Knowledge and Perception of Secondary School Teachers on Global Warming in Ibadan Oyo State, Nigeria

Samuel Olanrewaju Oladapo
Adekunle Ajasin University
Akungba Akoko, Nigeria
E-mail: Lanree2007@gmail.com

Abstract
This study examines the Knowledge level of teachers in Ibadan on global warming, the factors influence it and how they perceived it. Questionnaire was used as the main instrument for data collection. It was designed to elicit information on the basis of research questions set for this study. A total number of 450 teachers were used as the sample size. Descriptive statistics such as simple percentages and frequency counts were used in the analysis of the research data collected. The study revealed that teachers have knowledge on global warming and aware of its threat to human existence. It was observed that the source of their knowledge on global warming by teachers include the media and attendance at conferences and workshops. As a result of the above findings, it was recommended that efforts should be made to make relevant and up-to-date information on global warming available to the teachers. Emphasis should be made to make the teachers participate in programmes that address adaptation policies on global warming.

Keywords: Global warming, Knowledge, awareness, Teachers.

1. Background of the Problem

Global warming constitutes one of the 21st century key challenges to development the world over (UNDP, 2007). As such, global warming have become issues of global concern in the recent decades. This is evidenced by the flurry of conferences, campaigns, reports and researches on this subject since the Rio Earth Summit in 1992. While there are natural causes of global warming, the current warring trend has been largely blamed on human activities mainly the burning of fossil fuels, industrial pollution, deforestation, and land use changes (IPCC, 2007; Canadel , 2010; Weart, 2010). All these anthropogenic activities either increase the concentration of greenhouse gases in the atmosphere (Canadel *201*0), as is the case of combustion of fossil fuel and industrial pollution, or interfere with the absorption of carbon by terrestrial sinks (IPCC, 2007), as is the case of deforestation and land use changes, leading to global warming.

Global warming is, quite literally, when temperatures of the world's atmosphere rises. Between the periods 1956-2005, the average earth's temperature rose and 13°C per decade. This might not seem like much, but it was double the rate for the 100 years from 1906 to 2005. Temperatures in colder areas, like the Arctic, rose twice as fast as the average. The increase of temperatures on the land doesn't tell the full story. That's because the ocean absorbed 80% of the heat. This has led to the ice caps melting at a rate of 2.7% per decade since 1978. It also caused sea level to rise at an average rate of 3.11mm per year between the periods 1993-2003, nearly double the rate between the periods 1961-2003 (IPCC Climate Change 2007).

Scientific and government organizations have agreed that global warming is caused by a man-made increase in greenhouse gases, which include carbon dioxide, hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). It is one major worldwide change that most people do not take into account. Global warming which is due to climate change refers to a change in climate that is attributable directly or indirectly to human activities, that alters the atmospheric composition of the earth The result has been the loss of farmlands and conflicts between farmers and herdsmen over ever decreasing land for animal gracing. Many different communities, including fishermen, farmers and herdsmen, are now confronted with difficulties arising from climatic changes. Nigeria is one of the countries expected to be most affected by the impacts of climate change through sea level rise along her coast line, intensified desertification, erosion and flooding disasters and general land degradation. According to a report in Guardian Newspaper, Nigeria

lose close to $9 billion as a result of the catastrophe while, at least, 80per cent of the inhabitants of the Niger Delta will be displaced due to the low level of the oil-rich region (Hassan and Nhemachena, 2008)

The impact of global warming has become obvious in Nigeria necessitating the need for adaptation and mitigation at the country level. However, adaptation to and mitigation of global warming and climate change require the public to be fully aware and perceive climate change as a problem of global concern. Yet, the vast majority of Nigeria is unaware of global warming, There has been alarming fear in the heart of environment experts on the rate at which the temperature of the earth changes. This has brought about global warming, causing diverse degree of damage to man, animals, plants and their environment. This has made nations to meet to agree on how to reduce the human activities that has been identified as a major cause of global warming. Despite their awareness of changing weather patterns, people in Africa, are poorly informed about global climate change (Godfrey, 2009; Taderera, 2010). The low level of awareness on global warming across sub-Saharan African countries is attributed to limited awareness campaigns on one hand and the fact that African countries have got too many problems ranging from poverty to political conflicts on the other hand hence global warming and climate change is never a priority issue (UNFCCC, 2007; UNDP, 2007). Contrary results were, however, reported by Pugliese and Ray (2009) who states that global warming is more likely to be perceived as a serious problem in the developed world than in developing countries, despite developing countries being the most vulnerable to global warming impacts.

In Nigeria today, some state governments including Oyo State Government in collaboration with the Federal government have begun taking steps to mitigate the effects of global warming in Nigeria. Even as resources are put together to mitigate global warming, there is need to educate people on what global warming really is. The city of Ibadan has been selected as an examination of this trend because of its unprecedented growth in Nigeria and Ibadan happened to be the capital city of Oyo State. Analysis shows that the temperatures in Ibadan have been increasing at significantly higher rates than its surrounding rural temperatures. The growth of settlements in the capital city of Oyo State results to rise in temperature because most common construction materials absorb and retain more of the sun's heat than natural surfaces in less- developed rural areas. Urban Heat Island in turn, modifies local metrological conditions, such as wind patterns, cloud cover, humidity and rates of precipitation. However, Air temperatures in urban areas have been measured to be up to ten degree Celsius (18 degree Fahrenheit) warmer than the air temperature of their surrounding rural areas (Carlowiez, 2009).

Increasing people's awareness on global warming through education is an important measure to persuade people at all levels in the community to play an active role in mitigating and adapting to global warming and climate change. It is paramount to assess the teachers' level of knowledge on global warming since the teachers' level of knowledge and awareness is likely to influence how they conduct global warming knowledge transfer in the classroom. The government therefore needs to largely educate Nigerians on how best to safeguard their lives and properties in the light of global warming in Nigeria. This study was designed to fill this gap by assessing the level of global warming knowledge among Ibadan teachers.

Despite all the measures adopted, there seem to be extreme weather changes, which have been as a result of environmental pollution by different strata of society, which involve both literate and illiterate. It is essential that without the knowledge of a problem there must be no solution insight. Therefore, this work is aimed at investigating the knowledge of global warming issues among teachers in Ibadan.

2. Research Questions
- What is the level of awareness of teachers on global warming in Ibadan?
- What factors influence teachers' level of awareness on global warming?
- Do teachers in Ibadan perceive global warming as a threat?

The design for this study is descriptive survey research design. The population for this study comprises of teachers from public and private secondary schools located in Ibadan the capital city of Oyo State, Nigeria. The study targeted a population of secondary school teachers in the study area. The choice of secondary school teachers as the unit of observation was guided by the vital role they could play not only in imparting knowledge of global warming, but also in shaping attitudes and behaviors of the students.

3. Sample and Sampling Technique

Ibadan was purposively selected as the study area due to its diverse nature of settlement, which gave the researcher the opportunity to collect data from schools, located in the study area. Since the population is large, the researcher used simple random sampling technique to select 450 respondents from ten secondary schools in Ibadan. The sample for this study comprises of forty-five (45) teachers randomly selected from ten public secondary schools.

3.1 Research Instrument

The main instrument used by the researcher is questionnaire to collect data for this study. The questionnaire consisted of 2 sections labelled A & B. Section A consisted of demographic questions. Section B consisted of awareness questions to establish respondents' basic knowledge of global warming issues. A five-point Likert Scale was used to rate respondents attitude towards various Likert items. The questionnaire was drawn to extract information from respondents by circling and ticking appropriate responses from the alternatives provided with the use of "Agree (A), Strongly Agree (SA), Disagreed (D), and Strongly Disagreed (SD)".

3.2 Validity of Instrument

To ensure validation of instruments, the instrument was given to the supervisor for necessary correction and modification. The corrections made were effected and required copies printed to be administered on the respondents.

3.3 Reliability of Instrument

The Reliability coefficient for the instrument was 0.75 which is above average in reliability, therefore the instrument is reliable. These reliability coefficients were considered adequate for the consistencies of the instrument.

4. Data Analysis

The data collected from the respondents were analyzed using SPSS 20 software. The results were discussed using descriptive statistics of mean and standard deviation, frequency distribution tables and percentages.

The data collected from the respondents were analyzed using SPSS 20 software. The results were discussed using descriptive statistics of mean and standard deviation, frequency distribution tables and percentages.

Table 1: Frequency and percentage distribution of respondents by sex

Sex	FREQUENCY	PERCENTAGES
Male	87	58.0
Female	63	42.0
Total	150	100.0

Table 1 showed that majority 87 (58.0%) of the respondents were males while the remaining 63 (42.0%) were females.

Research Question 1: What is the level of awareness of teachers in Ibadan on global warming?

Table 2: Rating of teachers' awareness on global warming in Ado – Ekiti

Awareness level	Frequency	Percentage
Good (8 – 16)	103	68.7
Poor (0 -7)	47	31.3
Total	**150**	**100.0**

The mean awareness score of the respondents was 3.7±0.75. Majority (68.7%) of the respondents had a good awareness while only 31.3% have poor awareness of global warming (Table 4.6a).

Table 3 : Showing level of teachers' awareness on global warming i

Items	SA(%)	A(%)	D(%)	SD(%)	Mean	Std. Dev.
It leads to water born diseases	74(48.7)	67(44.7)	4(2.7)	5(3.3)	3.40	0.70
It leads to lost of revenue	62(41.3)	72(48.0)	12(8.0)	4(2.7)	3.28	0.72
It reduces farm land	66(44.0)	75(50.0)	9(6.0)	0(0.0)	3.38	0.59
Its affects human heailth	87(58.0)	62(41.3)	1(0.7)	0(0.0)	3.57	0.51

Table 3 revealed the level of teachers awareness on global warming as follows; 74(48.7%) and 87(58.0%) of the respondents strongly agreed that global warming leads to waterborne diseases informed that global warming is an issue of global concern respectively. While 72(48.0%) and 75(50.0%) of the respondents agreed that the increase of greenhouse gases is mainly caused by human activities and aware that global warming is mainly caused by natural variations respectively. This revealed that the teachers had a good awareness of global warming

Research Question 2: What factors influence teachers' level of awareness on global warming?

Table 4: Showing factors influence teachers' level of awareness on global warming in Ibadan

Items	SA(%)	A(%)	D(%)	SD(%)	Mean	Std. Dev.
I learn about global warming through seminar, workshop	62(41.3)	86(57.4)	0(0.0)	2(1.3)	3.39	0.57
Through electronic media	79(52.0)	56(36.8)	7(4.6)	8(5.3)	3.37	0.81
I heard through people around me	54(36.0)	82(54.7)	14(9.3)	0(0.0)	3.27	0.62
It also talk about in religious places	49(32.7)	84(56.0)	17(11.3)	0(0.0)	3.21	0.63
Through home video	0(0.0)	58(38.7)	36(24.0)	56(37.3)	3.13	0.77

* Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

Table 4 revealed the factors that influence teachers' level of awareness on global warming as follows; workshop/seminar(B9) 86(57.4%) agreed with mean and standard deviation score of (3.39 and ± 0.57), television and national radio(B10) 79(52.0%) strongly agreed with mean and standard deviation score of (3.37 and ± 0.81), Newspaper magazines, journals/internet(B11) 82(54.7%) agreed with mean and standard deviation score of (3.27 and ± 0.62) while friends/family members, neighbor and coworkers(B12) 84(56.0%) agreed with mean and standard deviation score of (3.21 and ± 0.63) and learning materials (B13) 58(38.7%) agreed with mean and standard deviation score of (3.13 and ± 0.77) respectively. The responded however disagreed that it's been talked about in worship places

Research Question 3: Do teachers in Ibadan perceive global warming as a threat?

Table 5: Showing teachers perception of global warming as a threat in Ibadan
Global warming is a threat because;

Items	SA(%)	A(%)	D(%)	SD(%)	Mean	Std. Dev.
It reduces food production	240(53.3)	210(46.7)	0(0.0)	0(0.0)	3.53	0.50
It leads to ash environment	150(33.3)	270(60.0)	24(5.3)	2(1.4)	9.25	0.62
It brings in many epidemic of new ailment	120(26.7)	258(57.3)	72(16.0)	0(0.0)	9.11	0.65
It's a threat to human existence	108(24.0)	186(41.3)	156(34.7)	0(0.0)	2.90	0.76
It can reduce life expectancy	120(26.7)	228(50.7)	102(22.7)	0(0.0)	3.04	0.70
It makes weather prediction difficult	126 (28.0)	240(53.3)	84(18.7)	3(0.9)	3.09	0.68

Table 5 revealed teachers perception on global warming as a threat as follows; reduces water resources (B14) 80(53.3%) strongly agreed with mean and standard deviation score of (3.53 and ± 0.50), harsh and unfavorable weather condition(B15) 90(60.0%) agreed with mean and standard deviation score of (3.25 and ± 0.62), associated with frequent drought and floods(B16) 86(57.3%) agreed with mean and standard deviation score of (3.11 and ± 0.65) ,while food shortage and extinction of animals(B17) 64(41.3.0%) agreed with mean and standard deviation score of (2.90 and ± 0.76) malnutrition, famine and drought(B18) 76(50.7%) agreed with mean and standard deviation score of (3.04 and ± 0.70) and learning materials (B19) 58(38.7%) agreed with mean and standard deviation score of (3.13 and ± 0.77) respectively.

5. Discussion and Findings

The study revealed the inference into the study of knowledge of Global warming among teachers in Ibadan. Global warming happens as a result of both human activities and a natural change in the environment and that global warming is the change/increase in the world's average temperature respectively. This revealed that the teachers had a high knowledge of global warming

The findings in this study revealed that the teachers in Ibadan have knowledge of on global warming. The findings of this study also revealed teachers are strongly aware of global warming in Ibadan, they agreed that global warming leads to waterborne diseases informed that global warming is an issue of global concern respectively. The findings of this study affirmed the findings of Aluko et al. (2008) who were of the opinion that global warming has significant impact on fragile soil and traditional farming systems which also affect food supply in the market among traders.

The factors which influence the level of awareness of global warming among teachers in Ibadan are the media, internet/journal. The media can play crucial roles in informing the public about climate change. The findings buttressed by Saroar and Routray (2010), that access to information determines individual's knowledge of climate change, which eventually influences behaviour. People who either read newspapers or other related prints, listen to radios, watch TVs, or have access to the internet are more likely to be familiar with climate change than those who do not have access to such media of information.

Also the study revealed that teachers in Ibadan perceived global warming as threat as it is been associated with drought and flood, food shortage and extinction of animal. The findings also supported by Litus (2012) that climate change causes rising temperature, droughts and desertification, heavy precipitations, flooding, rising sea level, extreme weather events such as cyclones, floods and droughts leading to mal-nutrition, waterborne diseases as diarrhea and vector-borne diseases as malaria, drowning, severe mental and physical trauma.

6. Recommendation

The following recommendations were made from the study:

- Introduction of environment education in the teacher education system: The curriculum should include environment education as to equip the teachers and their class children on how to be environment friendly and to know the consequence effect of climate change on them. To achieve this curriculum review is required.
- Organize workshops. Regular workshops, seminar, conferences should be organized for teachers as regards climate change and its impacts and ways these impacts can be mitigated. This will help the teachers to be informed about new findings on global warming, its impacts and mitigation and how to transfer same to their class children.
- Regular in-service training. Regular in-service training should be organizes for teachers to keep them abreast with the research finding on global warming and other issues of life.
- There should be public awareness of the global warming problem and its solutions. The worship centers should be encouraged to be talking along this as all strata of the society attend worship center
- Researchers should also explore the link between level of awareness on global warming and behaviour change to inform any policy that seeks to make the public adopt positive environmental behaviours through awareness creation.

References

IPCC.(2015). Summary for Policymakers. In: Climate Change 2013: The Physical Science Basis: Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

IPCC Online, Glossary of Terms Used in the IPCC Third Assessment Report (2001) IPCC_Third_Assessment_Report (Accessed December 2009). http://en.wikipedia.org/wiki/

Okechukwu, Nnodim. (2013), The punch newspaper, Tuesday November, 19th 2013 [33]. Okon, Julius. (1998), Nigeria newswatch magazine October, 26th 1988.

Nicholas O., Madukwe M. C, Enete A. The Guardian. (2012). World carbon emissions: the league table of every country. Retrieved June 21, 2013 from

Pew Research Centre (2013). Most Americans believe climate change is real, but fewer see it as a threat. Washington, D.C.: The Pew Research Centre for the People & the Press.

Pugliese, A. & Ray, J. (2009). Gallup presents...A heated debate: Global attitudes toward climate change. *Harvard International Review*, 31,64-68.

Strahler, A and Strahler, A. (2006), Introducing physical geography, fourth edition, john wiley and sons inc.

Taderera, D. (2010). South African's Awareness of Climate Change. Briefing Paper No. 235. Cape Town, S.A: The Catholic Parliamentary Liason Office

Thomas, A. Easton. (2009), Classical edition sources, environmental studies, third edition published by mcgraw-hill company inc.

UNDP (2007). Fighting climate change :Human solidarity in a divided world. New York: UNDP

Weber, E.U. (2013). Psychology: Seeing is believing. Nature Climate Change, vol.   3, pp. 312-313.

Whitmarsh, L. (2008). Are flood victims more concerned   about climate change than other people? The role of direct experience in risk perception and behavioural response. *Journal of Risk Research*,11(3),351-374.

Copyrights