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Influence of Secondary School Students' Knowledge On Attitude Towards Environmental Pollution in Southwest, Nigeria

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Abstract

The study investigated the influence of secondary school students' knowledge on attitude towards environmental pollution in Southwest, Nigeria. The research design for this study was descriptive research of the survey type. The population for this study comprised all senior secondary school students in all the public secondary schools in Southwest, Nigeria. The sample consisted of 2,257 S.S.S.II students and the sample was selected using multistage sampling procedure. The Students' Environmental Pollution Questionnaire (SEPQ) was used to collect data for the study and it was divided into three sections; A, B, C. The instrument was subjected to face and content validity and it was scrutinise by experts in Science Education and in the area of Tests and Measurement. The reliability of the instrument (SEPQ) was determined by finding the internal consistency through a pilot study. Data collected were analysed using Cronbach's alpha to determine the internal consistency of the items which yielded co-efficient value of 0.826 for SEPQ. The data collected were analysed using descriptive and inferential statistics. The findings of the study revealed that students' knowledge of environmental pollution was moderate. However, students' moderate knowledge did not however influence their attitude towards environmental pollution. In addition, location of students did not influence their attitude towards environmental pollution. It was recommended among others curriculum planners should ensure periodic review of science curriculum by deliberate inclusion of environmental pollution related topics into the school curriculum to enhanced

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students' knowledge of the concept.

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Introduction

The incessant pollution of environment in Nigeria has been a major challenge to government and the citizens who have continued to show concerns over the pitiable handling of the environment. This seems to have caused a major risk to human life today both in rural and urban settlements. Thus, the significance of environmental education as a tool for environmental management and conservation cannot be overstressed. In his own opinion, Esa (2010) pointed out that to increase the environmental literacy level of Nigerians, environmental education is taught using both multi-disciplinary and interdisciplinary styles.

It has been observed recently that the role the environment plays in nation's development process cannot be downgraded. Apart from being the physical surrounding for natural organisms, the environment provides the basis for man exploits for agricultural, technological, industrial, commercial and tourism development of a society. For this and several other motives, environmental concerns now occupy a core stage in academic discourse and other public areas, both at the local, national and international levels. Environment can either be the cultural or socio-economic. In the context of this research, environment is more of physical surrounding which according to Uchegbu (2012) is a kind of system within which organisms/habitats interact with their physical environment, comprising of air, water and land. Pollution may be defined as the introduction of contaminants into the natural environment that causes adverse effects. Pollution could be in the form of chemical elements or energy, such as heat, noise or light. However, poor management of environment usually leads to environmental pollution.

Milfont and Duckitt, (2004) stated that environmental attitude/behavior is an organization of views, including an overall appraisal, liking or disliking for some aspects of the surrounding, the environment as a whole, or of some object that has clear and direct consequences on the environment, such as power plants.

Despite the distressing consequences of environmental pollution, the researcher observed that there has been inadequate and inaccurate information as regards issues of environmental pollution. Information on environmental challenges is poorly disseminated to educational institutions in Nigeria. This has handicapped the students about information on environmental challenges and makes them to develop cold approach towards the preservation of their environment. It therefore becomes important that environmental literacy be encouraged in all our educational institutions to increase the level of environmental awareness of students towards decent environmental practice and its proper understanding which should be deeply rooted in the education system at all levels of education, most especially the secondary school level.

Ifegbesan (2010) stated that it appears that individual or group consciousness and attitudes towards environmental pollution is significant in the effort to respond to the environmental management challenges observed that the undesirable attitude of the society towards the environment also impacts the educational institutions which problem has been heightened by constant changes, not just in curriculum content but also school subjects. For example, health education as a school subject has substituted hygiene where students were once taught cleanliness of the environment, and through which offer opportunity through which the act of waste management and sanitation can be learnt.

Similarly, Auer (2010) opined that in Southwest, Nigeria, there seems to be poor environmental knowledge among students of secondary schools. He further posited that the environmental education needs of secondary school students are largely unattended to. Evidence of this poor environmental literacy confirms that large numbers of learners in

secondary schools have poor understanding of their environment while others harbour the misconception that pollution control is government's responsibility.

Secondary school environments in Southwest, Nigeria are also involved in human generated wastes and pollution by students which has not only degraded the environment but also distorted its aesthetic value often leading to hazardous health risks. Public educational programmes that enlighten the masses on the health implications of indiscriminate refuse disposal are almost extinct. Mass media appear not to be doing enough to create awakens about implications of indiscriminate refuse disposal.

Many students seem not to be adequately informed that lack of personal cleanliness may be a source of environmental pollution. According to Strife (2012), personal hygiene is needed for improving health and for sustaining the environment. The dumping of wastes in an unconscious way, indiscriminate disposal of waste paper on the ground rather than litter bins is affecting the environmental factors such as air, ground and water. As observed by Sundaravilli (2012), wasting of the natural sources and lack of education is deteriorating the process and upsetting the natural balance. This may increase environmental pollution around the school compound. Sanitation facilities may be obtainable in a school, but if people do not use these facilities properly, diseases caused by environmental pollution may still occur.

It is against this background that the researcher embarked on this research to appraise students' knowledge and attitude towards environmental pollution in Southwest, Nigeria. It is on this premise that this study investigated the influence of secondary school students' knowledge on attitude towards environmental pollution in Southwest, Nigeria. The study specifically examined:

i. the level of secondary school students' knowledge of environmental pollution;
ii. the attitudes of secondary school students towards environmental pollution;
iii. influence of students' knowledge of environmental pollution on their attitudes towards environmental pollution; and
iv. the influence of location on students' attitudes towards environmental pollution.

Research Questions

This research questions were raised for this study:

1. What is the level of secondary school students' knowledge of environmental pollution?
2. What are the attitudes of secondary school students towards environmental pollution?

Research Hypotheses

The following research hypotheses were formulated for this study:

1. There is no significant influence of students' knowledge of environmental pollution on their attitudes towards environmental pollution.
2. There is no significant influence of location on students' attitudes towards environmental pollution.

Methodology

The research design for this study was descriptive research of the survey type. The research was also a survey type because it studied a large area from which some schools considered to be representative of the entire group were located. The population for this study comprised all senior secondary school students in all the public secondary schools in Southwest, Nigeria. The number of students in public secondary schools in Southwest, Nigeria as at the time of the study were: Ekiti, 90,395; Lagos, 561,113; Ogun, 348,078; Ondo, 200,063; Osun, 194,544; and Oyo, 414,869; while the number of teachers in public secondary schools in Southwest, Nigeria as at the time of the study were: Ekiti, 5496; Lagos, 16,882; Ogun, 6240; Ondo, 10,809; Osun, 3220; and Oyo, 15,859. (Source: State Ministries of Education,

2020). The sample consisted of 2,257 S.S.S.II students and the sample was selected using multistage sampling procedure.

The Students' Environmental Pollution Questionnaire (SEPQ) was used to collect data for the study and it was divided into three sections; A, B, C. Section A sought information on the demographic data of the respondents such as: name of school, location, gender, age, class. Section B consisted of 20 items to measure students' responses to questions on knowledge of environmental pollution. Section C consisted of 20 items designed to elicit information on attitude to environmental pollution. The items were rated on Likert type scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

The instrument was subjected to face and content validity and it was scrutinise by experts in Science Education and in the area of Tests and Measurement. The reliability of the instrument (SEPQ) was determined by finding the internal consistency through a pilot study. Data collected were analysed using Cronbach's alpha to determine the internal consistency of the items which yielded co-efficient value of 0.826 for SEPQ.

The data collected were analyzed using descriptive and inferential statistics. The research questions were answered using descriptive statistics such as frequency counts, percentages, means and standard deviation while the hypotheses were tested using two-way Analysis of Variance (ANOVA). All the hypotheses were tested at 0.05 level of significance.

Results

Research Question 1: What is the level of secondary school students' knowledge of environmental pollution?

To determine the level of students' knowledge of environmental pollution, their responses were scored and the scores converted to percentages. Students who scored below 50% (i.e. 0-49%) were classified as students with low level of knowledge of environmental pollution. Students who scored between 50% and 70% (i.e. 50%-69%) were classified as those with moderate level of knowledge of environmental pollution while those who scored 70% and above (i.e. 70%-100%) were classified as those with high level of knowledge of environmental pollution. The level of students' knowledge of environmental pollution in the selected secondary schools is presented in Table 1.

Table 1: Level of students' knowledge of environmental pollution in secondary schools

Levels of students' knowledge of environmental pollution	Frequency	Percentage
Low (0% – 49%)	104	4.61
Moderate (50% – 69%)	1316	58.31
High (70% – 100%)	837	37.08
Total	**2257**	**100**

Table 1 revealed the levels of students' knowledge of environmental pollution in secondary schools in Southwest, Nigeria. The result showed that out of 2,257 students, 104 students representing 4.61% had low level of knowledge of environmental pollution while 1,316 students representing 58.31% had moderate level of knowledge of environmental pollution and 837 students representing 37.08% had high level of knowledge of environmental pollution. This showed that the level of students' knowledge of environmental pollution was moderate. Figure ii further revealed the level of students' knowledge of environmental pollution.

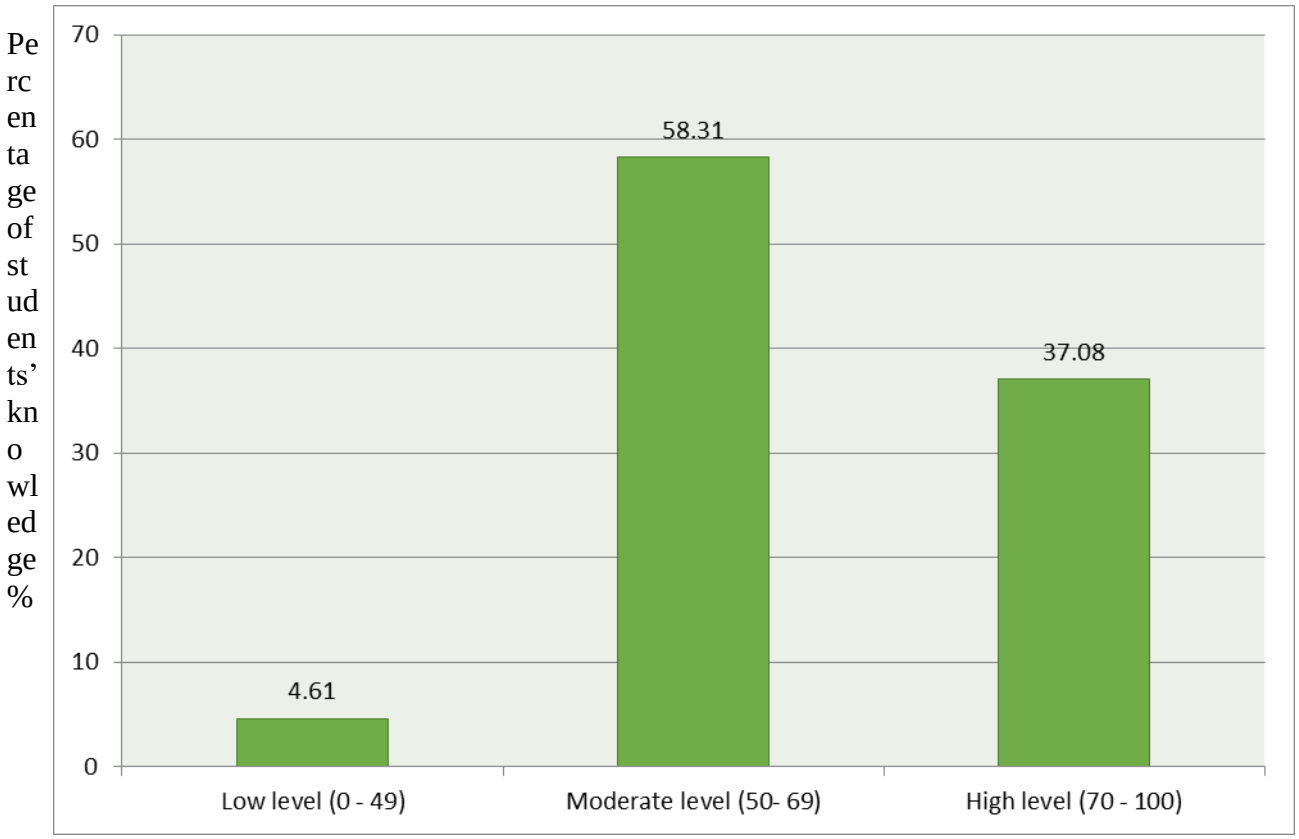

Figure i: Level of students' knowledge of environmental pollution in secondary schools

Research Question 2: What are the attitudes of secondary school students towards environmental pollution?

In answering this question, students' responses to Section C of SEPQ (i.e. items 1 to 20 of questionnaire) were analyzed using mean and standard deviation. The result is presented in table 2.

Table 2: Mean and Standard deviation of students' attitude towards environmental pollution

SN	ITEMS	N	Mean	S.D	Remark
1	There is nothing wrong in studying in a dirty environment	2,257	1.58	0.70	Negative
2	There is nothing wrong with factories, workshop and residential houses existing in the same environment	2,257	1.50	0.56	Negative
3	There should be a change the way people exploit our environment so that we don't cause damage to the environment.	2,257	1.90	0.62	Negative
4	There is nothing wrong with burning bushes in the dry season	2,257	1.58	0.70	Negative
5	Pollution can affect our environment and make people ill	2,257	2.97	0.70	Positive
6	Refuse and garbage should be dumped into nearby streams, rivers and open places.	2,257	1.50	0.56	Negative

7	Industrial development could be promoted even if it causes pollution	2,257	1.90	0.62	Negative
8	There is no need to use waste bins in public places	2,257	1.70	0.71	Negative
9	It is better to apply herbicides in farms than to weed farms	2,257	2.22	0.88	Negative
10	Defecating in the bush or open places causes pollution	2,257	2.31	0.70	Negative
11	Worldwide global warming not generally accepted by people	2,257	2.28	0.76	Negative
12	Individuals are sensitive towards environmental sanitation	2,257	2.39	0.87	Negative
13	People prefer to live in the city than in rural areas	2,257	2.36	0.70	Negative
14	Environmental problems should not attract special attention	2,257	1.63	0.76	Negative
15	People litter waste when nobody watches	2,257	2.23	0.72	Negative
16	People are depressed anytime they hear of pollution	2,257	1.77	0.82	Negative
17	Pollution is something that man cannot do without	2,257	2.36	0.92	Negative
18	The knowledge of pollution enables individual to know what to do when it occurs	2,257	2.33	0.72	Negative
19	Pollution awareness programme is a way of embezzling money	2,257	1.54	0.63	Negative
20	Pollution awareness program should be made local not with big grammar	2,257	3.05	0.93	Positive

Mean cut-off: 2.50

Table 2 revealed the attitude of students to environmental pollution. Based on the mean cut-off mark of 2.50, 18 items (items 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 and 19) were rejected because the mean mark of each of the 18 items was less than the mean cut-off mark of 2.50. This implies that students have negative attitude towards environmental pollution. Only 2 items which are item 5 and item 20 were accepted. It can be concluded that students have negative attitude towards environmental pollution.

Test of Hypotheses

Hypothesis 1: There is no significant influence of students' knowledge of environmental pollution on their attitudes towards environmental pollution.

Table 3: Two-way Analysis of Variance (ANOVA) of influence of students' knowledge on their attitudes towards environmental pollution

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1649.249[a]	20	82.462	1.688	.029
Intercept	221793.226	1	221793.226	4539.120	.000
Students' Knowledge	621.633	10	62.163	1.272	.240
Attitude	38.895	1	38.895	.796	.372
Students' Knowledge * Attitude	363.032	9	40.337	.826	.593
Error	109256.795	2236	48.863		
Total	**3918958.000**	**2257**			

Corrected Total	**110906.044**	**2256**			

a. R Squared = .015 (Adjusted R Squared = .006)

From Table 3, the F value of 0.826 is not significant because the p-value of 0.593 is greater than 0.05 level of significance i.e. p (0.593) > 0.05. This led to the non-rejection of the hypothesis. This means that there is no significant influence of students' knowledge of environmental pollution on their attitudes towards environmental pollution.

Hypothesis 2: There is no significant influence of location on students' attitudes towards environmental pollution.

Table 4: Two-way Analysis of Variance (ANOVA) for influence of location on students' attitudes towards environmental pollution

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	611.093[a]	3	203.698	4.161	.006
Intercept	2573285.613	1	2573285.613	52564.622	.000
Location	.263	1	.263	.005	.942
Attitude	603.756	1	603.756	12.333	.000
Location * Attitude	1.484	1	1.484	.030	.862
Error	110294.952	2253	48.955		
Total	**3918958.000**	**2257**			
Corrected Total	**110906.044**	**2256**			

a. R Squared = .006 (Adjusted R Squared = .004)

From Table 4, the F-cal value of 0.030 is not significant because the p-value of 0.862 is greater than 0.05 level of significant i.e. P (0.862) > 0.05. This led to the non-rejection of the hypothesis. This means that there is no significant influence of location on students' attitudes towards environmental pollution.

Discussion

The study revealed that the level of secondary school students' knowledge of environmental pollution was moderate. The reason for the moderate level of students' knowledge of environmental pollution is in line with the submission of Somanathan (2010) who lamented that, not all teachers possess the skills and are aware of the methodologies needed to present environmental concepts to students on inter-disciplinary bases. He opined that not all the teachers charged with the responsibilities of making the students aware of environmental issues are Science teachers. The implication of this finding is that the moderate knowledge of environmental pollution may affect students' attitude towards environmental pollution.

The study also there was no significant influence of students' knowledge of environmental pollution on their attitudes towards environmental pollution. The probable reason for this finding could be because of the non-application of the knowledge of environmental pollution by students. This is in line with the findings of Arunkumar (2012) that a weak relationship existed between knowledge and attitude towards environmental education among students. The implication of this finding is that students' attitude to environmental pollution might not be affected by their knowledge of environmental pollution.

The study further revealed that there was no significant influence of location on students' attitudes towards environmental pollution. Previous studies such as Esa (2010) and

Pillai (2012) supported the finding of this study as they concluded that location has no influence on students' attitude towards environmental pollution.

Summary of Findings

1. The level of secondary school students' knowledge of environmental pollution was moderate.
2. The attitudes of secondary school students towards environmental pollution differ.
3. There was no significant influence of students' knowledge of environmental pollution on their attitudes towards environmental pollution.
4. There was no significant influence of location on students' attitudes toward environmental pollution.

Conclusion

Based on the findings of this study, it was concluded that students' knowledge of environmental pollution was moderate. However, students' moderate knowledge did not however influence their attitude towards environmental pollution. Location of students did not influence their attitude towards environmental pollution.

Recommendations

1. The Ministry of Education in collaboration with management of secondary schools should organize school debates and quiz competition for secondary school students for improved knowledge and development of positive attitude towards environmental pollution.
2. Curriculum planners should ensure periodic review of science curriculum by deliberate inclusion of environmental pollution related topics into the school curriculum to enhanced students' knowledge of the concept.

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