Undergraduates' Perception, Knowledge and Attitudes Towards Global Warming in Ekiti State, Nigeria

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Abstract: **The study examined perception, knowledge and attitude towards global warming among undergraduates in Ekiti State, Nigeria. The descriptive research survey design was adopted in this study. The population consisted of all undergraduates in all the Universities in Ekiti State. The sample for this study comprised of 600 undergraduates which were selected from the three universities in Ekiti State. The sample was selected through multistage sampling procedure. A questionnaire designed by the researchers tagged "Global Warming Questionnaire (GWQ)" was used to collect relevant data for the study. The face and content validity of the instrument was determined by specialists in Social Studies and Tests and Measurement experts. The reliability of the instrument was ensured through test re-test method of reliability. The scores of the two tests were correlated using Pearson Product Moment Correlation Coefficient Analysis. The correlation coefficient of 0.82 was obtained which was good enough to make the instrument reliable. The responses obtained were collated and analysed using descriptive inferential statistics. The study revealed that the perception of global warming was good, knowledge was high while attitude was positive among undergraduates. It was also found that there was no significant relationship between perception and attitude towards global warning likewise between knowledge and attitude towards global warning among undergraduates. It was therefore recommended that curriculum planners should ensure periodic review of tertiary institution curriculum by updating new trends on global warming into the school curriculum so that undergraduates can be well-informed of fresh information associated with global warming.**

Keywords**: Perception, Knowledge, Attitude, Global warming, Undergraduate**

I. INTRODUCTION

Global warming is a complicated and controversial problem confronting the globe, resulting in the danger of global warming being debated and experienced by many in many ways across the globe. Oyakale (2013) identified natural activities that lead to global warming to include: volcanic eruption, earth's tilt, ocean current.

The study of how the environment affects humans and how human beings impact them is among the reasons for social studies. Walsh (2014) and Bennett (2017) highlighted that the destruction of the world's forests not only hurts the people who depend on them, but also increasingly affects all human beings. However, they urges everyone to plant a tree today. Edeh, (2021) asserted that Social Studies education promoted sustainable development by tackling social and environmental problems for the benefit of the present and future generations. This means that people require an environment favourable to cultural, social, economic and political activity.

The undergraduates' knowledge of global warming consequences would mold attitudes positively towards mitigating global warming effects. Ezeudu, Ezeudu and Sampson (2016) saw knowledge as facts of understanding events, issues or objects that are acquired either through learning or experiences. However, a survey of environmental knowledge and attitudes among certain Nigerian school pupils revealed a reasonable degree of awareness or knowledge of local environmental concerns but a low level of awareness or knowledge of global environmental issues (Ogunyemi & Ifegbesan, 2017). The worldwide structure, productivity, composition of plants and animal species, depends mostly on the climate. For many years, climate denotes the average weather of an area.

Furthermore, Dergisi (2011) conducted a study in Turkey on high school pupils' understanding of global warming. A global warming achievement exam was given to 193 pupils who were chosen at random. Their understanding of global warming was assessed in terms of theoretical, current consequences, and required safeguards. The author utilized a self-disclosure form to gather information on the students' academic backgrounds, high school type, and economic status, as well as if they had participated in any activities related to the topic before to the test. The data was processed using the Statistical Package for Social Sciences (SPSS), finesse, and then t-test, Analysis of Variance (ANOVA), and correlation findings were calculated. The test's reliability was determined to be 0.734, based on the study, and the students were found to be the most informed about the consequences of global warming among the three sets of questions.

In addition, direct or substitute global warming experiences affect how individuals interpret global warming. Ochieng and Koske (2013) discovered that those living closer to the sea felt they were more vulnerable to floods than people who lived considerably far away. This is extremely significant since most people face global warming problems via various kinds of media (UNESCO 2014). People must be aware of the media in

order to understand global warming, yet the general public has little attraction for this subject. In addition, whether the problem is portrayed in the media or by other actors, tales including technical acronyms seek to fulfill worldwide objectives. If the content can be comprehended better by translating it into local languages, it would benefit communities and students from these subjects. The tales may connect to local happenings to increase the interest of the problem, in particular when it is published in various media (UNESCO 2014).

The distinction in the way information is presented in these two knowledge entities is another topic of concern. In line with local cultural groupings' way of life, values, governance and belief systems, traditional knowledge provides facts on global warming as part of one's oral heritage (Wolf and Moser 2011). On the other hand, scientific knowledge demonstrates facts and hazards in pictures that reflect patterns and occurrences that cannot readily be translated into local community members (Ochieng & Koske, 2013; UNESCO 2014).

Finally, attitudes and perspectives on the way global warming is perceived have a major impact. Those who believe in a higher God and also manage the environment are more likely to consider that global warming may be treated as people (government and individuals). This was compounded by a lack of information. A natural catastrophe was seen as God's judgment in this case. So although people are aware of changes in the climate, they are convinced that God controls the weather (Wolf and Moser 2011).

The range of information that one has about a particular thing influences one's attitudes to the object. In this work, attitude referred to undergraduates' feeling and behaviour towards global warming. Environmental awareness, if properly planned and delivered to cover all areas of knowledge, skills and attitudes that could enable human beings to live harmoniously with his environment could no doubt go a long way in forestalling most of the consequences of global warming experienced today (Mbalisi, 2008). Ezeudu, Ezeudu and Sampson (2016) advocated for inclusion of Environmental awareness in the curriculum of various levels of educational institutions.

Statement of the Problem:

Global warming seems to be a significant topic in the development debate in the contemporary era. Despite its importance, there is currently no conclusive evidence that this increasingly pressing subject is widely understood: "What exactly is global warming?" remains an unresolved issue, making it more of a notion, a perception, or a speculation than a verified reality. This becomes much more challenging when one considers that the effects of global warming are often seen as detrimental to humanity (though in different degrees). Bases on the above, the study investigated perception, knowledge and attitude of undergraduates towards global warming.

Research Questions

To guide the investigation, the following research questions were raised.

1. What is the perception of global warming among undergraduates?
2. What is the level of knowledge of global warming among undergraduates?
3. What is the attitude towards global warming among undergraduates?

Research Hypotheses

The following null hypotheses were generated for this study:

1. There is no significant relationship between perception and attitude towards global warning among undergraduates.
2. There is no significant relationship between knowledge and attitude towards global warning among undergraduates.

II. METHODOLOGY

A descriptive survey research design was adopted for the study. The population for the study comprised all university undergraduates in Ekiti state, Nigeria. The sample consisted of 600 undergraduates randomly selected from three out of four universities in Ekiti state. Multistage sampling procedure was used to select the sample. A questionnaire designed by the researchers tagged "Global Warming Questionnaire (GWQ)" was used to collect relevant data for the study. The face and content validity of the instrument was determined by specialists in Social Studies and Tests and Measurement experts. The reliability of the instrument was ensured through test re-test method of reliability. The instrument was first administered on 30 undergraduates of an institution which was not part of the sample. After two weeks, the instrument was re-administered again on the same set of undergraduates. The scores of the two tests were correlated using Pearson Product Moment Correlated Coefficient Analysis. The reliability coefficient of 0.82 was obtained which was good enough to make the instrument reliable. The administration of the instrument was done through research assistance. The data collected were analysed using descriptive and inferential statistical tools such as percentages, Mean, Pearson Correlation and Analysis of Variance (ANOVA). Three research questions were raised and two hypotheses formulated for the study. All the hypotheses were tested at 0.05 level of significance.

III. RESULT AND DISCUSSION

*Research Question 1***:** What is the perception of global warming among undergraduates?

Table 1: Percentage and Mean of the perception of global warming among undergraduates

S/N	ITEMS	N	SA	A	D	SD	Mean	Remark
1.	Global warming is a long term alteration in global weather patterns which especially increase in temperature and storm.	587	28 (4.8%)	308 (52.5%)	251 (42.8%)	0 (0.0%)	2.62	Agreed
2.	Global warming is characterized with high temperature.	587	36 (6.1%)	313 (53.3%)	238 (40.5%)	0 (0.0%)	2.66	Agreed
3.	Global warming refers to the rise in global temperature due to the increase concentration of green in the atmospheric.	587	148 (25.2%)	391 (66.6%)	19 (3.2%)	29 (4.9%)	3.12	Agreed
4.	Global warming is dynamic and always changing through natural cycle.	587	36 (6.1%)	313 (53.3%)	238 (40.5)	0 (0%)	2.66	Agreed
5.	Global warming occurs when carbon dioxide (co2) and other air pollutant are increase in the atmosphere.	587	173 (29.5%)	388 (66.1%)	10 (1.7%)	16 (2.7%)	3.22	Agreed
6.	Global warming is characterized by desertification.	587	154 (26.2%)	406 (69.2%)	7 (1.2%)	20 (3.4%)	3.18	Agreed
7.	Change in weather condition over an extended period of time is global warming.	587	36 (6.1%)	313 (53.3%)	238 (40.5%)	0 (0%)	2.66	Agreed
8.	There is observed increase in sea level in the coastal areas.	587	19 (3.2%)	230 (39.2%)	298 (50.8%)	40 (6.8%)	2.39	Disagreed
9.	There is decrease in agricultural products in Nigeria.	587	36 (6.1%)	316 (53.8%)	235 (40.0%)	0 (0%)	2.66	Agreed
10.	I have heard of global warming before.	587	148 (25.2%)	392 (66.8%)	34 (5.8%)	13 (2.2%)	3.15	Agreed
11.	The rate of sunshine is now is as a result of global warming	587	138 (23.5%)	416 (70.9%)	29 (4.9%)	4 (0.7%)	3.17	Agreed
12.	The weather seems to be hotter nowadays	587	36 (6.1%)	316 (53.8%)	235 (40.0%)	0 (0%)	2.66	Agreed
13.	The atmospheric heat level is higher now than before	587	137 (23.3%)	416 (70.9%)	28 (4.8%)	6 (1.0%)	3.17	Agreed
14.	There is increased rate of rainfall.	587	37 (6.3%)	550 (93.7%)	0 (0%)	0 (0%)	3.06	Agreed
15.	Cases of flooding occur more nowadays.	587	29 (4.9%)	558 (95.1%)	0 (0%)	0 (0%)	3.05	Agreed

Mean Cut-off: 2.50

Table 1 revealed the perception of global warming among undergraduates. Based on the mean cut-off mark of 2.50, the respondents agreed to all the items except item 8. This implies that most of the respondents agreed that global warming is dynamic ($\bar{x}$ = 2.62), global warming is a measurable increase in the average temperature of earth's atmosphere ($\bar{x}$ = 2.66), global warming is characterized with high temperature ($\bar{x}$ = 3.12), global warming comes with rise in sea level ($\bar{x}$ = 2.66), most streams in hinterland are drying up as a result of global warming ($\bar{x}$ = 3.22), global warming is characterized by desertification ($\bar{x}$ = 3.18), change in weather condition over an extended period of time is global warming ($\bar{x}$ = 2.66), there is decrease in agricultural products in Nigeria ($\bar{x}$ = 2.66), they have heard of global warming before ($\bar{x}$ = 3.15), the rate of sunshine is now is as a result of global warming ($\bar{x}$ = 3.17), the weather seems to be hotter nowadays ($\bar{x}$ = 2.66), the atmospheric heat level is higher now than before ($\bar{x}$ = 3.17), there is increased rate of rainfall ($\bar{x}$ = 3.06) and the cases of flooding occur more nowadays ($\bar{x}$ = 3.05) are perception of global warming among undergraduates.

Only Item 8 disagreed by the respondents because its mean mark was less than 2.5. It appears that undergraduates have good perception of global warming.

*Research Question 2***:** What is the level of knowledge of global warming among undergraduates?

Table 2: Level of knowledge of global warming among undergraduates

Levels of Knowledge	No of Respondents	Percentage
Low (0 – 39)	12	2.04
Moderate (40 – 55)	134	22.83
High (56 – 80)	441	75.13
Total	**587**	**100**

The result shows that out of 587 respondents, 12 respondents representing 2.04 percent low level of knowledge of global warming. Those who had moderate level of knowledge of global warming were 134 respondents representing 22.83 percent while 441 respondents representing 75.13 percent had high level of knowledge of global warming. This shows that the level of knowledge of global warming among undergraduates was high. Figure i further reveals the level of knowledge of global warming at a glance.

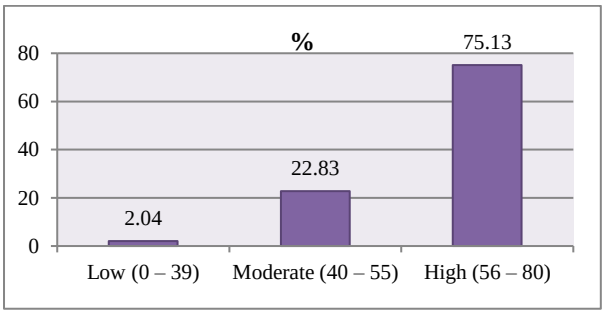

Figure I: Bar Chart showing knowledge of global warming among undergraduates

Research Question 3: What is the attitude towards global warming among undergraduates?

Table 3: Percentage and Mean of the attitude towards global warming among undergraduates

S/N	ITEMS	N	SA	A	D	SD	Mean	Remark
1.	There is still plenty of time to prepare for global warming problems.	587	10 (1.7%)	201 (34.2%)	332 (56.6%)	44 (7.5%)	2.30	Disagreed
2.	Global warming will bring a period of great adversity.	587	12 (2.0%)	207 (35.3%)	325 (55.4%)	43 (7.3%)	2.32	Disagreed
3.	I am seriously concerned with what problem global warming may bring.	587	90 (15.3%)	286 (48.7%)	190 (32.4%)	21 (3.6%)	2.76	Agreed
4.	Special preparation is needed for global warming.	587	89 (15.2%)	287 (48.9%)	190 (32.4%)	21 (3.6%)	2.76	Agreed
5.	Global warming may not pass like other environmental problems, so there is need to worry.	587	12 (2.0%)	207 (35.3%)	325 (55.4%)	43 (7.3%)	2.32	Disagreed
6.	It is necessary to educate my friends on global warming.	587	9 (1.5%)	575 (98.0%)	1 (0.2%)	2 (0.3%)	3.01	Agreed
7.	It is important to spread news of global warming within my area.	587	7 (1.2%)	352 (60.0%)	228 (38.8%)	0 (0%)	2.62	Agreed
8.	Preparation is necessary to manage the effect of global warming	587	2 (0.3%)	550 (93.7%)	35 (6.0%)	0 (0%)	2.94	Agreed
9.	It is necessary to ask questions on global warming.	587	3 (0.5%)	549 (93.5%)	35 (6.0%)	0 (0%)	2.95	Agreed
10.	It is necessary to read available information on global warming.	587	11 (1.9%)	350 (59.6%)	226 (38.5%)	0 (0%)	2.63	Agreed
11.	I tell people against bush burning to prevent further global warming	587	12 (2.0%)	341 (58.1%)	225 (38.3%)	9 (1.5%)	2.61	Agreed
12.	I do not think that global warming is changing.	587	11 (1.9%)	565 (96.3%)	11 (1.9%)	0 (0%)	2.98	Agreed
13.	Responding to global warming is not a waste of my time.	587	4 (0.7%)	252 (42.9%)	323 (55.0%)	8 (1.4%)	2.43	Disagreed
14.	Participating in global warming related issues will not lead to waste of national resources.	587	9 (1.5%)	352 (60.0%)	225 (38.3%)	1 (0.2%)	2.63	Agreed
15.	Global warming will not only affect those who caused it.	587	3 (0.5%)	540 (92.0%)	35 (6.0%)	9 (1.5%)	2.91	Agreed
	Average	**587**	**19 (3.2%)**	**374 (63.7)**	**180 (30.7%)**	**14 (2.4%)**	**2.68**	

Table 4: Attitude towards global warming among undergraduates

Levels of Knowledge	No of Respondents	Percentage
Negative (15.0 – 40.2)	49	8.3
Positive (40.3 – 60.0)	538	91.7
Total	**587**	**100**

Table 3 reveals the percentage and Mean of the attitude towards global warming among undergraduates while table 4 summarises the attitude towards global warming among undergraduates into negative or positive. The overall mean mark after computation was 40.2 and this was set as the boundary between the negative and positive attitude. The negative attitude towards global warming was determined by those who scored less than the mean mark (<40.2) while the positive attitude towards global warming was determined by those who scored above the mean mark (>40.2).

The result shows that out of 587 respondents, only 49 respondents representing 8.3 percent had negative attitude towards global warming while 538 respondents representing 91.7 percent had positive attitude towards global warming. This shows that the attitude towards global warming among undergraduates was positive. Figure ii further reveals the attitude towards global warming at a glance.

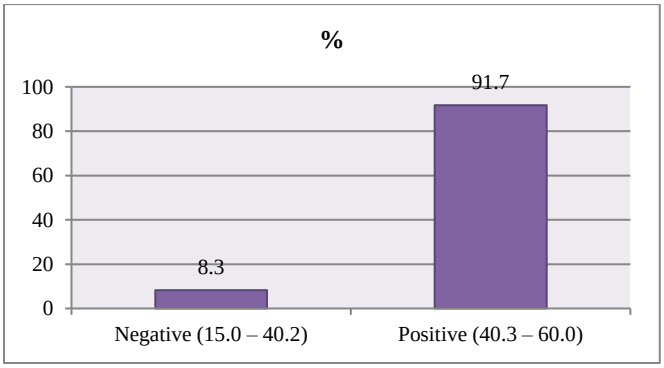

Figure II: Bar Chart showing attitude towards global warming among undergraduates

Testing of Hypotheses

Hypothesis 1: There is no significant relationship between perception and attitude towards global warning among undergraduates.

Table 5: Relationship between perception and attitude towards global warning

Variables	N	Mean	Stand Dev	r-cal	p-value
Perception	587	43.42	3.50	0.012	0.780
Attitude	587	40.17	2.86		

P>0.05

Table 5 shows that r-cal value of 0.012 is not significant because the p-value of 0.780 is greater than 0.05 at 0.05 level of significance. The null hypothesis is not rejected. This implies that there was no significant relationship between perception and attitude towards global warning among undergraduates.

*Hypothesis 2***:** There is no significant relationship between knowledge and attitude towards global warning among undergraduates.

Table 6: Relationship between knowledge and attitude towards global warning

Variables	N	Mean	Stand Dev	r-cal	p-value
Knowledge	587	16.41	4.27	0.068	0.098
Attitude	587	40.17	2.86		

P>0.05

Table 6 shows that r-cal value of 0.068 is not significant because the p-value of 0.098 is greater than 0.05 at 0.05 level of significance. The null hypothesis is not rejected. This implies that there was no significant relationship between knowledge and attitude towards global warning among undergraduates.

IV. DISCUSSION

The study revealed that the perception of global warming among undergraduates was good. The probable reason for good perception might be because global warming is a reoccurring concept and also included in their course content. In support of this finding, Cardwel (2011) reported that perception of climate change, global warming and global environmental change among participants was high.

The study revealed that the level of knowledge of global warming among undergraduates was high. The probable reason for high knowledge might be because global warming is a concept related to their area of specialisation. The study was not in line with Acquah (2011) who found that students have limited knowledge on the causes and prevention of global warming. The study also revealed that the attitude towards global warming among undergraduates was positive. The probable reason for the positive attitude might be due to their familiarity with global warming. Ingwe, et al (2010) findings however contradicted this finding as they concluded that the attitude of the Nigerian universities to global warming is not positive because only one special centre is dedicated to global warming.

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