

PERCEPTION AND PRACTICES OF ENVIRONMENTAL SUSTAINABILITY ON KADUNA STATE UNIVERSITY CAMPUS, KADUNA, NIGERIA

Abubakar, B.^{1*}, Isyaku, U.¹ and Nabegu, A. B.²

Department of Geography and Environmental Management, Ahmadu Bello University, Zaria

Corresponding Author's email: bilqeesuu@gmail.com



DOI: 10.29816/sjss.9.1.10

ABSTRACT

This study draws on the theory of planned behavior as a basis for explaining behavioral intentions and environmentally sustainable behavior among students and lecturers in Kaduna State University as well as to examine whether there is a gendered difference in environmental attitudes and behaviors. This study utilized a mixed method design consisting of questionnaire, focus group discussion and interview that contained structured questions about sustainability knowledge/familiarity levels, green product purchase behavior, attitude-behavior relationship, and sustainability education. It is argued that because of the top-down system of campus administration and lack of students' involvement in campus affairs in the developing countries students demonstrate a lack of willingness to participate in sustainability initiatives on campus however the results indicates that there appears to be no commitment gap among students and lecturers with regards to committing to environmental sustainable practices on campus despite the lack of sustainability initiatives, practices or policies on Kaduna State University campus. However there exists an attitude-behavior gap when they have to spend extra money on the purchase of green products. The study's findings support the growing importance of encouraging sustainable behavior among higher education institutions and encouraging advocacy groups that would provide vital perspectives to improve sustainability education and foster sustainable behaviors.

Keywords: Green products, Higher Education Institutions, Lecturers, Students, Sustainability, Theory of Planned Behavior.

The concept of Sustainable Development, as coined by the World Commission on Environment and Development, and with it, the term "sustainability" itself, have been gaining increasing recognition in recent years all around the world. Transforming world society and the world's economy to a sustainable basis is the most significant challenge of our time. This challenge is

unprecedented in scope because its context is the planet as a whole and it requires a fundamental shift in consciousness as well as action. It calls for a fresh vision, a new dream and new approaches for shaping evolving new realities (Michael, 2015).

Hence, the following definition of sustainability, which applies generally to all species populations, and is true in the specific

context of human population: The term sustainability or, more precisely, sustainable development received a large boost and a widely accepted, yet broad definition from The World Commission on Environment and Development (the Brundtland Commission) in 1987 “to meet the needs of the present without compromising the ability of future generations to meet their own needs (Michael, Younghan & Dan, 2015).

Sustainable higher education has emerged in response to calls for Universities to lead society towards a sustainable future (Cortese, 1992; Orr, 1996; Wright, 2004) and is considered a distinct but interdisciplinary specialization of study and practice within sustainability science (Filho, 2005; Beringer & Adombent, 2008) and education for Sustainable Development (Fien, 2002; Beringer & Adombent, 2008). Higher education is generally seen as a major (potential) catalyst to work towards sustainable development (Wass, Verbruggen & Wright, 2010; Fadeeva and Mochizuki, 2010; Barth, Michelsen & Sanusi, 2011). The urgent societal need and broad call for sustainable development allow higher education to assume a fundamental and moral responsibility in contributing to sustainable development (Cortese, 1992; Wass et al., 2012).

In developing countries context generally, and in Nigeria in particular, there is dearth of literature that attempt to understand and examine the perceptions of sustainability issues among students and academic staff in higher institutions. This research attempts to fill this gap particularly looking at Kaduna State University (KASU) Campus, Kaduna. It is also unclear as to how sustainability behaviors are practiced in everyday life of campus inhabitants as well as the extent within which these practices are promoted within the academic curriculum. The aim of this study is

to assess the perception and practices of students and lecturers in Kaduna State University about sustainability on campus.

Theoretical Framework

In human geography research, some social psychological theories are used to explain why humans behave in certain ways. One of these is the theory of planned behavior put forward by Ajzen (1985) which postulate that attitude, social norms and perceived behavioral control affect people’s intentions to behave in certain ways which, in turn, lead to actual behavior (Ajzen, 1985). This study adopt the theory of planned behavior because it has frequently been used as a basis for investigating environmentally sustainable behavior in general (Kalafatis, Pollard, East, & Tsogas, 1999; Shaw, Shiu, & Clarke, 2000; Bamberg, Ajzen, & Schmidt, 2003; Anable, Lane, & Kelay, 2006; Fielding, McDonald, & Louis, 2008; Chen & Tung, 2010) showing great promise in explaining behavioral intentions. The theory of planned behavior is an extension of the theory of reasoned action (Fishbein & Ajzen, 1975), it takes care of the original model’s limitation by including a third variable known as perceived behavioral control which indicates the ability of a person to undertake the behavior under consideration under the assumption that individual behaves in a rational manner considering the ramification of his or her actions (Ramayah, Lee & Lim, 2012). In fact, perceived behavioral control manifests the difficulty and controllability to execute specific behavior (Ajzen, 1985). This study used this theory to explain the behavior of campus inhabitants to sustainability issues at Kaduna State University, Kaduna campus.

The Study Area

Kaduna State University (Kaduna Campus) otherwise known as KASU is located in Kaduna North Local Government Area. It lies between

latitude 10°30'50"N to 10°31'20"N and longitude 7°26'40"E to 7°27'30"E (See Fig. 1). The spatial extent of this study is Kaduna State University campus which is located in Kaduna metropolis. This was selected because of its central location at the heart of a highly cosmopolitan Kaduna city, which is centrally located in north central part of Nigeria, activities carried out in the university can have a direct effect on the surrounding community and it provides the researcher with an easy

access to data. The university was established in 2004, and it has seven faculties and over 39 departments. It has two campuses located in Kafanchan and Kaduna but the study would be confined to the Kaduna campus. The content scope and focus of the study was to examine the perception of students with regards to sustainability as well as to identify environmental sustainability practices such as courses, policies and infrastructure on the Kaduna campus.

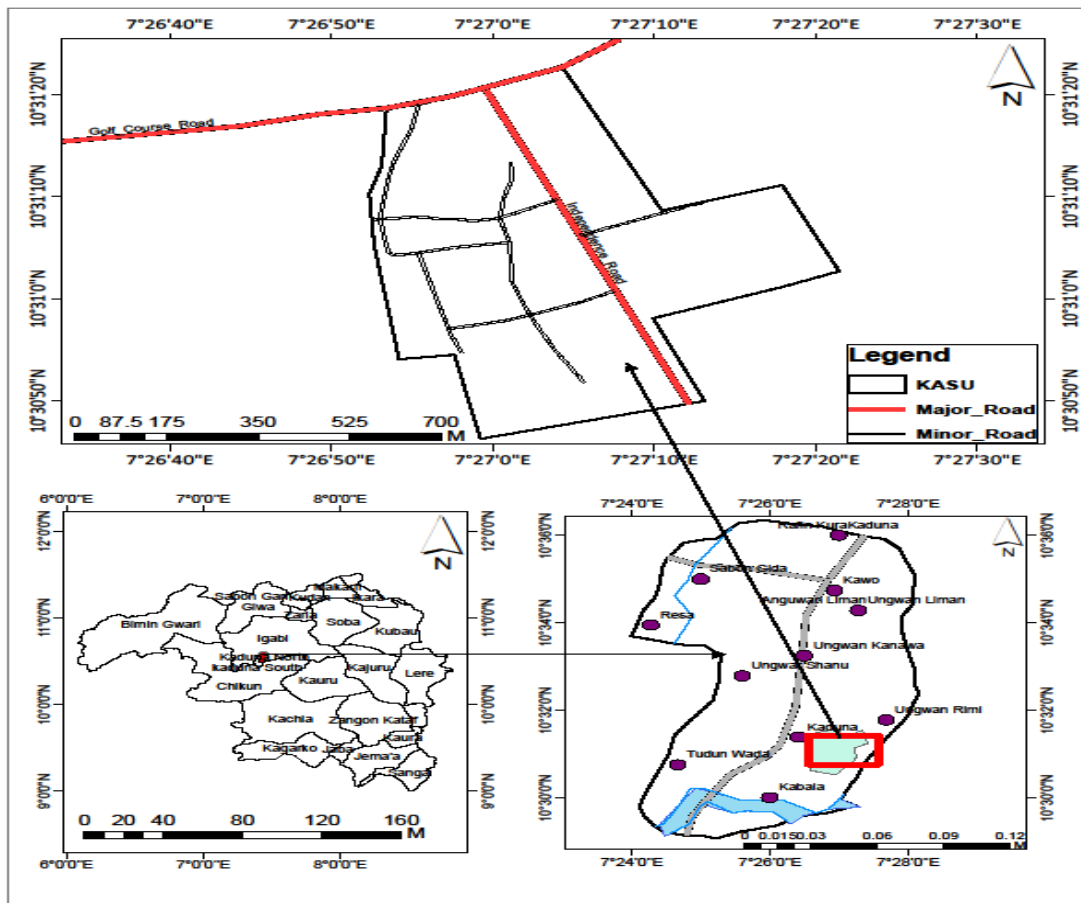


Figure 1: Map of the study area.

Source: Adapted from Google Earth Image of the Study Area, 2018.

Materials and Methods

This study was carried out using the convergent parallel design, a mixed-methods design, the design entails that the study

concurrently conducts the quantitative and qualitative elements in the same phase of the research process, weighs the methods equally, analyzes the two components independently,

and interprets the results together (Creswell & Plano-Clark, 2011). Reliability of the questionnaire items was measured using Cronbach alpha. This is a measure of internal consistency, that is, how closely related a set of items are as a group. The acceptable value for Cronbach alpha is 0.70, however 0.80 or greater is preferred (Cronbach & Richard, 2004).

	Cronbach Alpha	No. of items	Score interpretation
Section 1	.780	4	Good
Section 2	.909	12	Excellent

Data was collected from a total of 354 students using purposive sampling technique from a population of approximately 4500 students and 30 lecturers across the three selected departments. The sample size was determined using the table for determining sample size from a given population as designed by Krejcie & Morgan (1970). Interviews were used to collect intensive data from a small number of participants, a total of four students and four lecturers consisting of four male and four female participants, the

Focus Group Discussion consisted of six student participants with equal number from each gender.

Questionnaire items were analyzed using Pearson's Chi square (X^2) statistics in statistical package for social sciences (SPSS 2.0). For the qualitative approach, focus group discussions as well as interviews were carried out among students and lecturers from selected departments. Geography, Biological Sciences and Sociology departments were selected for both the qualitative and quantitative aspect, because students in this departments offer environment related courses. Hence, participants were randomly selected from these departments based on the assumption they are knowledgeable about environmental sustainability.

Focus group and interviews were analyzed through transcription and manual coding procedures. Transcription involves playing and pausing the audio recordings until all responses are fully understood and transcribed into word document. These transcripts were then analyzed using manual coding. Coding is a systematic process through which data sets are organized and categorized based on shared or related meanings for the purpose of identifying hidden patterns (Lofland & Lofland, 2006).

Results and Discussion

Demographics

Table 1: Showing demographic distribution of student respondents

		Frequency	Percentage (%)
Gender	Male	194	59.3
	Female	133	40.7
	Total	327	100.0
Departments	Geography	123	37.6
	Biological Sciences	118	36.1
	Sociology	86	26.3
	Total	327	100.0

Academic levels	100 level	38	11.6
	200 level	115	35.2
	300 level	51	15.6
	400 level	112	34.3
	MSc	11	3.4
Total		327	100.0

Source: Author, 2018.

As shown in Table 1 the survey comprises of 194(59.3%) male and 133(40.7%) female respondents. Majority 123(37.6%) were from Geography department, followed by Biological Sciences with 118(36.1%) respondents and Sociology having 86(26.3%) respondents. On academic levels majority of respondents 115(35.2%) are in 200 level, 112(34.3%) in 400 level, 51(15.6%) in 300 level, 38(11.6%) and 11(3.4%) in Postgraduate class.

At KASU, there are no environmental sustainable activities currently in place to engage or involve students or lecturers. Only a few lecturers who act as supervisors to students encourage their student to conduct research on environmental sustainability. This can be justified with the following response:

"I just gave my M.Sc. student a topic on degradation. KASU has no toilets for students. An MSc Student is working on it. We are trying to establish friends of the earth club, but I don't know of any faculty research or scholarship being done in the area of sustainability" (Interviewee A, Lecturer). However, there are courses offered by students of science and social science that

teach about the environment such as environmental pollution. Even the students recognize that this is not enough to train environmentally aware graduates and encourage sustainable behaviors. This can be justified by the following response:

"I believe much needs to be done concerning keeping the environment sustainable. The school is trying but more effort needs to be made, there are times we see at least young trees that are being planted, and some that are old are reduced and the vegetation that are too tall are trimmed so they look attractive. I think in that area they are trying but much needs to be done at least to make our environment a better place." (Participant B, Focus Group).

Majority of the respondents believe incorporating sustainability in the university's policy and infrastructure is a welcome development. For example, one of the participants said:

"I support that environmental sustainability curriculum should be on the list, I think it is a welcome development." (Interviewee H, Lecturer).

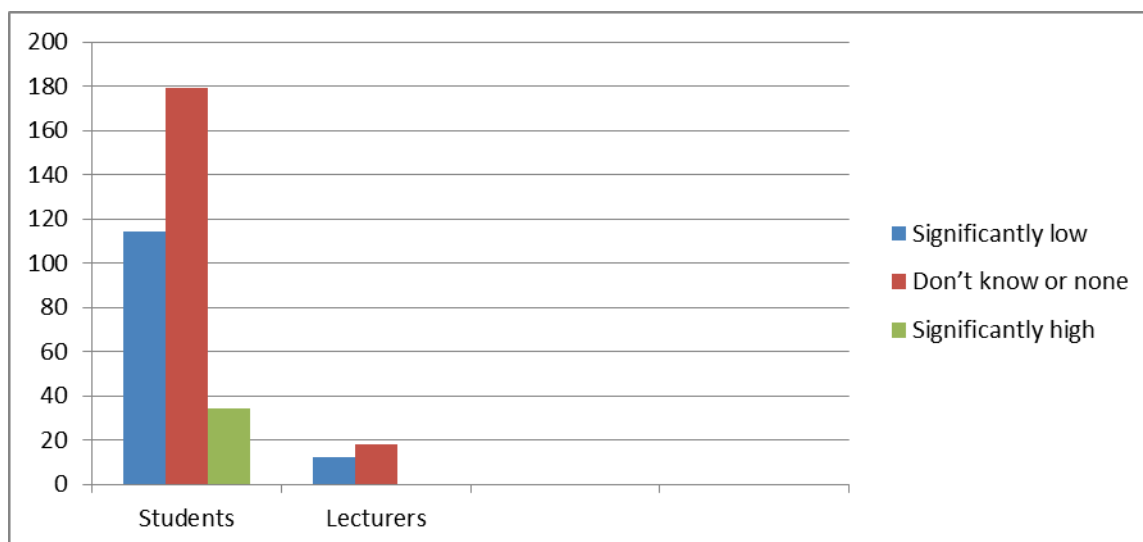


Figure 2: Showing responses of lecturers and students to survey instrument about sustainability activities on campus.

Source: Author, 2018.

Figure 2 shows majority of both students (89.6%) and lecturers (100%) agree that the extent of research done by students in the area of sustainability is either significantly low, none or don't know. The university does not encourage lecturer or staff development opportunities to enhance understanding on sustainability, this is indicated by lecturers (100%) responding with significantly low, none or don't know when asked "to what extent does your college or university provide significant faculty and staff development opportunities to enhance understanding, teaching and research on sustainability?".

Perception of Sustainability

The survey assessed students' perceptions as well as lecturers and whether there is a gendered dimension in perception to sustainability.

Through the exercise, when the audience was asked if they are aware of the concept of environmental sustainability, they all admit to have a fair amount of knowledge. When

comparing between the two genders there seem to be no knowledge gap.

Social norm which is one of the variables of the theory of planned behavior is an important means of viewing the life of people under collectivistic society and they keep more emphasis on the emotional aspect of the decision making rather than on the rational cost-benefit analysis in a relationship (Sinha, Sinha, Verma & Sinha, 2001). Hofstede (2009) concluded that Nigerian culture is collectivistic in nature. People in a collectivistic culture display values and orientation that is collectivist in nature i.e. oriented to belongingness to a group. Hence, it can be said that the social norm in KASU inhabitants is indifference to the issue of environmental sustainability.

"I don't stay in the campus and there are no rules or set down activities that engage student to sustainability activities on campus. So everybody comes to school and go, although there are people paid to clean the school environment regularly." (Participant E, Focus Group)

Despite the school not having, initiatives or activities that promote and encourages students to be environmentally aware, there appears to be no commitment gap among students and lecturers with regards to committing to environmental sustainable practices on campus. When respondents in this study were asked why they were willing to participate, they expressed general concern for the future of the planet and indicated that it is an important concept to be aware of and understand.

“If the environment is good it would bring more health to us than harm, so when you destroy the environment, you are destroying human beings too.” (Participant D, Focus Group).

“The environment is part of us”. (Participant B, Focus Group).

According to Follows & Jobber (2000) environmentally positive product may not be purchased, despite its environmental benefit, if the cost of a green product is not within the

consumer’s expected price range, it is highly unlikely that they will buy it, despite his or her environmentally positive attitude. The following quotations justify this argument:

“Pay extra money for sustainable products, No. I would prefer buying them at a cheaper price.” (Interviewee H, Lecturer)

“I will buy products based on may be my choice, that which is economical for me”. (Interviewee C, Lecturer)

Subjective norm can be stated as a form of belief that individuals approve or disapprove certain behavior. Subjective norm is perceived to affect purchase intention independently and can be affected by the extent of the social pressure or social norm (Robinson & Smith, 2002). When it comes to green products, a clear inconsistency between attitudes towards sustainable consumption and actual behavior is observed. This phenomenon is called the attitude-behavior gap (Carrington, Neville & Whitwell, 2010).

Table 1: Comparisons of environmental sustainability perception of students and lecturers using chi – square

		Strongly agree or agree n (%)	Indifferent n (%)	Strongly disagree n (%)	Chi square test of independence (χ^2)
I am familiar with the concept of sustainability	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)= 18.98$ $P < 0.001$
	Student	196(59.9)	56(17.1)	75(22.9)	
I have taken courses related to sustainability	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=34.45$ $P < 0.001$
	Student	144(44)	35(19.6)	119(36.4)	
Fossil fuels produce carbon dioxide(CO ₂) into the atmosphere	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)= 15.97$ $P < 0.001$
	Student	210(64.2)	61(18.7)	56(17.1)	
Do you agree that greenhouse effect is caused by release of CO ₂ emitted into the atmosphere	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=21.63$ $P < 0.001$
	Student	185(56.6)	79(24.2)	63(19.3)	
Do you agree that world climate will probably	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=20.74$ $P < 0.001$

change massively if CO ₂ continues to be emitted into the atmosphere?	Student	188(57.5)	78(23.9)	60(18.3)	
Do you agree that poisonous metals are introduced into the food chain through ground water?	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=21.89$ $P<0.001$
	Student	184(56.3)	73(22.3)	70(21.4)	
I am concerned about environmental sustainability?	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=11.21$ $P<0.005$
	Student	236(72.2)	49(15)	42(12.8)	
Do you agree that mankind is over exploiting the environment?	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=14.21$ $P\leq 0.001$
	Student	219(67)	55(16.8)	53(16.2)	
Do you agree that there is a need to save energy where possible and also save resources for the future?	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=7.71$ $p<0.05$
	Student	259(79.2)	29(8.9)	39(11.9)	
I am willing to participate in sustainability initiatives?	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=11.88$ $P<0.005$
	Student	232(70.9)	44(13.5)	51(15.6)	
Do you agree the classes on sustainability affect your attitude toward the environment and sustainability?	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=17.64$ $p<0.001$
	Student	202(61.8)	60(18.3)	65(19.9)	
I believe that higher education must teach sustainability for a complete undergraduate curriculum?	Lecturer	30(100)	0(0)	0(0)	$\chi^2(2)=8.42$ $p<0.05$
	Student	254(77.7)	26(8)	47(14.4)	

Source: Author, 2018.

Table 1 clearly shows a rather high positive significance difference with a significant level of (0.05) in lecturer's perception to environmental sustainability in comparison with students, with p value mostly being ($P < 0.001$). A 100 percent of lecturers responded with agreed or strongly agreed to survey questions, ranging from their familiarity with the concept of sustainability, if they are concerned about the environment to whether they believe that higher education must teach sustainability for a complete undergraduate curriculum.

Majority of the students also responded positively to the survey, with the highest percentage (79.2%) of student responding positively compared to other questions when asked whether they agree that there is a need to save energy where possible and also save resources for the future. This result is consistent with the findings of Samuel, Adu-tutu & Boamah (2012) in a study conducted in Ghana where 90.4% of the respondents agreed or strongly agreed when the same question was asked and the finding of Richard & Adams (2010) who established that majority (69 percent Alabama students; 85 percent Hawaii students) of the respondents agreed or strongly

agreed that they are quite concerned about the wasteful consumption of natural resources and the destruction/pollution of the environment.

Table 2 Comparisons of environmental sustainability perception of students between genders using chi – square

		Strongly agree or agree n (%)	Indifferent n (%)	Strongly disagree n (%)	Chi square test of independence (X^2)
I am familiar with the concept of sustainability	male	124(63.9)	24(12.4)	46(23.7)	$X^2(2)= 7.680$ $P < 0.05$
	female	72(54.1)	32(24.19)	29(21.8)	
I have taken courses related to sustainability	male	93(47.9)	29(14.9)	72(37.1)	$X^2(2)=8.186$ $P < 0.05$
	female	51(38.3)	35(26.3)	47(35.3)	
Fossil fuels produce carbon dioxide(CO ₂) into the atmosphere	male	130(67)	29(14.9)	35(18)	$X^2(2)= 4.324$ $p> 0.05$
	female	80(60.2)	32(24.1)	21(15.8)	
Do you agree that greenhouse effect is caused by release of CO ₂ emitted into the atmosphere	Male	117(60.3)	42(21.6)	35(18.0)	$X^2(2)=2.791$ $p> 0.05$
	female	68(51.1)	37(27.8)	28(21.1)	
Do you agree that world climate will probably change massively if CO ₂ continues to be emitted into the atmosphere?	Male	117(60)	40(20.6)	37(19.1)	$X^2(2)=4.345$ $p> 0.05$
	female	71(53.4)	39(29.4)	23(17.3)	
Do you agree that poisonous metals are introduced into the food chain through ground water?	Male	114(58.8)	35(18.0)	45(23.2)	$X^2(2)= 5.160$ $p>0.05$
	Female	70(52.6)	38(28.6)	25(18.8)	
I am concerned about environmental sustainability?	male	139(71.6)	26(13.4)	39(14.9)	$X^2(2)=2.460$ $p>0.05$
	Female	97(72.9)	23(17.3)	13(9.8)	
Do you agree that mankind is over exploiting the environment?	Male	129(66.5)	30(15.5)	35(18)	$X^2(2)=1.526$ $p>0.05$
	Female	90(89.1)	25(18.8)	18(13.5)	
Do you agree that there is a need to save energy where possible and also save resources for the future?	Male	150(77.3)	21(10.8)	23(11.9)	$X^2(2)=2.274$ $p>0.05$
	Female	109(82)	8(6)	16(12)	
I am willing to participate in sustainability initiatives?	Male	137(70.6)	24(12.4)	33(17)	$X^2(2)=1.036$ $p>0.05$

	Female	95(71.4)	20(15)	18(13.5)	
Do you agree the classes on sustainability affect your attitude toward the environment and sustainability?	Male	123(63.4)	35(18)	36(18.6)	$\chi^2(2)=2.082$ $p>0.05$
	Female	79(59.4)	25(18.8)	29(21.8)	
I believe that higher education must teach sustainability for a complete undergraduate curriculum?	Male	151(77.8)	12(6.2)	31(16)	$\chi^2(2)=2.728$ $p>0.05$
	Female	103(77.4)	14(10.5)	16(12)	

Source: Author, 2018.

Table 2 illustrates that there is no significant difference in gender dimension of perceptions to sustainability with p value majorly being ($P > 0.05$). Male respondents claim to be more familiar with the concept of sustainability than the female respondents. (63.9%) strongly agreed or agreed, (12.4%) remain indifferent and (23.7%) strongly disagreed or disagreed in the male population whereas (54.1%) strongly agreed or agreed, (24.19%) remained indifferent and (21.8%) strongly disagreed or disagreed in the female population, with a p value of ($P < 0.05$).

More male respondents (47.9% strongly agreed or agreed, 14.9% remained indifferent and 37.1% strongly disagreed or disagreed) than female respondents (38.3% strongly agreed or agreed, 26.3% remained indifferent and 35.3% strongly disagreed or disagreed) to have taken courses related to sustainability with p value of ($P < 0.05$). This result only emerged in the first two questions where the term sustainability was used. This can be attributed to the failure of the female respondents to connect environmental concern with sustainability. This does not mean that the male population is more concerned about the environment than the female because there was no significant difference in the rest of the responses between male and female where the term sustainability was not used. This result is

compatible with the qualitative analysis of this study. This result is consistent with the findings of Zainulbhai (2015) who established there are no significant differences between genders in perception in developing countries, but when it comes to people who live in wealthier nations, a gender gap emerges.

According to Zainulbhai (2015) in some countries, the politics of climate change can explain the gender divide in wealthier nations like in the United States a higher share of women (52%) than men (44%) tends to lean democratic and supporters of the Democratic Party are more likely than republicans to consider Global Climate Change a very serious problem. In Canada and Germany a similar pattern was found (Ceri, 2015).

Conclusion

Understanding students' perceptions of sustainability is important because they will shortly become the generation responsible for driving the economy and maintaining a sustainable society. There are no sustainability initiatives, practices or policies currently on Kaduna State University campus, Kaduna. Lecturers are considerably more familiar and knowledgeable with the concept of environmental sustainability than students. There is no gendered difference in environmental concern or attitude.

Respondents perceive various behaviors as harming the environment and agreed that mankind destroy the environment and render the environment unsustainable. Respondents have positive attitudes towards sustainable environment and are prepared to embark on behaviors that promote sustainable environment in order to ensure sustainable development. So, there seems to be little or no knowledge gap and commitment gap when it comes to campus sustainability.

Sustainability practices and awareness can be improved on campus by generation of sustainability curriculum, seminars and convention in universities, universities should transition to more sustainable energy sources. Universities should encourage advocacy groups that would provide vital sustainability perspectives and initiatives. University should also expand bus and shuttle systems, encourage bicycling, walking and carpooling to solve traffic congestion, parking shortages and pollution.

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