PERCEPTION OF CLIMATE CHANGE AMONG SECONDARY SCHOOL TEACHERS IN CALABAR SOUTH AND ITS IMPLICATION FOR PLANNING ENVIRONMENTAL EDUCATION CURRICULUM

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Abstract

The work analyzed perception of climate change among secondary school teachers in Calabar South and its implication for planning Environmental Education curriculum. The survey research design was adopted for this study. The purposive sampling technique was used to involve all the 51 English language and the 29 Mathematics teachers in Calabar South Secondary Schools, making a total of 80 teachers sampled for the study. Two research questions were formulated, which were transformed into two hypotheses. Independent t-test statistical tool was used to analyzed the data. The results indicated that there was no significant difference between English language and mathematics teachers in their perception of climate change. Calabar South English language and Mathematics teachers are aware of changes in climate conditions. It was therefore recommended among others that teacher's awareness of climate change be articulated and blended with Environmental Education teaching.

Key words: Perception, climate change, planning, Environmental Education curriculum.

Introduction

There are prevalent observations of negatively changing situations, sequel to the upheavals of environmental degradations that is partly consequential of climate changes. These environmental degradations range from flood, drought, erosion, desertification, skin diseases etc. As much as these degradations are seen as societal menace, it is apparently obvious that they are fast becoming general societal problems to be captured in school curriculum. Curriculum planning must involve the inclusion of societal desires and

certainly the society today deserves a sustainable environment devoid of disasters especially anthropogenic induced disasters. More so the best strategy of eradicating, reducing, controlling, managing or adapting to climate change is through education. Climate change cannot be adequately controlled or adapted to without elevating societal conscious awareness of its causes and consequences. The obvious way of doing this is through planning and implementation of a good school curriculum. Environmental Education curriculum is therefore an apparent approach to the study of climate change. More so, because, climate change is a major component in Environmental Education discourse.

However there have been recent calls on the inclusion of climate change in the secondary school curriculum. Example, Emesine (2013) opined that, secondary school Geography curriculum in Nigeria should be reviewed and updated to reflect climate change and its implications. Ogbu (2013) asserted that, curriculum should be developed on climate change in secondary school Agricultural Science Education in Nigeria. Olarinoye (2013), Ajuonuma and Oguguo (2013), Akuakanwa and Urenyere (2013), Aboho, Agbidye and Asooso (2013) among others opined that curriculum should be developed on climate change at secondary Education level in Nigeria. More so Olaniran, Akpan, Ikpeme & Udofia (2010) stated that climate change and global warming are two environmental problems that have caught global attention which need to be addressed because they can trigger off some other health related environmental problems like flood, drought, desertification etc. which are all man induced problems. This is in agreement with Cunningham & Cunningham (2008) that, both global and local climate can be highly variable, and often over relatively short time scale, adding that most scientists now regard anthropogenic (human induced) global climate change to be the most important environmental issues of the time.

According to Federal Ministry of Environment (2011) climate change is already having significant impacts in Nigeria and these impacts are expected to increase in the future. That if no adaptation is implemented, climate change could result in a loss of between 2% and 11% of Nigeria's Gross Domestic products (GDP) by 2020, rising to between 6% and 30% by the year 2050. This loss according to the report is equivalent to between N15 trillion (US $100 billion) and N 69 trillion (US $ 460 billion).

It is obvious that the surest way for the country to adapt to climate change is education. Since English Language and Mathematics are compulsory subjects in schools, it will be fundamental to pass the message of climate change through these traditional core subjects.

Udosen and Jude (2013) specifically stressed that, while climate change scientists study the change done to earth by increased temperatures and carbon dioxide in the atmosphere, English Language teachers can create the needed awareness on human behavior that contributes to the crisis, with a view to shaping and changing attitudes. Ogbonna, Obukowo and Kaduramba (2013) emphasized that, the observed drastic climatic changes are so worrisome and disturbing that one is not sure of the weather condition by the next minute because seasonal cycles are abruptly disrupted. Ogbonna et al (2013) carried out a study on secondary school Mathematics teachers perception of climate change

and its implication for curriculum development; their findings indicated that most of the mathematics teachers in Abia state were aware of the changes in the climate and they recommended among others that, there is need to create more awareness among Mathematics teachers on causes and effects of climate change because of the great impact the issue of climate change has on all sectors of life.

Considering the importance of climate change, especially as highlighted above, it is necessary to carry out a study to determine whether English Language and Mathematics teachers in Calabar South are aware of the causes and effects of climate change because teachers cannot teach what they are not aware of certain basic information about climate change that teachers need to be aware of include the fact that weather and climate goes hand in hand. Iwena (2008) defined weather as the condition of the lower atmosphere of a place over a short period and defined climate as the average weather condition of a place over a long period of time. According to Iwena (2008) the weather of any given place changes from day to day while climate is comparatively constant over a long time. Elements of weather and climate include temperature, rainfall, wind, pressure, relative humidity, cloud cover and sunshine. However, recent observations show that climatic pattern has change globally, resulting to current environmental issues. Climate change is seen as long-term alteration in global weather patterns especially increases in temperature and storm activity regarded as a potential consequence of the greenhouse effect.

It is also necessary to highlight the causes of climate change and obviously state that,

There are two major sources of climate change. These are: 1. Natural causes 2. Anthropogenic causes.

The natural causes of climate change include: (i). solar output (ii) volcanic eruption (iii) ozone depletion (iv) ocean current (v) action of glaciers and (vi) rapid release of methane trapped beneath the ocean floor many years ago. In the other hand, the anthropogenic (human causes) include: (i) bush burning (ii) deforestation (iii) industrial gases (iv) use of chlorofluorocarbons (CFC) and the release of other greenhouse gases such as carbon dioxide, methane, oxides of sulfur, oxides of nitrogen etc. (Cunningham & Cunningham 2008, Iwena, 2008).

The concentration of these gases in the atmosphere and other climatic conditions are the major contributors of global environmental damages. More so, Climate change has many negative impacts especially on human life. Cunningham & Cunningham (2008) enumerated some of the effects of climate change to include:

1. Wide spread precipitation even in places where total rain amount has decreased
2. Increase in the intensity and duration of tropical storms and hurricanes
3. Increase in high sea level
4. Regional temperature increase, contributing to migration of birds and other animals in many countries.

Other effects are, displacement of human settlement, erosion, skin burning among others.

Statement of the problem

Climate change looks scientific and it is a study in Environmental Education. Science in the other hand is said to involve more mathematics than English language. The problem of

this study in question form is how does secondary school teachers in Calabar south perceive climate change considering the fact that Environmental Education is not taught as a traditional teaching subject in the secondary schools especially in Cross River State? Specifically, how does an English language teacher differ from Mathematics teachers in their perception of climate change and how does male and female teachers react to the causes and effects of climate change in their area.

Objective of the study

The objective of this study is therefore to investigate the secondary school teachers' perception of climate change.

Specifically, the aim of the study was to find out the secondary school English Language and Mathematics teachers' perception of the causes and effects of climate change with the believe that such knowledge would be impacted to the students. The following research questions were formulated.

1. How do English Language and Mathematics teachers differ in their perception of climate change?
2. How do male and female teachers differ in their perception of climate change?

The research questions were transformed into the following hypotheses to guide the study.

1. There is no significant difference between English Language and mathematics teachers in their perceptions of climate change
2. There is no significant difference between male and female teachers in their perception of climate change.

Methodology

The survey research design was employed in this study. As such a sampled population of teachers was taken in order to discover the distribution and the interrelationships among the variables in this study for general inference. More so the purposive sampling technique was used to involve all the 51 English Language and the 29 Mathematics teachers in Calabar South, making a total of 80 teachers sampled for the study.

Structured questionnaire titled, Questionnaire on Secondary School teachers' perception of climate change was used to elicit information from respondents. The instrument was validated by experts in measurement, curriculum and Environmental Education departments of the University of Calabar.

The instrument had sections A and B. Section A, was a two item questions on gender and subjects taught while section B contain 18 item questions, 8 on causes of climate change and 10 on the effects of climate change.

The 4-point Likert scale instrument of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD) was used for Section B. Independent t-test statistical technique was used to analyze the data obtained.

Results

The result of the study was presented hypothesis-by-hypothesis

Hypothesis one: There is no significant difference between English language and mathematics teachers in their perception of climate change

Table 1: Independent t-test analysis of the difference between English language and Mathematics teachers on their perception total climate change

Group	N	Mean	SD	T-value	Sig
English Teachers	51	56.235	5.241		
				1.387	.206
Mathematics Teachers	29	54.621	4.555		

Not significant at the 0.05 level, df = 78, critical value = 1.990

The result of the analysis on table 6 indicates that the t-value of 1.387 is less than the critical value of 1.990 with 78 degree of freedom. This implies that, the null hypothesis is retained and accepted that, there is no significant difference between English language and Mathematics teachers on their perception of climate change total.

Hypothesis two

There is no significant difference between male and female teachers in their perception of climate change

Table 2

Independent t-test analysis of the difference between male and female teacher's perception of climate change total

Group	N	Mean	SD	T-value	Sig.
Male teachers	32	55.375	3.270		
				-397	.008
Female Teachers	48	55.833	5.955		

Not significant at the 0.05 level, df = 78, critical value = 1.990

The result of the analysis on table 7 shows that the critical value of 1.990 is greater than the t-value of -397 with 78 degree of freedom. This implies that, the null hypothesis is retained and accepted that, there is no significant difference between male and female teachers on their perception of climate change total. The purpose of this study was to investigate Calabar South English Language and Mathematics teachers' perception of climate change.

The result in table 1 shows that there is no significant difference between English Language and Mathematics teachers in their perception of climate change.

On the other hand, the result on table 2 shows that, there is no significant difference between male and female teachers in their perception of climate change.

This however is in divergence with the report of Ogbonna, et al (2013) that there was a significant difference in the perception of male and female mathematics teachers on issues of climate change in Abia state.

However, the finding of the study is in harmony with the fact that English Language and mathematics teachers are aware of the obvious climatic changes in their

environment. Teacher preparations have a common general curriculum for all subject teachers outside their area of specialization. The teacher curriculum generally, does not reflect core environmental issues. Essentially, mathematics curriculum does not have content areas in climate change this is so in English language curriculum. The knowledge available to teachers in the area of climate change are basically what individual teachers have access to through the media and other non-formal settings.

Conclusion

The finding of this study shows that there was no significant difference between English Language and mathematics teachers in their perception of the causes and effects of climate change. There was also no significant difference between male and female teachers in their perception of causes and effect of climate changes. English language and mathematics teachers are aware of the obvious climate changes in their environment.

Recommendations

Considering the findings of the study, the researcher recommended that: It was necessary to articulate English language and mathematics teachers' perception of climate change to blend with methods of teaching environment education. The awareness of male and female teachers about climate change should be encourage through seminars and conferences to maintain the existing gender balance in the teaching of climate change.

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