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THE EFFECT OF MENTORING ON SECONDARY SCHOOLS SCIENCE STUDENTS' ATTITUDE TOWARDS ENVIRONMENTAL PRACTICES IN URBAN LOCATION

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Abstract

There is the need for a sustainable environment and to build a sustainable future, especially in densely populated and urban areas. This is imperative to the wellbeing of inhabitants and development of the society. The study investigated the effect of mentoring on secondary schools science students' attitude towards environmental practices in urban location. The research design was quasi-experimental of non-randomized pre-test, post-test, control group system. The population for the study was made up of science students in public senior secondary schools in Nigeria. The sample size was 200, selected through simple random and purposive sampling techniques. A validated questionnaire titled 'Environmental Attitude Rating Scale' (EARS) which was adjudged to be reliable, having a coefficient value of 0.68 obtained using test-retest method was used to gather data for the study. Supplemental Instruction Learning Package (SILP) was used for treatment between the pre-test and post-test. The research hypotheses formulated were tested at 0.05 level of significance. Data collected were analyzed with descriptive and inferential statistics. The findings recorded significant effect of mentoring on secondary school science students' attitude towards environmental practices. Based on the findings of the study, it was thus recommended among others that, science teachers should employ mentoring strategy in

teaching topics on 'Environment' to encourage better environmental practices among their students.

Keywords

Mentoring, Science Students, Attitude, Environment, Practices

1. Introduction

Today, most people in the world today have a direct and intuitive sense of the urgent need to build a sustainable future. They may not according to UNESCO (2002) be able to give a precise definition of sustainability, but they clearly aware of the risks and need of information-based behaviour. They smell the problem in the air, feel it in the water, they see it in more crowded living spaces and blemished landscapes; they read about it in the newspapers and are enlightened about it on radio and television (dar.aucegypt.edu). The environment is the totality of one's surrounding (Abimbade, 1995). Human practices towards the environment, require attention and calls for intervention from every sector of the economy, education inclusive.

Urban areas are well populated locations with social infrastructures and industries, though standing at advantage to human basic needs for survival, urban development may be detrimental to environmental sustainability. Considering the effect of urban development on the environment, Mansaray & Ajiboye (2000) explained that heavy metal poisoning from industrial and vehicular emissions is causing various lung and heart related diseases like Chronic Fatigue Syndrome (CFS) which weakens the body-immune system hence, lowering life expectancy (Olajide, 2008). Wastes are not properly disposed of but left to rotten away and stink, thereby resulting in air pollution. The indiscriminate refuse dumping in waterways has resulted to drainage blockage in many streets thereby causing flooding during heavy rainfall. It is of note that actions of individual to keep warm feed and produce goods and services add to the accumulation of greenhouse gas which poses threats to lakes, forests and other man- made structures.

Lack of environmental knowledge is one of the biggest obstacles to personal commitment to environmental protection. Baha, (2005) noted that knowing how to motivate people to change basic activities and problematic behaviors is a real problem for humanity in modern sustainable development (www.onecountry.org) Human beings are very resentful to change. Here is where the idea of sustainable development plays a special role in exploring ways

to use various educational strategies to support means of promoting changes in human behavior and change situations of things around us.

Mentoring relationship can be a new way of imparting knowledge and reforming one's attitude in a more convenient way. Mentoring according to Ganser & Nordenqvist, (2003) occurs when a teacher voluntarily attend to the development of a student, by meeting his needs and interest through a trusting relationship. The development of a mentoring relationship between teacher/student was believed by Olu-Ajayi (2013) to reinforce the students' confidence in his ability to learn as it reduces the teacher- student barrier. It was recorded by Rhodes, Jean & Nancy (2000) that a positive perception of the relationship between teacher and student is constantly associated with motivation, ability and performance, participation in school and behavior correction.

Secondary school students constitute a large and active part of the population. There is need to examine their attitude towards the environment to be able to, through their schooling, inculcate positive environmental practices into them. This they will be encouraged to put into use and will gradually become a routine to be emulated by other groups of the population. Formal education is well organized and generally accepted, thus there is the possibility that mentoring in school system will be able to examine students' attitude and impact environmental education into them.

Results on mentoring programs has revealed its efficiency; Mclearn, Diane & Cathy (1998) reported an evaluation of sponsor-a-scholar (SAS), which encourages students to enter schools and colleges in Philadelphia, has a positive effects on its participants. Students are supported by adult mentors received academic assistance, group counseling, and financial support for five years. More than 400 participants from four SAS graduating classes were compared with the group. SAS participants significantly increased their grade point average levels, increased attendance at college preparation activities and had a significant impact on college enrollment. Ganser, (2006) reviewed the mentoring literature and note that the school mentoring programs significantly improves academic performance and contribute to the happiness of children and youths (files.eric.ed.gov). Mentoring is a strong, power free, two – way mutually beneficial learning environment in which mentor give advice, shares knowledge and experience, and teaches using little pressure, adult education versus teacher and student model. And mentees being willing to not just discover oneself, but also freely sharing their own experience and utilizing their abilities (www.todonegocios.com.ar). Environmental protection is

very important to protect the inhabitants. If everybody is knowledgeable about sustaining the environment, living in it will be safe and life span of individuals will be increased.

1.1 Statement of the Problem

Many students in urban secondary schools have been observed to display a nonchalant attitude towards the environment. Enormous human activities and practices associated with urbanization have implications on its environment. The need to develop a friendly disposition towards the environment cannot be over emphasized. The aptness of the regular classroom science lessons alone, to bring about a positive attitude towards the environment among the secondary students, who constitute a large population of the society, is becoming questionable. Introduction of new educational strategies is thus required to help in developing necessary attitude towards sustaining the environment.

1.2 Purpose of the Study

The purpose of this study was to determine the effect of mentoring on the attitude of science students towards environmental practices in urban secondary schools. The study aimed at doing this by examining and gradually improving the attitude of secondary school students towards environmental practices.

1. What is the differential effect of the use of mentoring on secondary school students' attitude towards the environment?
2. What the differential effects of the use of mentoring on secondary school students' practices towards the environment?

1.3 Hypotheses

The following hypotheses were used for this study:

- (1) There is no significant difference in the attitude of students towards sustaining the environment in experimental and control groups.
- (2) There is no significant difference in the practices toward sustainable environment among the students mentored and those not mentored.

2. Methodology

The study employed a quasi-experimental design of pre-test post-test control group system. Intact classes were involved in the study. Mentoring was employed to compliment the conventional method of teaching. The population consisted of all science students of public secondary schools in Abeokuta, Nigeria. The sample size was 200 secondary school science

students (experimental and control). The schools used for the study were selected through simple random sampling technique while purposive sampling technique was used in selecting the science students used for the study. Supplementary Instruction Learning Package (SILP) was used in mentoring the experimental group immediately after the pre-test.

This is symbolically represented thus

Experimental group (mentoring): $O_1 \times O_2$

Control group: $O_2 \text{ c } O_4$

Where

O_1 and O_3 = the pre-test

O_2 and O_4 = the post-test

X is treatment (mentoring)

C is control group (conventional method)

The sample was subjected to pre-test. The experimental group was then made to pass through treatment of mentoring which involved counseling and supplemental instruction on environmental sustainability alongside their normal class lessons for five weeks, after which a post-test was conducted for the two groups of sample (experimental and control). Descriptive and inferential statistics was used to analyze the results obtained from pre-test and post-test.

2.1 Instrument

The instrument used in this study, titled 'Environmental Attitudinal Rating Scale' (EARS) constructed by the researcher was divided into four sections; (1) Bio-data (2) Awareness of environmental pollution (3) Human activities of the environment (4) Attitude towards environmental pollution. The responses to items in the instrument were in four-point Likert scale type of Strongly Agree (SA) Agree (A) Disagree (D) Strongly Disagree (SD). Respondents were instructed to tick only one option.

A mentoring package involving counseling, and supplementary instruction on 'Environmental Pollution' was used for treatment.

The instrument was validated by specialists in the field of science and environmental education. Reliability of EARS was done by using test-retest method and Pearson's product moment correlation statistics was used to analyze the data and obtain a coefficient value of 0.68 which was adjudged high enough to be adequate for the study.

3. Results and Discussions

What are the differential effects of the use of mentoring on secondary school science students' attitude towards the environment?

To answer this question, mean scores on students' attitude in experimental and control groups before and after exposure to treatment involving mentoring were obtained. Pre-test and post-test mean scores of secondary students attitude towards the Environment were obtained. The result is presented in Table 1.

Table 1: Descriptive Analysis of the effect of mentoring on students' attitude towards the environment

Group	N	Pre - test		Post - test		Post - test
		Mean	S D	Mean	S D	Mean difference
Experimental	100	63.33	50.579	50.00	48.500	13.33
Control	100	73.00	16.523	82.75	12.487	-9.75
		-9.67		-32.75		23.08

As indicated in the result, the pre-test mean scores of students in mentoring and control groups were 63.33 and 73.00 respectively. Pre-test mean difference being -9.67 for both groups. After treatment, students in the experimental group recorded a post-test mean score of 50.00 while those of the control group were 82.75 and the post-test mean difference for both groups was 23.08. The post-test mean difference for experimental group is 13.33 while that of control group is -9.75. This suggests that mentoring activities has the ability to improve students' attitude towards the Environment.

What is the differential effect of mentoring on secondary school science students' practice of pollution in the environment?

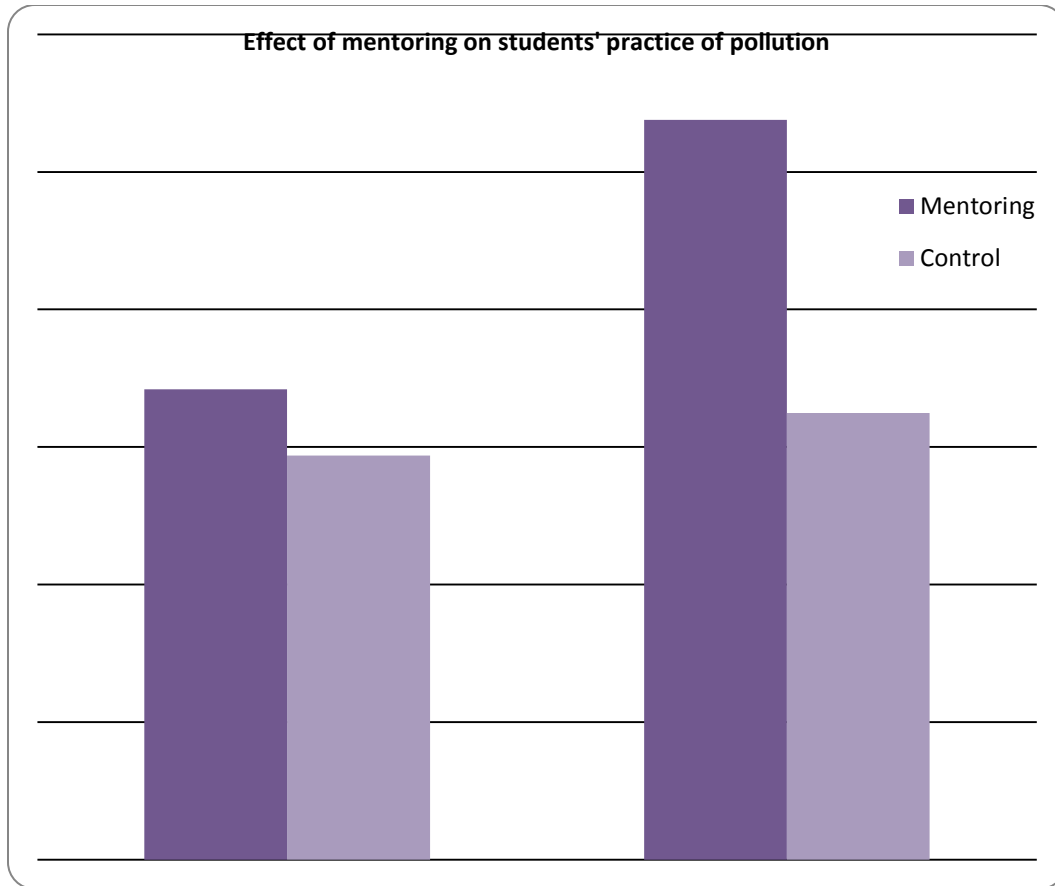


Figure 1: *Effect of Mentoring on Students' Practice of Pollution*

The above figure present students' practice of environmental pollution in experimental and control groups before and after treatment. The result shows that students in the experimental group had pre-test mean score of 34.20 while that of the control group was 29.37. Their post-test mean scores were 53.77 and 32.48 respectively. The higher mean score of experimental group when compared with control group suggests that mentoring as an effective means of improving students' practices towards the environment.

H₀₁: There is no significant difference in the attitude towards sustaining the environment between students in experimental and control groups.

When testing this hypothesis, the mean values on attitude of students in mentoring and control groups were statistically analyzed using T-test statistics at 0.05 level of significance. The result is thus presented in table 2.

Table 2: *T-test analysis of Students' Attitude in Mentoring and Control Group*

V a r i a b l e	N	m e a n	S D	D f	t - c a l c	t - t a b	R e m a r k s
M e n t o r i n g	1 0 0	5 0 . 0 0	48.500	9 9	2 . 9 1 6	1 . 9 8 4	Significant
C o n t r o l	1 0 0	8 2 . 7 5	12.487				

It is shown in the results above that the t-calculated (2.961) is greater than t- tabulated (1.968), the null hypothesis is hereby rejected at 0.05 level of significance. This suggests a significant difference in the attitude of students exposed to mentoring and those not.

H₀₂: There is no significant difference in the practices toward sustainable environment between the students mentored and those not mentored.

To test this hypothesis, the mean scores on students' practices towards the environment in mentoring and control groups were statistically analyzed at 0.05 level of significance, using t-test statistics. The result is shown in table 3

Table 3: *T-test analysis on Students' practices towards the environment in Mentoring and Control Groups*

G r o u p	N	M e a n	S D	d f	t-cal	t-tab	R e m a r k s
M e n t o r i n g	1 0 0	3 1 . 0 0	32.350	1 9 9	2.710	1.968	Significant
C o n t r o l	1 0 0	8 2 . 7 5	12.487				

The table above shows the t- calculated (2.710) is greater than t- tabulated (1.968). The hypothesis tested is thus rejected at 0.05 level of significance. This means a significant difference in students' practices towards the environment exists among mentored and non-mentored group.

3.1 Discussion

It was evident from this study that, the normal classroom teaching alone may not be adequate to ensure an encouraging attitude towards the environment among secondary school students, but complementing normal classroom teaching with mentoring seemed better for improved student's attitude towards the environment. It was observed from the findings in this study that engaging secondary students in mentoring activities is capable of enhancing their attitude towards the environment. This agrees with Akubuilu (2004), who recommended that teachers should be encouraged to innovate teaching strategies that will bring about positive

attitude and interest towards science subjects and development to the society. It is also in support of Lankau & Scandura (2002) who discovered that mentoring relationships strengthens the protégé's self-confidence and improve behavioral attitude. Efforts must be made to enable students develop the right attitude towards environmental sustainability where such is hindered by any factor, attempts should be made for necessary adjustment. The findings of this study revealed an outstanding performance of the experimental group over the control group as it recorded a higher mean score of post-test in the experimental group, even when there was almost equal performance with the control group at the pre-test. The mentoring activities underwent by the experimental group had a positive impact on their behavior and improved their practices towards the environment. This supports the submission of Rhodes et. al. (2000) who concluded in a study on youth development interventions that mentoring results in positive behavioral changes and increased self-control

4. Conclusion and Recommendations

The study hereby conclude based on its findings, that mentoring is a good compliment to normal classroom teaching in motivating a better attitude towards the environment in secondary school science students. Also that mentoring relationship had a positive effect on the behavior of students and will hence improve their practices towards their environment. Thus mentoring the secondary students will inculcate the ideas of sustaining the environment into them, which is of benefit to the inhabitants. Based on the findings of this study, the researcher made the following recommendations.

- i. Teachers should employ mentoring strategy in reforming their students' attitude towards the environment.
- ii. Teachers should be encouraged to voluntarily render supportive mentoring assistance to students to enable them develop positive attitude towards learning.
- iii. Seminars and lectures on sustaining the environment should be encouraged in schools.
- iv. Enough charts on environmental education to sensitize students should be provided by stakeholders and displayed at significant places in the school compound.

References

- Abimbade, A. (1995) Statistical methods and research design in education. Ibadan niyi printing limited.
- Ayodele, S.O. (2002). *Teaching strategies for Nigerian secondary schools*. Ibadan: Powerhouse Press and Publishers.
- Baha, I. (2005). Perspective: Education for sustainable development. *Online News Letter of the Baha I International Community*, 17 (3), 1-3.
- Ganser, T. & Nordenqvist, A. (2003) Sweden. Mentoring in Swedish schools. Global Perspectives on Mentoring and Transforming contexts, communities, and cultures. Greenwich. Connecticut: Information Age. Umeá Publishers.
www.uww.edu/.../scholarship_and_creative_activity.pdf - United States.
- Ganser, T. (2006). A status Report on Teacher Mentoring Programmes in the United States. In C. Cullingford (Eds.). *Mentoring in education: an international Perspective*. England: Ashgate.
- Lankau, M. & Scandura, T. (2002). An examination of personal learning in mentoring relationships: Content, antecedents, and consequences. *Academy of Management Journal*, 45, 779-790.
- Mansaray, A. & Ajiboye, J. (2000). The Green Club effect: An impact assessment of environmental conservation clubs in some Nigerian secondary schools. *African Journal of Education Research* 5(1) 9-6.
- McLearn, K.T.; Diane C.; & Cathy S. (1998). 'Mentoring makes a difference' *The Commonwealth Survey of Adults mentoring young people*.
- Musa, K.; Walia, A & Nuhu H. (2011). Appraisal of the extent of environmental education among students in Mubi metropolis Adamawa state Nigeria. *Journal of Education and Leadership Development* (2)1 87-96..
- Olajide, P. S. (2008). Chemical and physical hazard profile of 'Robo' processing. *International Journal of Food science and Technology* 43(2), 237-242.
- Olu-Ajayi, F.E. (2005). Secondary School Students Knowledge, Practices of, and Attitude towards Environmental Pollution in Urban Centres in Ekiti State. An unpublished Master's Thesis, University of Ado-Ekiti.

Olu-Ajayi, F.E. (2013). Effect of Mentoring on Low-Performing Biology Students in Southwest Nigeria Secondary Schools. An unpublished Ph.D Thesis. Ekiti State University Ado-Ekiti.

Rhodes, J.E, Jean B. & Nancy L (2000) “Agents of change: Pathways through which mentoring relationships influence adolescents’ academic adjustment.” *Child Development* 71, 6.

UNESCO, (2002) Conference on environment and development (the ‘earth summit’) in Rio De Janeiro Paris.