Environmental Education: A Tool for Creation of Awareness Onadaptation to Climate Change in Nigeria

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Abstract: *This study assessed the role of Environmental Education as a tool for the creation of awareness on adaptation to climate change in Nigeria. The descriptive survey research design was adopted for the study. Five research questions and five hypotheses were raised and formulated respectively for analyses and testing in the study. The population of the study comprised of all public primary, secondary, and tertiary institutions as well as rural and urban settlers in the six (6) geopolitical zones in Nigeria. The sample size comprised of 300 respondents respectively made up of 60 pupils, 60 secondary students, 60 tertiary students, 60 rural settlers and 60 urban settlersselectedrandomly from six geopolitical zones of Nigeria. The research instrument used for data collection was a 15structured questionnaireitems rated on a 4-point Likert scale, with response options of Strongly Agree (SA); Agree (A); Disagree (D); and Strongly Disagree (SD).The responses of the respondents were presentedin simple statistical table and analysed using Mean $(\bar{x})$ and Grand Mean $(g\bar{x})$ while Chi-Square (x^2) was used to test the hypotheses, generated at 0.05 level of significance. The findings of the study revealed that Environmental Education (EE) can be used in primary, secondary and tertiary institutions as well as rural and urban settlements to create awareness on adaptation to climate change in Nigeria. Based on the findings, it was recommended that EE, which is a major tool for creation of awareness on adaptation to climate change should be taught with outdoor practical and field studies, and as a compulsory subject at all levels of education in Nigeria.*
Keywords: *Climate change, Adaptation, Maladaptation, Environmental Education (EE)*

I.   Introduction

Extreme weather and climate events have wide-ranging impacts on society as well as on educational systems. Climate change is a considerable and lasting alteration in the numerical distribution of weather patterns over a period. It may perhaps be changes in weather conditions (that is, more or fewer extreme measures). Changes in climate is caused by factors that include oceanic processes (such as oceanic circulation), variations in solar radiation, biotic processes, volcanic eruptions and plate tectonics, and human-induced alterations of the natural world; these human-induced effects are currently causing global warming, and climate change is often used to describe human specific impacts (United Nations, 2014).

Scientific studies by Wit (2011)and the United Nations (2014) noted that global changes in climate are unequivocal, and already causing significant harm, as well as posing great risks to our future. It noted that the currentclimate actions that governments and individuals have taken would influence the magnitude of warming and the amount of greenhouse gas emissions. These activities also affect people's ability to take action and adapt to changes in weather conditions, and potentially reduce the susceptibility of people and their places. Educating students and the public at large about the effects and causes of global change in weather conditions is crucial because putting into practice viable solutions depends on well-informed populace.

The World Bank isnotedfor its development projectson Environmental Education, which includes climate change; It services to governments, private sector and civil society organizations throughout the world are noteworthy and extolled. UNDP (2010) report showed that the level of awareness about climate change is rather low in Nigeria and, if measures are not taken, will wreak havoc on the daily lives of its citizens. The report showed that the awareness of climate change is a bit high at the federal level but drops at the state and local government levels where knowledge is highly needed. These levels encompass the people who own and cultivate farmlands. Olorunfemi (2010) asserted that the most significant obstacle to reducing the impact of climate change in Nigeria is lack of awareness and knowledge. For this reason, knowledge in Environmental Education must be taken seriously and to the grassroots.

Environmental Education is an essential tool for global response to climate change. It helps students and the general public to understand and address the causes, effects and impacts of global warming, increases "climate literacy" among young people, encourages changes in their attitudes and behaviour, and helps them

adapt to climate change related trends. Environmental Education creates awareness and enables informed decision-making, plays an essential role in increasing adaptation to climate change, and mitigation capacities of communities, empower women and men to adopt sustainable lifestyles. Climate change education is part of UNESCO's Education for Sustainable Development (ESD) programme. In 2014, UNESCO launched the Global Action Programme (GAP) on ESD, the official follow-up to the UN Decade of ESD, with climate change as a critical thematic focus. UNESCO aims to make climate change education a more central and visible part of the international response to climate change (UNESCO, 2018).

Environmental Education focuses on engaging with citizens of all demographics: to think critically, ethically and creatively when evaluating environmental issues;make educated judgments about those environmental issues;develop skills and commitment to act independently and collectively to sustain and enhance the environment; and to enhance their appreciation of environment, resulting in positive environmental behaviour (Nwankwoala, 2015).

Orr (2010), while supporting the need for the teaching of Environmental Education in today's schools asserted that all education is environmental education. By what is included or excluded, we teach students that they are part of or apart from the natural world. Orr further opined that schools have the obligation in teaching our students about the world they live in, to accurately render their relationship to it. If the study of environment is neglected in our curriculum, it implies that students are taught to be apart from the natural world they live in, and this is a lie. Of course, education about the environment should not only be formal, it should include informal settings where people from all walks of life participate and benefit from.

Statement of the Problem

Studies conducted by Saylan (2011) and Olorunfemi (2010) posit thatEnvironmental Education has failed because it is not keeping pace with environmental degradation. This implies that environmental education has failed to provoke actions against human activities that contribute to environmental degradation. Human beings are minute by minute destroying the environment, and environmental education is not offering commensurate condemnation of these actions through making environmental education a part of public education. Lack of awareness has also been identified as a phenomenon preventing the proper functioning of environmental education in many countries of the world including Nigeria.

This study therefore appraises the extent to which environmental education is used as a tool for creation of awareness on adaptation to climate change in Nigeria.

Purpose of the Study

This studyis an appraisal of Environmental Education (EE) as a tool for creation of awareness and adaptation to climate change in Nigeria.
Specifically, the study appraises:
i.	The extent to which EE is used in Primary Schools in Nigeria as a tool for creation of awareness on adaptation to climate change;
ii.	The extent to which EE is used in Secondary Schools in Nigeria as a tool for creation of awareness on adaptation to climate change;
iii.	The extent to which EE is used in Tertiary Institutions in Nigeria as a tool for creation of awareness on adaptation to climate change;
iv.	The extent to which EE is used in Rural settlements in Nigeria as a tool for creation of awareness on adaptation to climate change; and
v.	The extent to which EE is used in Urban settlements in Nigeria as a tool for creation of awareness on adaptation to climate change;

Research Questions

The following research questions were raised to guide the study:
1.	To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian Primary Schools?
2.	To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian Secondary Schools?
3.	To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian Tertiary Institutions?
4.	To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian Rural settlements?
5.	To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian Urban settlements?

Hypotheses
The following null hypotheses were formulated for testing in the study:
Ho1: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Primary Schools.
Ho2: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Secondary Schools.
Ho3: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Tertiary Institutions.
Ho4: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Rural settlements.
Ho5: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Urban settlements.

II. Review of Related Literature

Concept of Environmental Education
Environmental Education is defined by Agbor (2016) as the process that gives individuals opportunities to explore environmental issues, engage in problem solving, and take action to improve the environment. It encompasses the acquisition of knowledge in basic Environmental Education concepts, principles, history, policies, basic human population dynamics, knowledge of biodiversity, sustainable agriculture, forestry, soil conservation, water use, non-renewable mineral resources, non-renewable and renewable energy resources, climate change and ozone depletion, pollution prevention and waste reduction, sustainable cities, environmentally sustainable economic and political systems, environmental ethics and the overall worldviews of environmentalism (Ekpo & Aiyedun, 2018).

Sijuwade (2010) on the other hand defined Environmental Education as a process that promotes the awareness and understanding of the environment, its relationship with man and his activities. EE also aims at developing responsible actions necessary for maintenance, preservation and development of the environment and its components. It allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions. Therefore, EE should result in the knowledge, desires and ability necessary to direct one's conduct for improving the quality of life. It should enable the individual to perceive the problems that exist and to devise solutions to them. It is noted also that EE has a place in the sensitization of the whole environment and the dwellers therein including humans and animals (Ojelade, Aiyedun and Aregebesola, 2019).

Concept of Climate Change
Eneji, Williams, Ekpo and Isa (2017) defined climate as the regular weather condition of an area over a prolonged time. Agbebaku (2015) explained the term climate change as the changes in the earth's climatic system. It is majorly concerned with a change due to an increase in the average atmosphere temperature Changes in climate occur as a result of internal variability within the climate system and of external factors (natural and anthropogenic). The influence of external factors on climate can be compared using the concept of radiative forcing. A positive radiative forcing, such as that produced by increasing concentrations of greenhouse gases and carbon dioxide tends to warm the surface. A negative radiative forcing, which can arise from an increase in some types of aerosols (microscopic airborne particles) tends to cool the surface. Natural factors, such as changes in solar output or explosive volcanic activity, can also cause radiative forcing. Characterisation of these climate forcing agents and their changes over time is required to understand past climate changes in the context of natural variations and to project what climate changes could lay ahead.

Concept of Adaptation to Climate Change
Taylor (2015) suggested that adaptation to climate change includes a broad array of institutional practices, discourses and policies, and includes any and all activities created in the context of managing a changing climate (mitigation projects, for example). It is within this broad framing that discussion on the possibilities for maladaptation is premised. Climate change requires people to adjust (adapt), and the inability of persons and communities to adjust to environmental or economic instability is a part of maladaptation. Further, people must be able to adapt to not only to new hazards and changing resources, but also to new development initiatives, and to changes in access to and control over resources, which are predicated on the idea that climate and society are separate fields acting independently of each other (Eriksen, Nightingale, & Eakin, 2015; Taylor, 2015). Activities grounded in the idea that ecosystems and climate are separate from human social life can inhibit adaptive processes, and also make space for decisions that deliberately place greater emphasis on short-

term outcomes over longer-term threats, and fail to consider the full range of project interactions (Noble, Huq, Anokhin, Carmin, Goudou, Lansigan, & Villamizar, 2014).

Concept of Maladaptation to Climate change

To adapt implies maintaining or strengthening resilience against current disruptions, on the one hand, and being capable of planning for the long term, on the other (Cardona, Aalst, Birkmann, Fordham, 2012; and Magnan, 2013). The United Nations Environmental Programme (2019) noted that the IPCC's 2014 Fifth Assessment Report, Working Group II (WGII) on the impacts, vulnerability and adaptation defined maladaptation as actions that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future". In the face of climate change, the concept of maladaptation has developed from adaptation that does not work to adaptive actions that damage resources, narrow future options, worsen the problem for vulnerable populations, or pass on responsibility for solutions to future generations. If an adaptation action violates sustainable development, social equity and poverty eradication goals, particularly in the sense of disproportionately burdening the vulnerable, that action is maladaptive (Anguelovski, Shi, Chu, Gallagher, Goh & Lamb, 2016).

Efforts to avoid maladaptation at larger scales include research to identify major risks and responsible adaptation strategies throughout the infrastructure asset lifecycle that can inform the decisions, and the actions, of planners and regulators, designers, constructors, operators, investors and insurers (Hayes, 2019). The IPCC Global Warming of $1.5°C$ report details two pathways of emission reduction and atmospheric greenhouse gas limitation that will achieve the goal of keeping the global average temperature increase above pre-industrial levels at $1.5°C$. Both pathways rely heavily on the promise of sequestering carbon in geological formations (Intergovernmental Panel on Climate Change, 2018).

Agbebaku (2015) stated that the causes of maladaptation to climate change are attributed to three main factors. These factorsinclude: frequent changes in climatic variables; environmental pollution;and humanactivities.Climate and environmental factors have immense effect on the existence of human as well as other lower creatures. From all indications human beings to a large extent lack the awareness of the need to be environmentally friendly. They destroy natural environments through actions like deforestation, pollutions, desertification, production of greenhouse gases which result inclimate change (Nwankwoala, 2015). Agbebaku (2015) noted the effects of human environmental challenges that exacerbate climate change and submitted that they could be felt through the underlisted factors: human settlement; energy supply and demand; agriculture; freshwater system; human health; and ecosystem(Internet Printing Protocol Media, 2011).

Consequent upon this, Nwankwoala (2015) suggested policy statements for creation of awareness on climate change through environmental education in Nigeria, thus:

i. The curriculum at primary, secondary and tertiary levels of education must include environmental education as a compulsory subject.

ii. Teachers and educators should from time to time embark on seminars and workshops on climate and environmental changes.

iii. Teachers should study and create sun safety awareness. This should be classroom and school wide activities that will raise children's awareness of stratospheric ozone depletion, ultraviolet radiation and simple sun safety practices.

iv. There should be school sun safety programmes. This should be a collaborative effort of schools, communities, teachers, parents, health professionals, environmental groups, meteorologists, educational organizations and others. It is believed that with everyone's help, sun protection can go beyond classrooms to the entire communities.

v. There should be a study of past climate conditions which is known as pale climatology.

vi. Students should be taught how to be environmentally friendly and sustainable; both natural and human causes of climate and environmental changes.

vii. The policy should state that all levels of education should design subjects and courses that will expose students to climate and environmentally friendly education.

III.   Methodology

This study made use of the descriptive survey research design. Five research questions were raised, and five hypotheses were generated for testing. The target population of the study comprised of all public primary school pupils, senior secondary school students and students of tertiary institutions as well as rural and urban settlers in the six (6) geopolitical zones in Nigeria. The sample size used comprised of 300 respondents which comprised of 60 pupils, 60 secondary students, 60 tertiary students, 60 rural settlers and 60 urban settlers from 5 randomly selected locations from the six geopolitical zones inNigeria. The research instrument used for data collection was a 15-item structured questionnaire rated on a   4-point Likert scale , with response options of Strongly Agree (SA); Agree (A); Disagree (D); and Strongly Disagree (SD). The responses of the respondents

were presented in simple statistical table and analysed using Mean ($\bar{x}$) and Grand Mean ($g\bar{x}$) while Chi-Square (x^2) was used to test the hypotheses, generated at 0.05 level of significance. In taking decision on the research questions, mean scores for 2.50 and above were deemed as agreed, accepted or positive while those below 2.50 were regarded as negative and unaccepted/disagreed responses.

IV. Data Analysis and Result

Research Question 1: To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian primary schools?

Table 1: Primary SchoolPupils' Awareness on Adaptation to Climate Change

S/N	ITEMS	SA	A	D	SD	MEAN ($\bar{x}$)	INFERENCE
1.	EE creates awareness and provides solutions on climate change etc.	34	16	6	4	3.7	Agreed
2.	Climate change is the increase in the average temperature	33	15	8	4	3.3	Agreed
3.	Adaptation is the change of environmental conditions	28	21	8	3	3.2	Agreed
4.	Bush Burning causes climate change	30	21	6	3	3.3	Agreed
5.	Smokes leads to climate change	26	30	2	2	3.3	Agreed
6.	Cutting down of treesleads to climate change	36	22	2	0	3.5	Agreed
7.	Fertilizer causes climate change	8	8	35	9	2.3	Disagreed
8.	Climate change affects human health	32	18	5	5	3.3	Agreed
9.	Climate change causes increase in hot weather	36	18	6	0	3.5	Agreed
10.	Climate change affect agricultural activities	21	28	4	7	3.1	Agreed
11.	Climate change affect rivers, ocean, lakes	29	25	3	3	3.3	Agreed
12.	Climate change concepts should be included in the school curriculum	32	16	7	5	3.3	Agreed
13.	EE encourages climate oriented action such as tree planting	25	22	6	7	3.1	Agreed
14.	Studies of past climate conditions should be reviewed	15	18	21	6	2.7	Agreed
15.	Students should be taught how to be environmentally friendly	28	26	5	1	3.4	Agreed
	Grand Mean (g$\bar{x}$) = 3.22						

Source: Research Survey 2019

Table 1 revealed the opinion of primary school pupils on research question one ; all 15 items questionnaire were agreed upon with mean ($\bar{x}$) ranging from 2.3 to 3.7. The grand mean (g$\bar{x}$) was 3.22, which denotesthat the respondents agreed that EE can be used as a tool for creation of awareness on adaptation to climate change in Nigerian primary schools.

Research Question 2: To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian secondary schools?

Table 2: Secondary School Students' Awareness on Adaptation to Climate Change

S/N	ITEMS	SA	A	D	SD	MEAN ($\bar{x}$)	INFERENCE
1.	EE creates awareness and provide solutions on climate change etc.	35	15	7	3	3.4	Agreed
2.	Climate change is the increase in the average atmospheric temperature	36	17	6	1	3.3	Agreed
3.	Adaptation is the adjustment of environmental conditions	30	24	3	3	3.4	Agreed
4.	Bush Burning causes climate change	31	22	5	2	3.4	Agreed
5.	Burning of fossil leads to climate change	28	23	6	3	3.3	Agreed
6.	Deforestation leads to climate change	38	21	1	0	3.6	Agreed
7.	Fertilizer causes climate change	11	18	25	6	2.6	Agreed
8.	Climate change affects human Health	35	18	5	2	3.4	Agreed
9.	Climate change affect energy supply and demand	34	20	4	2	3.4	Agreed
10.	Climate change affect agricultural activities	23	31	4	2	3.3	Agreed
11.	Climate change affect freshwater system	31	25	1	3	3.4	Agreed
12.	Concept such as climate change in environmental education should be included in the school curriculum						

13.	EE encourages climate oriented action such as afforestation	33	17	6	4	3.3	Agreed
14.	There should be a study of past climate conditions which is known as pale climatology	27	24	4	5	3.2	Agreed
15.	Students should be taught how to be environmentally friendly and sustainable	17	20	21	2	2.9	Agreed
		31	26	2	1	3.5	Agreed
	Grand Mean (g$\overline{x}$) = 3.30						

Source: Research Survey 2019

Table 2 revealed the opinion of secondary school students on research question two; the15 questionnaire items were agreed with mean ($\overline{x}$) ranging from 2.6 to 3.6. The grand mean (g$\overline{x}$) was 3.30 which showedthat the respondents agreed that EE can be used as a tool for creation of awareness on adaptation to climate change in Nigerian secondary schools.

Research Question 3: To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian tertiary institutions?

Table 3: Tertiary Institution Students' Awareness on Adaptation to Climate Change

S/N	ITEMS	SA	A	D	SD	MEAN ($\overline{x}$)	INFERENCE
1.	EE creates awareness and provides solutions on climate change etc.	37	18	3	2	3.5	Agreed
2.	Climate change is the increase in the average atmospheric temperature	38	19	2	1	3.6	Agreed
3.	Adaptation is the adjustment of environmental conditions	33	23	2	2	3.5	Agreed
4.	Bush Burning causes climate change	34	21	2	0	3.4	Agreed
5.	Burning of fossil leads to climate change	29	25	3	3	3.4	Agreed
6.	Deforestation leads to climate change	41	18	1	0	3.7	Agreed
7.	Fertilizer causes climate change	21	15	19	5	2.9	Agreed
8.	Climate change affects human Health	36	19	4	2	3.5	Agreed
9.	Climate change affect energy supply and demand	35	20	3	2	3.5	Agreed
10.	Climate change affect agricultural activities	26	29	4	1	3.3	Agreed
11.	Climate change affect freshwater system	33	24	2	1	3.5	Agreed
12.	Concept such as climate change in environmental education should be included in the school curriculum	35	19	4	2	3.5	Agreed
13.	EE encourages climate oriented action such as afforestation and reforestation	29	25	5	1	3.4	Agreed
14.	There should be a study of past climate conditions which is known as pale climatology	19	21	18	2	3.0	Agreed
15.	Students should be taught how to be environmentally friendly and sustainable	33	24	2	1	3.5	Agreed
	Grand Mean (g$\overline{x}$) = 3.41						

Source: Research Survey 2019

Table 3revealed the opinion of tertiary institution students on research question three; the 15 questionnaire items were agreed with mean ($\overline{x}$) ranging from 2.9 to 3.7. The grand mean (g$\overline{x}$) was 3.41 which showed that the respondents agreed that EE can be used as a tool for creation of awareness on adaptation to climate change in Nigerian tertiary institutions.

Research Question 4: To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian rural settlements?

Table 4.0: Rural Settlers' Awareness on Adaptation to Climate Change

S/N	ITEMS	SA	A	D	SD	MEAN ($\overline{x}$)	INFERENCE
1.	EE creates awareness and provides solutions on climate change etc.	24	9	26	1	2.9	Agreed
2.	Climate change is the increase in the average atmospheric temperature	23	11	18	8	2.8	Agreed
3.	Adaptation is the adjustment of environmental conditions	19	18	21	2	2.9	Agreed
4.	Bush Burning causes climate change	16	15	26	3	2.7	Agreed

5.	Burning of fossil leads to climate change	13	10	22	15	2.4	Disagreed
6.	Deforestation leads to climate change	16	12	23	9	2.6	Agreed
7.	Fertilizer causes climate change	4	2	35	19	2.0	Disagreed
8.	Climate change affects human Health	12	28	15	5	2.8	Agreed
9.	Climate change affect energy supply and demand	26	8	16	10	2.8	Agreed
10.	Climate change affect agricultural activities	11	18	24	7	2.6	Agreed
11.	Climate change affect freshwater system	19	15	23	3	2.8	Agreed
12.	Concept such as climate change in environmental education should be included in the school curriculum	22	6	27	5	2.8	Agreed
13.	EE encourages climate oriented action such as tree planting	15	13	26	6	2.6	Agreed
14.	There should be a study of past climate conditions which is known as pale climatology	9	17	27	7	2.5	Agreed
15.	Students should be taught how to be environmentally friendly and sustainable	18	21	19	2	3.2	Agreed
	Grand Mean (g$\bar{x}$) = 2.70						

Source: Research Survey 2019

Table 4revealed the opinion of rural settlers on research question four; the 15 questionnaire items were majorly agreed upon with means ($\bar{x}$) ranging from 2.0 to 3.2. The grand mean (g$\bar{x}$) was 2.70 which showed that the respondents agreed that EE can be used as a tool for creation of awareness on adaptation to climate change in Nigerian rural settlements.

Research Question 5: To what extent is EE used as a tool for creation of awareness on adaptation to climate change in Nigerian urban settlements?

Table 5.0: Urban Settlers' Awareness on Adaptation to Climate Change

S/N	ITEMS	SA	A	D	SD	MEAN ($\bar{x}$)	INFERENCE
1.	EE creates awareness and provide solutions on climate change etc.	39	19	2	0	3.6	Agreed
2.	Climate change is the increase in the average atmospheric temperature	40	17	2	1	3.6	Agreed
3.	Adaptation is the adjustment of environmental conditions	36	20	3	1	3.5	Agreed
4.	Bush Burning causes climate change	34	21	2	0	3.4	Agreed
5.	Burning of fossil leads to climate change	31	23	4	2	3.4	Agreed
6.	Deforestation leads to climate change	37	19	2	2	3.5	Agreed
7.	Fertilizer causes climate change	23	18	15	4	3.4	Agreed
8.	Climate change affects human Health	35	17	5	3	3.5	Agreed
9.	Climate change affect energy supply and demand	33	24	3	0	3.5	Agreed
10.	Climate change affect agricultural activities	27	28	4	1	3.4	Agreed
11.	Climate change affect freshwater system	36	22	1	1	3.5	Agreed
12.	Concept such as climate change in environmental education should be included in the school curriculum	32	23	3	2	3.4	Agreed
13.	EE encourages climate oriented action such as urban marketing garden and afforestation	28	25	5	2	3.3	Agreed
14.	There should be a study of past climate conditions which is known as pale climatology	29	21	9	1	3.3	Agreed
15.	Students should be taught how to be environmentally friendly and sustainable	31	22	5	2	3.4	Agreed
	Grand Mean (g$\bar{x}$) = 3.45						

Source: Research Survey 2019

Table 5revealed the opinion of urban settlers on research question five; the 15 questionnaire items were agreed upon with means ($\bar{x}$) ranging from 3.3 to 3.6. The grand mean (g$\bar{x}$) was 3.45 which showed that the respondents agreed that EE can be used as a tool for creation of awareness on adaptation to climate change in Nigerian urban settlements.

Test of Hypotheses

Chi-Square (x^2) was used to analyse the hypotheses generated for this study.

Hypothesis 1: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Primary Schools.

Table 6: T-test analysis of the relationship between EE and creation of awareness on adaptation to climate change in Nigerian Primary Schools

χ^2	Df	Table Value	P	Decision
204.11	42	58.12	0.05	Rejected

The chi-square result is 204.11, while the chi-square table value at degree of freedom is 42 at 0.05 level of significance is 58.12. This shows that the calculated value is greater than the table value, hence, the null hypothesis one is rejected. This implies that there is significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian primary schools.

Hypothesis 2: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Secondary Schools.

Table 7: T-test analysis of the relationship between EE and creation of awareness on adaptation to climate change in Nigerian Secondary Schools

χ^2	Df	Table Value	P	Decision
151.00	42	58.12	0.05	Rejected

The chi-square result is 151.00, while the chi-square table value at degree of freedom is 42 at 0.05 level of significance is 58.12. This shows that the calculated value is greater than the table value, hence, the null hypothesis two is rejected. This implies that there is significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian secondary schools.

Hypothesis 3: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Tertiary Institutions.

Table 8: T-test analysis of the relationship between EE and creation of awareness on adaptation to climate change in Nigerian Tertiary Schools

χ^2	Df	Table Value	P	Decision
126.99	42	58.12	0.05	Rejected

The chi-square result is 126.99, while the chi-square table value at degree of freedom is 42 at 0.05 level of significance is 58.12. This shows that the calculated value is greater than the table value, hence, the null hypothesis one is rejected. This implies that there is significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian tertiary institutions.

Hypothesis 4: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Rural settlements.

Table 9: T-test analysis of the relationship between EE and creation of awareness on adaptation to climate change in Nigerian Rural settlements

χ^2	Df	Table Value	P	Decision
141.07	42	58.12	0.05	Rejected

The chi-square result is 141.07, while the chi-square table value at degree of freedom is 42 at 0.05 level of significance is 58.12. This shows that the calculated value is greater than the table value, hence, the null hypothesis one is rejected. This implies that there is significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian rural settlements.

Hypothesis 5: There is no significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian Urban settlements.

Table 10: T-test analysis of the relationship between EE and creation of awareness on adaptation to climate change in Nigerian Urban settlements

x^2	Df	Table Value	P	Decision
68.01	42	58.12	0.05	Rejected

The chi-square result is 68.01, while the chi-square table value at degree of freedom is 42 at 0.05 level of significance is 58.12. This shows that the calculated value is greater than the table value, hence, the null hypothesis one is rejected. This implies that there is significant relationship between EE and creation of awareness on adaptation to climate change in Nigerian urban settlements.

V.   Discussion of Findings

The results of this study showed that Environmental Education (EE) is a tool for creation of awareness and adaptation to climate change in Nigeria. The different responses were between five groups, namely: Primary school pupils; Secondary school students; Tertiaryeducation students; Rural and Urban settlers in the six geopolitical zones in Nigeria.

From the findings in Tables 1-3, it was significantly proven thatpupils and students from Primary, Secondary and Tertiary Institutions had clear perception of the concepts, causes, effects and policy on climate changes. According to the pupils and students' responses, the causes of climate patternscan be both natural occurrences and human activities. They are also aware that deforestation, bush burning, emission of gases, etc. lead to climate change which affect agricultural production, increase in hot weather condition thereby killing aquatic life and increasing the spread of diseases. This is in line with the findings of Agbebaku (2015) that EE creates awareness on the causes of maladaptation to climate change whichare attributed to frequent changes in climatic variables; including environmental pollution which are exacerbated byhuman activities.

The findings in Tables 4-5, also revealed that rural and urban settlers, despite slightly different environmental challenges in their different communities, agreed with the policy on climate change, one of which states that climate change, which is a concept in environmental education should be added to primary and secondary school curriculum. This is in line with the study conducted by Nwankwoala (2015) who made policy statements on the importance of including EE as a compulsory subject in the curriculum of primary, secondary and tertiary institutions in Nigeria as a tool for creation of awareness on climate change in Nigeria.

VI.   Conclusion and Recommendations

From the findings of the study, it can be concluded that Environmental Education is a tool for creation of awareness and adaptation to climate change in Nigeria. The United Nations Framework Convention on Climate Change makes clear that an important criterion (among others) in creating awareness on climate change is through Environmental Education.Based on the findings of this study, thefollowing recommendations are put forward:

i.   Environmental Education as a tool for creation of awareness on climate change should be taught at all levels of education in the country.
ii. The curriculum at primary, secondary and tertiary levels of education should include Environmental Education as a compulsory subject with outdoor practical and field studies.
iii. Knowledge of Environmental Education should involve informal settings in our urban and rural settlements.
iv. Through EE, climate oriented action should be encouraged by organising afforestation, reforestationand conservation programmes. Campaign on tree planting, parks and greener lands, urban/marketing garden afforestation in human habitats, while lumbering and deforestation of the natural vegetation should be discouraged.
v.   Through EE intervention, waste substances and pollutants into water bodies can be reduced to the barest minima.
vi. Climate change can be addressed in Nigeria by adhering to principles on climate change which include participation in global efforts to combat climate change, broad equity treatment, enabling technology and transparency on climate change policies.

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