revealed the absence of multi-collinearity which is also by the variance inflation factors (VIFs) which are less than
10 (Table 3). Regression analysis on the impact of all the independent variables and the moderation of gender on environment attitude and knowledge is shown in Table 4.

Table 4: Regression Analysis on Gender and the Practice of Environmental Friendliness

| Independent Variables       | Model 1      | Model 2      | Model 3      |
|-----------------------------|--------------|--------------|--------------|
| Constant                    | 25.222***    | 33.599***    | 39.471***    |
| (31.290)                    | (19.108)     | (8.871)      |
| Gender (Male = 1)           | -0.727**     | -0.783***    | -4.659*      |
| (-2.365)                    | (-2.650)     | (-1.640)     |
| School Type                 | 0.390        | 0.385        | 0.375        |
| (1.488)                     | (1.528)      | (1.494)      |
| School Admin                | -1.638***    | -1.527***    | -1.515***    |
| (-4.567)                    | (-4.318)     | (-4.283)     |
| Location                    | -0.131       | -0.150       | -0.139       |
| (-0.714)                    | (-0.846)     | (-0.782)     |
| Environmental Knowledge (EK)| -            | 0.000        | -0.178**     |
| (0.980)                     | (-2.002)     |              |
| Environmental Attitude (EA) | -            | -0.321***    | -0.247***    |
| (-6.464)                    | (-2.601)     |              |
| Gender*EK                   | -            | -            | 0.119**      |
|                            |              |              | (2.127)      |
| Gender*EA                   | -            | -            | -0.052       |
|                            |              |              | (-0.913)     |
| R²                          | 0.016        | 0.136        | 0.145        |
| F (p-values)                | 6.807***     | 12.374***    | 9.986***     |

Notes: ***, **, * significant at 1%, 5% and 10% respectively; t-values in bracket.

Table 4 reports the multiple regression results for PEF. The results in model 1 show that gender has a significant negative coefficient (b = -0.727, p ≤ 0.05) with PEF even after controlling for school type, school administration and location. The result indicates that female students engage in more PEF than the male students. Model 2 introduces environmental knowledge (EK) and environmental attitude (EA) and the result shows that gender has significant negative coefficient (b = -0.783, p ≤ 0.001). It indicates that the female still engage in more PEF. The introduction of EK and EA increased the explanatory to 0.136. The negative coefficient of gender supports the findings by Tindall et al. (2003) and Hunter et al. (2004) that women tend to engage in more environmental behaviour. In Model 3 we add two mediating factors: gender/environmental knowledge and gender/environmental attitude. The result revealed that gender still had a significantly negative association with PEF (b = 0.119, p ≤ 0.05), although gender/environmental knowledge had positive and significant association (b = -0.178, p ≤ 0.05), gender/environmental attitude was negative and non-significant (b = -0.052, p ≥ 0.01). The finding on gender/EK supports, Xiao & Hong (2010) that knowledge was strong predictor of PEF. The non-significant of environmental attitude does not support prior studies that it is a major determinant of environmental behaviour (Fisher et al., 2012; Kotchen & Reiling, 2000).
4. Conclusion

The paper examined gender difference and the practice of environmental friendliness among secondary school students in Benin metropolis using four hundred and eighty (480) students from twenty-four (24) public and private schools in Benin metropolis. The finding indicated that the following: 1) The male students engage in more environmental unfriendly practices than female students, 2) There was a significant gender difference in the practice of environmental friendliness among secondary school students in Benin Metropolis, Nigeria and 3) The moderation of gender with environment knowledge has positive and significant impact on environmental friendliness while gender and environmental attitude has no significant association.

The paper concludes that there was low practice of environmental friendly behaviour among secondary schools students even though the female students tend to engage in more environmental friendly behaviour. Moreover, the interaction of gender and environmental knowledge has positive impact of the practice of environmental friendliness. Therefore, to improve environmental friendliness among students in Nigerian secondary schools the paper suggests the following: One, there should be the development of environmental and sustainability policy for schools and the educational curriculum should be updated to include more environmental education programmes in order to develop the environmental knowledge and attitude of secondary school students in Nigeria. Two, there is also need for training and sensitization of teachers on environmental issues and the need for them to update and upgrade their teaching methods to influence students’ learning and behaviour regarding environmental friendliness. The various school types and administrators should redirect attention, propagate and promote environmental friendly behaviour among their students and lastly seminars on environmental issues should be organized for students. The paper contributes to extant literature on gender and environmental behaviour as it considers gender differences and the impact of the interaction of gender with environmental knowledge and attitude on environmental friendliness of secondary school students from a developing country perspective.

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