

THE ATTITUDES OF NIGERIAN SECONDARY SCHOOL TEACHERS AND STUDENTS TOWARDS ENVIRONMENTAL POLLUTION

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ABSTRACT: *The research was carried out to investigate Nigerian Secondary School Teachers and Students' attitude towards environmental pollution. It also examined Nigerian teachers and students' attitude towards environmental pollution, considering their gender and location. The research adopted descriptive research of the survey type. The population was made up of all Nigerian Secondary School Teachers and Students. The sample for the study comprised 720 teachers and 1440 students selected through a multistage sampling procedure. Two self-constructed Questionnaires was used to generate data for the study. One for the Teachers is Questionnaire on Teachers Attitude towards environmental pollution (QTAEP) and Questionnaire on Students Attitude towards environmental pollution (QSAEP). It was made up of two sections - Section A which consist the biodata of teacher and students such as Name, Location and Gender. Section B was made up of items to elicit information about their attitudes toward environmental pollution. The instrument's validity was ascertained by giving it to experts in Biology Education, who are examiners for the West African Examination Council (WAEC) and National Examination Council (NECO) for face and content validity. Their suggestions and corrections were effected. The reliability of the instrument was determined by using Cronbush Alpha Formula. The reliability coefficient of 0.66 and 0.81 was obtained. The data collected were analysed using descriptive and inferential statistics. It was established from the finding that both teachers and students had a positive attitude towards environmental pollution. It was confirmed from the findings that gender and location had a significant influence on both teachers and students' attitude toward environmental pollution. Considering the finding from this study, it was recommended that the content of environmental pollution in secondary schools should be more comprehensive. Also, environmental pollution awareness programs should be organised for both teachers and students to enhance their knowledge about environmental pollution and invariably influence their attitude.*

KEYWORDS: attitudes, science education, science students, teachers, environmental pollution,

INTRODUCTION

Education is a means of imparting knowledge from generation to generation, which is always based on society's values. Education is conducting what can be considered transgenerational transferal of cultural heritage through systematically recognised societal behaviour while frowning at behaviours that are considered societally unacceptable. Any developed country can see education as the lifeblood of its existence and the best antidote to poverty and ignorance. The increased awareness of the importance of education to the development of the individual and society standards has awakened the people and nation.

Every society anticipates that education, especially science education, should empower an

individual with adequate skills to make them valuable to themselves and the society they belong to. According to Pollyn (2012), science education is a cornerstone on which every nation builds an unwavering self-reliant workforce foundation for sustainable development. So far, in human endeavours, science has evolved into one of the most significant and impactful fields. Various science branches research everything that can be observed or discovered. The way our universe, planet, other living things and even our very self is understood is shaped by science. In fact,, science can be seen by layman as anything that make life comfortable and improve their standard of living.

Science has become a crucial portion of human culture, and nations that disregard this relevant truism are sabotaging their future generation's potential and aspirations. Science and Technology are so important in the lives of individuals and the development of a nation. Alebiosu and Ifamuyiwa (2008) acknowledged that the gateway to any nation's survival economically and socially is through scientific and technological literacy, which can only be achieved through science.

Biology is an integral part of life because everyone needs it for societal living. Adubi (2015) believes that Biology makes life pleasant and holds a peculiar position in the school curriculum. Abubakar (2009) believes that biological science's influence is more likely to significantly affect men than physical science as most of our fundamental problems are biological. Despite the fact that biology is no more a compulsory subject in Nigeris Secondary Schools, It is one of the subject required to study any biological science courses, even medicine in tertiary institutions.

Natural environment according to Pillai (2012) refer to living things and their interrelationship with the non-living things, i.e the sun, air, water and earth. It is very important to understand the environment in which one occupies and know how to protect it. It could be realized that environment are closely related and pollution in one part also affects the others in a cyclic form. The environment of a man is so tangential to his existence. Environment and the organisms are too dynamic and complex components of nature. Environment controls the life of the organisms without exception for human beings. The relationship between a man and his environment is a long-aged permanent one such that man, among others, produces wastes to the environment through his activities. In contrast, the environment affords man favourable and conducive conditions to perform his activities effectively. Man cannot practically survive without the environment and, directly or indirectly, influences one another either positively or negatively (Akpan, 2015). Environment plays vital roles in the nation's development and individuals' overall physical, mental and social wellbeing. It serves as a physical space for natural habitat and provides the foundation for human activities or exploits for commercial, agricultural, industrial, technological and tourism advancement, conducive environment gives room for maximum performance without any hindrance.

Pollution according to Tartiv (2011) is an unwanted alteration in biological, physical and chemical features of water, land and air that can pose problem to the existence of man. Pollution releases harmful substances into the environment which cannot be dangerous and cause disorderliness to all living organism. According to Kiant and Sherman (2013), Pollutants can be classified into bio-degradable and non-bio-degradable pollutants. Bio-degradable pollutants can decompose rapidly by natural processes while non-degradable pollutants either do not

decompose or decompose slowly in the natural environment.

The world is experiencing a terrible environmental assault due to human greed in the pursuit of wealth without regard to nature that has a close relationship with humans. Moroye (2005) opined that teachers could significantly influence the students if they want a secure environment and harmony. He ascertained that teachers should guide students based on books and lead them to have an in-depth approach to environmental balance and how to protect the environment so as not to harm them. It is impossible for man not to generate wastes. These may be due to various forms of man's activities (domestic, commercial and industrial) deposited at different times in various locations. Improper/unsafe disposal of wastes to the environment results in pollution, which causes environmental degradation that yields poor health and causes diseases that can jeopardise the educational career of an individual. Recent happenings in the world have either directly or indirectly altered the quality of education. In Africa for instance, a lot of regions are affected by natural disasters, wars or civil unrest or droughts. Specifically in Nigeria, reoccurrent cases of flooding in recent times resulted in students going on compulsory holidays causing a significant decline in school's attendance for a notable period (IRIN, 2012). Absenteeism from school could influence the attitude of both teachers and students towards educational pursuits.

Environmental Pollution According to Tartiv (2011) is the contamination of the earth's biological and physical components which are water air and land. Also, Environmental Pollution can be seen as an unwanted change in the environment through the release of toxic or harmful substances which could be waste materials or resources, as a result of man's activity or natural disaster which also brings about degradation of the environment. The greater the number of people in a geographical area, the greater the amount of pollution that could result into the environmental problems which could have effect on the quality of life. Modern environmental technology has made it possible for energy occurring naturally to be captured and converted into useful energy/heat like electricity making use of devices such as solar panels. This could serve as a source of light for students which could encourage them to do exploit in their education. Also, environmental technology could rescue the planet from the various harm done through human activities such as pollution and depletion of natural resources that could be a challenge for the learners.

The excessive quantity of gases such as carbon dioxide, carbon monoxide, sulfur dioxide and nitric oxide are introduced into the atmosphere in form of air pollution. Air pollution can result in global warming and other conditions that are detrimental to life. Also, it could increase the amount of green house gases in the earth thereby causing global temperature to rise. Environment with high temperature is not conducive for learning which could invariably affect the students performance both internal and external examinations.

Also, Contamination of rivers, ocean with domestic waste, insecticides and pesticides can result in aquatic ecosystems degradation which affects the food chain negatively. Other harmful effects are disease such as typhoid, hepatitis, cholera, diarrhoea, dysentery and polio. The health of man is a determinant to the level of his performance and productivity.

Furthermore, another negative effect of science and technology on the environment is depletion of natural resources. Others include deforestation, mining of minerals and fossil fuels, contamination of soil essence, resources and overutilization of resources. All these has resulted

into a production decline and cause some plants and animals to lose their natural habitats leading to their extinction. Some of these plants and animals are good specimen for the teaching and learning of some concepts in biology. This could remove the abstract nature of some concept for better understanding, thereby enhance their academic performance. The constant danger of destruction by nature and men due to the greediness of our present generation give little consideration to the survival of future generation in order to attain sustainable development, there is need to address the issue of oversue of environment resources as well as the consequences.

Attitude has been recognised as a vital sector in the teaching and learning process. According to Makilik and Agbo (2011) attitude can be recognized as ones thought and predispositions with believes which may be changed into positive or negative behaviours towards ones environment. Also, Kulasekera defined environmental attitude as the link of beliefs, effects and behavioural intentions a person hold regarding to environmental activities. Attitude is a likelihood for individuals who coordinate thought, emotions and behaviour towards a psychological object.

An attitude can be activated by many events which influence our perceptions of the attitude objects. Both secondary school teachers and students' attitude to environmental pollution, as submitted by Liu and Hin (2014), could be valued by their perception of environmental problems such as pollution. On teachers' attitude, Bergman (2012) noticed their interest in environmental problems by taking cognisance of human activities' effect on the environment. Also, Norris and Juliet (2016) in their study on impact of environmental education on the knowledge and attitude of students towards the environment, found out that students exhibit positive attitude towards the environment.

Attitude is a crucial part of human identity. Daily, people love, hate, dislike, like, oppose, favour, disagree, agree, persuade and argue. No wonder, Ige and Olowolabi (2010) defined attitude as a mental or neutral state of preparedness, acquired through experience, directly influencing individual's responses to all situations and objects related to them. With time, attitudes develop and can change. Attitudes according to Ige and Olowolabi are influenced by cognitive (beliefs, attributes and thoughts), affective (emotions, feelings) and behavioural information (experiences, past events).

The gender implications of environmental pollution assist in effective disaster management, reducing the effect of pollution in our society. Despite the submission of Babayemi (2010) that male have positive attitude than female to environmental pollution, it seems that women and girls are affected annually by environmental pollution. According to Stanek (2012), the female has major responsibility for child care, health and wellbeing of children and surrounding, and are inevitably more concerned about the environment than men. The environment is a significant factor that can mould the life of an individual; also, the location of a teacher and student can influence their attitude. Wilson (2010) submitted that urban community suffer the greatest loss due to disaster from environmental pollution since hazard occurrences are vigorous in urban areas than in rural areas. Teachers and students in urban areas who witnessed the disaster from environmental pollution would differ from their counterparts in rural areas who do not witness such disasters.

Research Questions:

1. What is the attitude of Nigerian Secondary School Teachers and Students towards environmental pollution?

Research Hypothesis:

Three null hypotheses (HO₁) were raised to guide the study)

HO₁: Would there be any significant influence in the attitude of Nigerian Secondary School teachers and students towards environmental pollution

HO₂: Would gender have any influence on the attitude of Nigerian Secondary School teachers and Students towards environmental pollution

HO₃: Would location have any influence on the attitude of Nigerian Secondary School teachers and Students towards environmental pollution

METHODOLOGY

Design

The study adopted a descriptive research design of the survey type. The research is descriptive in that it describes the existing situation regarding the secondary school teachers and students' attitude towards environmental pollution. The researchers have no control over the independent variable (environmental pollution) as they occur without prior notice about it. It involved a large area from which some schools were considered to be representative of the entire group.

Participants

The population for the study comprised all secondary school teachers and students in Nigeria. The sample was made up of 720 teachers and 1440 students selected from 48 senior secondary schools across six geo-political zones in Nigeria. The sample was selected through a multistage sampling procedure. Stage one involved selecting two states from six geo-political zones in Nigeria using a balloting random sampling technique. Stage two was selecting two local government areas from twelve states by using a stratified sampling technique. The next stage was selecting two schools from twenty-four local govt areas, considering the location. This followed the random selection of 40 students comprising 20 males and 20 females with all the science teachers in the sampled secondary schools.

Instrumentation

The instrument used to generate data from this study was a Questionnaire on Teachers Attitude towards environmental pollution (QTAEP), Questionnaire on Students Attitude towards environmental pollution (QSAEP). The Questionnaire was made up of two sections. Section A was used to collect information on the teachers and students' bio-data, such as school, location, and gender. Section B contained 20 items to elicit information on the attitude of teachers and students towards environmental pollution, which was rated on a four-point Likert Scale of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1). The instrument's face and content validity was ensured by science teachers who are examiners in WAEC & NECO for at least five years. They all check the extent to which the instruments represented the original test blueprint and their corrections and suggestions were considered. The instrument's reliability was ascertained using Cronbach Alpha which gave a reliability coefficient of 0.66 and 0.81. The value was considered for the stability and dependability of the instrument.

Administration of the Instrument and Data Analysis

The researchers visited the Schools used and informed the management and teachers of the intention to research their schools. The Questionnaire was given to the science students through their teachers. The teachers did the administration for easy recovery.

RESULT

The research question raised was answered using descriptive statistics of percentage mean and standard deviation.

Table 1: Secondary School Teachers and Students Attitudes towards Environmental pollution.

Source	N	Mean	%	SD
Teachers	720	56.42	58.26	18.62
Students	1440	54.45	51.74	20.01

The table above shows that some secondary school teachers and students positively respond to environmental pollution with a mean score of 56.42 and 54.45, respectively. A mean difference of 1.97 shows a difference in teachers and students' attitude to environmental pollution.

Table 2: Summary of Two-way ANOVA of Gender or Teachers and Students Attitude to environmental pollution

Source	SS	Df	Mean Square	Fcal	PValue	Result
Corrected Model	11447.075	3	5657.051	58.531		
Type*Sex	1531.341	1	1531.341	24.505	5.02	*
Error	105226.575	2156	25.724			
Corrected Total	152355.270	2158				
Total	6606516.727	2160				

P < 0.05

The table showed the influence of gender on the attitude of teachers and students towards environmental pollution. Fcal of 24.50 is greater than Ftab (5.02), indicating that gender significantly influenced Secondary School teachers and Students' attitude on environmental pollution. Therefore, the hypothesis is not accepted. The multiple classification analysis of the differences in the mean scores is presented in the table below.

Table 3: Multiple Classification Analysis of the Influence of Gender on Teachers and Students Attitude to environmental pollution.

Variable Category	+ N	Unadjusted mean	Eta	Adjusted for independent + covariate	Beta	R	R ²
Teacher	720	1.491	.241	.286	.240	.287	0.50
Students	1440	2.762		2.749			
Male	1204	1414		1.475		.254	.036
Female	956	1.198	1.68	1.165	.146		
Grand Mean	Type	5849					
	Sex	5849					

Table 3 showed that students had the highest adjusted mean scores of 60.239 (58.69 + 2.749), and teachers with an adjusted mean score of 58.776 (58.49 + .286). The result also showed that males had the highest adjusted mean score of 59.965 (58.49 + 1.475) while females had 59.655 (58.49 + 1.165). The result indicates that gender influences students' attitude to environmental pollution more than teachers and influences more males than female students.

Table 4: Summary of two-way ANOVA of influence of location on Teachers and Students Attitude to environmental pollution.

Source	SS	df	meansquare	fcal	PValue	Result
Corrected Model	11446.552	3	3562.554	56.862		
Type * Location	1522.331	1	1522.447	30.335	3.47	
Error	146223.153	2156	56.431			
Corrected total	156653.270	2158				
Total	.6641605.020	2160				

P < 0.05

Table 4 revealed the influence of location on the attitude of teachers and students to environmental pollution. The Fcal (30.335) is more significant than Pvalue (3.47), which indicates that location has a significant influence on secondary school teachers and students' attitude to environmental pollution. The hypothesis is therefore not accepted. The multiple classification analysis of the difference in the mean score is presented below.

Table 5: Multiple Classification Analysis of the Influence of location on Teachers and Students Attitude to Environmental Pollution

Variable + Category	N	Unadjusted mean	Eta	Adjusted for independent + covariable	Beta	R	R ²
Teachers	720	8.471	0.765	6.752	0.74	.261	.076
Students	1440	17.792		17.788			
Urban	1080	.892	0.61	0.85		243	.005
Rural	1080	.843		0.92	0.96		
Grand mean	Type Location	58.94		58.61			

Table 5 showed that student had the highest adjusted mean scores of 76.728 (58.94 + 17.788) and teachers 65,692 (58.94 + 6.752). It also showed that the rural area had the highest mean score of 59.86 (58.94 + 0.92), and the urban area had 59.79 (58.94 + 0.85). It indicates that location influences secondary school students' attitude in rural areas more than their counterparts in urban areas.

DISCUSSION

The findings from the study established that both teachers and students had a positive attitude towards environmental pollution. This finding is also in support of Akpan (2015), who believed that the environment plays vital roles in the nation's development and the overall physical, mental and social wellbeing of an individual. IRIN (2012) confirmed that school absenteeism could influence both teachers and students' attitude towards environmental pollution. Also, Bergman (2010) ascertained that teaches in secondary school take cognisance of the environmental problems. They appear to be concerned and show interest in the effect of human activities on the environment.

The study also revealed that gender has a significant influence on both teachers and students' attitude to environmental pollution in secondary school. This finding aligns with Rimmark (2010) studies who affirmed insignificant difference in the attitude towards environmental pollution by male and female teachers and students favouring males. This could have been due to males having more information on environmental pollution because females are always busy with domestic work, which could invariably affect their attitudes. The finding agrees with the finding of Ibrahim and Babayemi (2010) that males have a positive attitude than females towards environmental education.

Furthermore, the study revealed a significant influence of location on teachers and students' attitudes towards environmental pollution in favour of those in rural areas. The finding is contrary to Schratz (2016) submission, who concluded that location influences teachers' attitude towards environmental pollution. Also, the finding is in agreement with Wilson (2010), who submitted that urban communities suffer the most significant loss due to disaster from environmental pollution since hazard occurrences are vigorous in urban areas than rural areas.

CONCLUSION AND RECOMMENDATIONS

From the study's finding, it could be concluded that both teachers and students had positive attitude to environmental pollution that was not adequate to help in the prevention of environmental pollution in society.

Recommendations

1. The concept of environmental pollution in secondary schools curriculum should be more comprehensive
2. The school administrator, with the help of the Government, should organise seminars, conferences on environmental pollution to enhance teachers attitude
3. The school administrator should organise environmental pollution awareness programs in secondary school to enhance their attitude

REFERENCES

- Abubakar, A. (2009). The Place of Teaching Aids in Classroom Situation. November 24th, *Guardian Newspaper*, Pp. 8.
- Adubi, A. O. (2015). Biology Education and Entrepreneurial Skill: An Instrument for Eradicating Unemployment. In Olofinde G.R, Fatiloro O.F, Ajibade A (eds). *The Knowledge Resort: A Biennial Journal of Student Education*. Federal College of Education Oyo, Ibadan. Folayerin Venture.
- Akpan, G. (2015). The Impact of Man-Environment Relationship on Health in Nigeria. *Journal of Environment and Earth Science*, 5(21), 73-77.
- Alebiosu, E. & Ifamuyiwa, G. (2008). Measuring the Efficacy of Decision-Making Units. *European Journal of Operational Research*, 2, 429-444.
- Ibrahim, F.M and Babayemi O.F (2010) *Global Journal of Environmental Research* 4 (1): 47-53, 2010
- Ige A.M & Olowolabi, S. (2010) Student unrest in universities in Nigeria: Causes and remedies. *Journal of Education Research and Development*, 4(3), 139-146.
- IRIN (2012). Nigeria Worst Flooding in Warri/Lagos <https://www.irinraws.org/report/96504/nigeria-worst-flooding-in-decades> (Accessed July 15, 2014)
- Kaint, S & Sharma, Y (2013). The environmental awareness of secondary school students with reference to their intelligence. *BPR technological journal of science, Technology and Management*, 2 (1), 33-39.
- Liu, H. & Hin, L. (2014). Undergraduate Students Ideas about Nature and Human-nature Relationships: An Emperical Analysis of Environmental World Views. *Environmental Education Research*, 20, 412-429
- ManKalik, O.C & Agbo A.L (2011) Environmental attitude and climate change journal of *Environmental Studies*, 8(2), 78-86.
- Moroye, C. M. (2005). Common Ground: An Ecological Perspective on Technology and Learning. *Curriculum and Teaching Dialogue* 7(½): 123-139.
- Norris, E.I & Julliet, D.U (2016). Impact of Environmental Education on the Knowledge and Attitude of Students towards the Environment. *International Journal of Environmental and Science Education*, v11 n12 p5367-5375 2016

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- Stanek, V. (2012). Education and Socio-economic Status. American Psychological Association. Retrieved from <http://www.apa.org/pilses/resources/publication/factsheet-education.espx>
- Tartiv, V. (2011). Evaluation of attitudes and Knowledge, regarding principal waste among students: case study. *Bucharest Academic of Economic studies*, 14(1) 263-276.
- Wilson, H. (2010). Divine Sovereignty and the Global Climate Change Debate. *Philosophy Essays*, 11(1), 1-7.