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Awareness of Undergraduate Students Towards the Anthropocentric and Natural Causes of Climate Change

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Abstract
This study took a critical look at the level of awareness on the causes of climate change among undergraduate students in university of Benin, Benin City. In the course of this research, two basic research questions were raised and one was hypothesised. The respondents for this study were chosen systematically using systematic sampling. This is a type of probability sampling method in which sample members from a larger population are selected according to a random starting point and a fixed periodic interval. The research instrument was questionnaire. A sample size of 360 respondents was selected using random sampling and was analyzed using frequency count and simple percentage method. The validity and reliability of this study was carried out by experts and a consistent result was obtained (r= 0.78). The results of the findings show that students have a high awareness on the causes of climate change. Based on the findings, conclusions and further recommendations were made, one of which being that environment-promoting courses should be made compulsory all over the federation for this will not only improve on awareness but will also improve students' practices on climate change tremendously.
Keywords: Climate change; adaptation measures; environmental education

Introduction
Climate change refers to a change which is attributed directly or indirectly to human activities that alter the composition of the global atmosphere and which are in addition to natural climate variability observed over comparable time period (United Nations Framework Convention on Climate Change UNFCCC, 1992). It is one of the most serious environmental and human threat that is undermining the achievement of the Millennium Development Goals (MDGs) and the international communities' efforts to reduce extreme poverty. It has therefore emerged as a major environmental challenge in this 21st century. Recent research has also noted the impacts of climate change on agriculture and natural resource management in countries of Africa, Asia and Latin America (Speranza, 2010). Because of low adaptive capacities and the projected impacts of climate change, a consensus has emerged that developing countries are more susceptible to the impacts of climate change this is because of the predominance of rain-fed agriculture in their economies, the scarcity of capital for adaptation measures, their warmer baseline climates and their heightened exposure to extreme events (Nnamchi & Ozor, 2009).

Human activities have tended to exacerbate climate change and its impacts on education, industry, agriculture and livelihoods in West Africa. Nigeria having the fastest growing economy in this region tends, to contribute most to the causes of climate change. For example, the Niger-delta region in Nigeria is reported to have over 123 gas flaring sites; making Nigeria one of the highest emitter of Greenhouse gases (GHGs) in Africa (Akinro, 2008). A study by the World Bank (2008) reveals that Nigeria alone is responsible for roughly one-sixth of worldwide flaring. According to the report also, Nigeria flares about

75% of its gas. These flared gases have apparently contributed more Greenhouse gases (GHGs) thus climate change in Nigeria and specifically in the Niger-delta regions. It should as well be noted that agriculture in most part of Nigeria is dependent on rainfall as opined by (Nnamchi & Ozor, 2009). The changes in rainfall patterns have greatly affected vegetation and agriculture in Nigeria. Uncontrolled logging, damaging agricultural activities, acid rain, oil exploration and exploitation, urbanization, industrialization, and mining activities contribute immensely to climate change. The impacts of these causes of climate change are already being felt in the country with food shortage, insecurity, increased risk of disease occurrence and spread, and extreme weather conditions being the most evident.

Some recent studies in Niger-delta have drawn a link between effects of gas flaring on health and attitudes towards gas flaring (Ibeanu, 2007; Dung, 2008; Eldino, 2010). Global climate change will affect people and the environment in many ways. Specifically these effects includes health-related issues(which may arise from exposure to high radiation from the sun, hence sunburn, discomfort, cancer, tanning, increased body metabolism, etc.), changes in seasonal pattern which will directly or indirectly affect farmers and migratory animals thus leading to starvation, frustration, poverty, etc., destruction of our natural environment which will not only affect economies and aesthetics of nations but also be a huge loss to the future generations whom if fortunate enough will only be left with pictures of these destroyed resources. The more man learns how climate change is caused by human activities, the better he can see reasons its necessary to take actions "not just actions but appropriate actions" to reduce the greenhouse gases (GHGs) emission which is actually the major cause of climate change.

Statement of Problem

The earth's climate is getting warmer and the signs are everywhere – rain patterns are changing, sea-levels are rising, and ice caps are melting. As global temperature continues to rise, we will experience more adverse challenges in our environment. These challenges are already affecting people, animals and the ecosystem at large, and students are not left out in these effects. Less rainfall can mean less water for some areas, while excess rainfall could cause terrible flooding. The negative impacts of global climate change will be less severe if we reduce the amount of greenhouse gases we produce and worse still, if we continue producing these gases in current or faster rate. This research work seeks to investigate the level of awareness on the cause of climate change among university students at University of Benin.

Research Questions

These following research questions are raised to guide the study.

1. Are undergraduate students aware of the causes of climate change?
2. Is there difference in the awareness of the causes of climate change between male and female undergraduate students?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance.

1. Undergraduate students are not significantly aware of the causes of climate change
2. There is no significant difference between males and females in their awareness of the causes of climate change.

Methodology

The descriptive survey research design was adopted for the study. The design was chosen because it involves studying a group of people or items by collecting and analyzing data from only a few people or items considered to be representatives of the entire population. The population of the study is 7,516 which consists of all the undergraduate students of university of Benin selected from the university's halls of residence: hall I, hall II, hall III, hall IV and hall V. (University of Benin porter, 2018). In terms of the sample and sampling technique, the systematic sampling technique was employed to select the sample from the total population. This is a type of probability sampling technique in which sample members from a larger population are selected according to random starting point and a fixed periodic interval. Therefore, hall I, III, V were chosen for the study. Then, a simple random sampling was used to select 10% of the population by balloting. Hence 360 respondents made up the sample size for the study. A self-structured

questionnaire was used to elicit response from the respondents. The questionnaire was divided into two sections (A& B). Section A elicited demographic information, while section B elicited the level of awareness on the causes of climate change. Inview of this study, the validity of the questionnaire was ascertained through construct and content validity. The instrument underwentthorough scrutiny by three lecturers from the department of Health Safety and Environmental Education, and their corrections were incorporated. The test-retest reliability was adopted to establish the reliability of the instrument. The instrument was administered to a segment of the population twice after an interval of two weeks, and was collected and computed using pearsons product moment correlation coefficient and a coefficient of 0.78 was obtained. The collected data were analyzed using descriptive statistics and inferential statistics.

Result and discussion of findings

Research question one: Are undergraduate students of university of Benin aware of the causes of climate change?

Table 1: Undergraduate students awareness of the causes of climate change

SN	Students' Awareness on Causes of Climate Change	Yes	%	No	%
1	Deforestation is one of the causes of climate change.	304	84%	56	16%
2	Burning of fossil fuel causes climate	324	90%	36	10%
3	Greenhouse gases (GHGs) are the major cause of climate change	315	87.5%	45	12.5%
4	Over population plays a part in earth's changing climate.	310	86%	50	14%
5	Humans are the major contributors of the causes of climate change.	333	92.5%	27	7.5%
6	Climate change is the change in the total atmospheric weather condition of a place over a long of time.	356	99%	4	1%
7	Climate change is only associated with weather condition of a place.	320	89%	40	11%
8	Climate change is a contemporary environmental problem	317	88%	43	12%
9	Climate change is more of global problem than regional problem.	323	90%	37	10%
10	Problem of climate change can be reduced through awareness.	311	86%	49	14%

Source: Field survey (2022)

From the above table, 304(84%) were aware that deforestation is one of the cause of climate change while 56(16%) respondents were unaware. Also 324(90%) of the total respondents were aware that burning of fossil fuel causes climate change while 36(10%) of the respondents were not aware. The table above also shows that 315 respondents were aware that greenhouse gases (GHGs) causes climate change while 45(12.5%) of the respondents were unaware. Consequently, 310(86%) of the sample were aware that over population plays a part in our changing climate while 50(14%) were not aware. The table indicates that 333(92.5%) respondents were aware that human beings are the major contributor to the causes of climate change while 27(7.5%) were not aware. However, 356(99%) respondents are conversant with climate change as a term while just 4(1%) respondents are not aware of the climate change.320 (89%) respondents answered YES showing that they are aware of the fact that they are aware that climate change is associated with atmospheric weather condition of a place while 40(11%) respondents was not aware. The table also shows that 317(88%) of the respondent are aware that climate change is a contemporary environmental problem while 43(12%) respondents are not aware of this. Consequently, it was also recorded that 323(90%)

are aware that climate change is more of a global problem while 37(10%) of the respondents are not aware and 311(86%) of the respondents agreed that effects of climate change can be reduced through awareness while 49(14%) of the respondents disagreed with this. This table revealed that majority of the respondents are aware of the causes of climate change.

Hypothesis one: Undergraduate students are not significantly aware of the causes of climate change

Table 2: Independent sample t-test statistics showing undergraduate students are not significantly aware of the causes of climate change.

	N	Mean	S.D	t-value	Df	Sig. (2-tailed)
Aware	**304**	**7.24**	**1.35**	**10.96**	**358**	**0.00**
Unaware	**56**	**4.21**	**0.77**			

***aware- score of 6 to 10; unaware- score of 0 to 5.**

The table above reveals those that 304 respondents were aware with a mean score of 7.24 while 56 respondents were unaware, with a mean score of 4.21. The t-value in the table is 10.96, degree of freedom is 358 and alpha level is 0.00 which is less than the set level of significance of 0.05. Hence the null hypothesis which suggests that undergraduate students are not significantly aware of the causes of climate change is rejected. Therefore it can be inferred that they are significantly aware of the causes of climate change in the study.

Research question two: Is there difference in the awareness on causes of climate change between male and female undergraduate students?

Table 3: Mean distribution showing male and female awareness

Gender	N	Mean	S.D
Male	**207**	**7.01**	**1.44**
Female	**153**	**6.81**	**1.51**

The table above reveals the mean distribution showing the difference between male and female in their awareness of the causes of climate change. It can be deduced that male have a mean of 7.01 while female had mean of 6.81.

Hypothesis two: There is no significant difference between males and females in their awareness of the causes of climate change.

Table 4: Independent sample t-test statistics showing the difference between males and females in their awareness of the causes of climate change.

t-value	Df	Sig. (2-tailed)
1.32	**358**	**0.18**

The table reveals the t-test statistics showing the difference between males and females in their awareness of the causes of climate change. It can be deduced that the t-value is 1.32, degree of freedom is 358 and alpha level is 0.18 which is greater than the set level of significance of 0.18. Thus the null hypothesis which suggests that there is no significant difference between males and females in their awareness of the causes of climate change is accepted. This shows that there is no significant difference between males and females in the study.

Discussion of Findings

This research which is focused on investigating the students' awareness on the causes of climate change, taking university of Benin as a case study has exposed the following from the data collected. It was discovered that students are very much aware of the causes of climate change, and that it is also a major environmental problem that has been and is still militating against human and environmental development and sustainability. This is in congruence with the report of Millennium Development Goals (MDGs) that climate change is the biggest environmental issues of our time. This is also in line with the statement that

climate change is an environmental, social and economics challenge on a global scale (Mendelssohn, Dinnar &Williams, 2006).this research is also supported by the findings that adverse impacts climate change includes; frequent drought, increased environmental damages, increased biodiversity loss, decline in soil conditions, increased health risks and the spread of infectious diseases, and changing livelihood systems (Abutudu, Joab – Peterside, & Ishumonah, 2007).

It was also discovered that there is a significant level of awareness on the causes of climate change among the respondents. This research is in contrast with the UNDP report (2010) that the level of awareness on climate change is rather low in Nigeria, and that it's likely to continue if no intervention measures are taken. Nnamchi and Ozor, (2009) identified that because of low adaptive capacities and the projected impacts of climate change will hit most on developing countries than the developed countries… there is need for the government to enhance adaptive capacity among students as agreed by the fact that adaptive capacity reduces vulnerability and promotes sustainable development (Smith, 2000). It was also observed that there is no significant difference between males and females in their awareness of the causes of climate change is accepted. This shows that there is no significant difference between males and females in the study.

Conclusion

This study has examined the level of awareness on the causes of climate change among undergraduate students of university of Benin. The findings have shown that undergraduate students are aware of term "climate change",. The research has also exposed that this high level of awareness that was recorded is basically based on individuals' private/sole efforts in understanding their environment or through incidental information they got while surfing the net or engaging other mass media rather than on the information they got through specific awareness programs on climate change organized by any governmental and non-governmental agencies targeted on capacity building on climate change.

Recommendations

Based on the research, the following are deemed necessary;

- ✓ Government should implement environmental laws that will help in protecting Nigerian environment against environment-damaging activities from both individuals and industries.
- ✓ Oil companies in Nigeria should be placed under serious scrutiny in order to deter them from flaring gases which is an act not only considered to be economically unwise but also environmentally unhealthy.
- ✓ To further improve on students' awareness level, free internet service should be made available in all higher institutions of the federation this will enable student to read articles on climate change, download documentaries on climate change and follow-up the world community in environmental matters.
- ✓ These environment related courses should be made compulsory and pre-requisite for gaining admissions into tertiary institutions and passing out of tertiary institution.
- ✓ Government and non-governmental agencies should be organizing seminars, workshops and conventions on environmental matters at least once every year for capacity building on climate change.

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