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Strategies to Improve Attitude of Secondary School Students towards Physics for Sustainable Technological Developmentin Abakaliki L.G.A, Ebonyi-Nigeria

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ABTSRACT

This study is aimed at the strategies to improve attitude of secondary school students towards physics for sustainable technological development in Abakaliki Local Government Area of Ebonyi state. Five research questions were raised to guide the study. The population of the study consist of 270 physics teachers and students. A sample of 180 students and 18 teachers was selected through random sampling. The instrument used for data collection was structured questionnaire. The data collected were analyzed using mean. The findings were identifies as qualified/professional physics teachers, adequate instructional materials, equippment, teaching aids and tools, management/government intensive funding, motivation of both teachers and students, comfortable classroom, recommendation of textbook and comfortable library and laboratory. Based on the findings, the necessary recommendations was made. Government/school proprietor should provide teaching aids, materials and equippment for effective teaching and learning of physics. Provide incentives to physics teachers and students. The government/proprietor should provide sufficient/good classrooms, library and laboratory for students. Proper funding and timely release of fund for educational activities should be done.

KEYWORDS: Attitude, physics, technological, sustainable, strategies.

INTRODUCTION

Many factors could contribute to student's attitude towards studying physics. According to Hendrickson, attitudes are the best predictor for estimation of students'

success (Hendrickson, 1997). Attitudes are acquired through learning and can be changed through persuasion using variety of techniques. Attitudes, once established, help to shape the experiences the individual has with object, subject or person. Although attitude changes gradually, people constantly form new attitudes and modify old ones when they are exposed to new information and new experiences (Adesina and Akinbobola, 2005).Physics is a fulcrum subject among the sciences that requires special attention. Advancements in technologies in information and communication, medical, environmental, crime control and security are feats brought to fore through the knowledge of physics. It is in recognition of this that Egbugara (1986) advanced strongly that the specific priority of physics in the development of scientific and technological programmes of a nation is so important that backwardness and exploitation by other countries would be the only reward of a nation with poor records in physics. No nation therefore wishes to draw behind in the field of physics education.

Statement of the Problem

In Abakaliki local government area of Ebonyi State, Nigeria, student's negative attitudes towards physics could be attributed to poor teaching methods, unqualified and inexperienced teachers, poor learning environment and gender effect, Government policies, arrangement pattern of classroom and laboratory, lack of teaching aids and materials etc. Hence, the questions for this research were; will there be any change in the attitude of secondary students toward physics when strategies to improve the attitudes are identify and implemented? And to what extent will these learning strategies improve attitude of physics students? The study therefore aimed at identifying factors that will improve the attitude of students towards the study of physics in the secondary school of Ebonyi local government area of Ebonyi state Nigerian for sustainable technological development

Purpose of the Study

The general purpose of the study is to identify strategies to improve the attitudes of secondary school students towards physics for sustainable technological development in Ebonyi local Government area of Ebonyi state. Specifically, the study tends to:

1. Identifyteachers' factors that will improve student's attitudes
2. Identify Government policies that will improve student's attitudes towards physics.
3. Identify best method of teaching and lesson period that will improve attitudes of students towards physics
4. Identify teaching materials, best arrangement pattern of laboratory and classroom that will increase students' interest and performance in physics
5. Identify students' factors that will improve students' attitude towards physics.

METHOD

Research Design:

The research design used for this work is survey research. It is used in investigating the strategies to improve attitude of secondary students towards physics in Abakakaliki Local Government Area of Ebonyi State

Area of the Study:

Abakaliki Local Government Area is the study area, inhabited with people from different ethnic groups.

It is one of the largest Local Government Area in Ebonyi State in terms of land issues. Government Area is located at Nkaleke while the Local Government Education Authority has her office at Nkwegu primary school. The study was carried out in SSS II of sample schools.

Population of the Study:

The total population of the study is two hundred and seventy (270) comprising of teachers and students from two (2) government secondary schools and one (1) private secondary school in Abakaliki Government Area. The schools includes; Urban Model secondary School Abakaliki, Girls Secondary School Abakaliki and Bethel Comprehensive Secondary School Abakaliki.

Sample and Sampling Techniques:

The researcher we sample one hundred and ninety eight (198) respondents out of the two hundred and seventy (270) students and teachers. The researcher we sample 180 students and 18 teachers out of 240 students and 30 teachers. The sampling technique used was simple random sampling technique in which all the teachers and students in the sample schools have the possibility of being selected.

Instrument for Data Collection:

The data for this study were collected through questionnaire. The questionnaire terms were made of 25 structured questions to rate the terms on a 4-point scale of degree of agreement or disagreement having these options. Strongly agree (SA) = 4, Agree (A) = 3, Disagree (DS) = 2 and Strongly Disagree (SD) = 1, for positive questions and reverse for negative questions. These questionnaires were distributed to the above mentioned school among the teachers and students of SSS II on the strategies to improve attitude of secondary school students towards physics in Abakaliki Government Area. Respondents were required to tick ( ) each item as it applied to item

Validation and Reliability of the Instrument

The instruments were valuable in the sense that the comments made from the respondents were taken into consideration while formulating the final copies that were eventually administered the questionnaire, which had two sections. The first section dealt with the strategies while the second section dealt with the implementations. This instrument was used because it is more economical and energy conserving for the responds sincere they were attended to at a time and in a particular place. It also assured respondents confidentiality. The questionnaire finally under want thorough scrutiny and validation by the some physics lecturer in Industrial physics department of Ebonyi state university Abakaliki and the project supervisor before it was used.

Method of Data Collection:

The data for this study was collected through administration of questionnaire by the researcher to the three (2) government secondary schools and one (1) private secondary school. A total of one hundred and ninety eight questionnaires were distributed to respondents. One hundred and ninety five (195) were returned, two (2) were torn and three (3) were wrongly filed. Only one hundred and ninety (190) were accepted and assembled for analysis.

RESULTS

Findings of the Study

The researcher has summarized their finding from the study of strategies that will improve the attitude of secondary school students towards physics in Abakaliki Local Government Area, Ebonyi state for sustainable technological development as:

1. Effective use of teaching aids will improve students' attitude towards physics

2. The uses of varieties of teaching methods should be employed in teaching physics to improve attitude of students towards physics.

3. Allowing only professionally trained physics teachers will improve attitude of students towards physics.

4. Recommendation of physics textbook for students and directing them on how and where to get them will improve attitude of students towards physics

5. Increase of numbers of physics teachers will improve attitude of students towards physics

6. Giving teachers opportunity to attends conferences, workshops and seminars will improve attitude of students towards physics

7. Giving incentives to physics teachers and students will improve attitude of students towards physics

8. Discouraging physics students from notion that physics is a difficult subject will improve attitude of students towards physics

9. Encouraging physics teachers to teach physics in an interactive manner will improve attitude of students towards physics

10. Adequate funding of schools by donating textbooks, constructing of good physics workshop/laboratory, library and classroom accommodation will improve attitude of students towards physics

11. Considering an environment should before bringing any policies will improve attitude of students towards physics

12. Conducting of physics practical often and allowing students to use material and aids will improve attitude of students towards physics

13. Teaching physics with related stories will improve attitude of students towards physics

14. Arranging classroom and laboratories properly will improve attitude of students towards physics.

Discussion of the Findings

The discussions of findings are made according to research questions. Firstly, to what extent does teacher's attitude affect student's performance in the study of physics in Abakaliki Local Government Area of Ebonyi State? The data collected shows that the uses of teaching aids will improve the attitude and performance of students towards physics. This agrees with the view of Ogwa (2002). He opined that teachers who use teaching aids to delivers his/hers lesson convey more facts than one who uses only oral speeches for lesson delivery. The study also shows the importance of teaching method. It was finds out that varieties of methods in teaching will improve the attitude of students, and this also agree with Ogwa (2002) which state that teaching methods are vehicle used to convey the objectives of a lesson in such a

way that the learner can best acquired knowledge at the end of the lesson, therefore varieties of teaching methods should be exploit in other to choose the suitable method for that particular topic. Professionally trained physics teachers only should be allowed to teach physics. This will help to identifies when student attitude is not coherent to the teaching.Again, in other to improve the attitude of physics students, number of physics teacher should be increase; this will reduce the workload and give teachers room to attend to student one on one. Physics teachers should form habit of recommending good text books for students and also help in directing them where to get those text books. Also, teachers should be giving incentives in other to perform well. Olomoliya (2000) viewed in his study that poor and irregular payment of salary, housing, no hope of owing a car, no other source of income and low prestige in society are some of the major factors that affects teachers, he is denied of his entitlement for instance the withdrawal of teachers allowance and incentives.What affects does government policies have in the study of physics?It was found out that government not considering environment before bringing out some polices is affecting the attitude of students towards some subject particularly physics. For instance, government will announce free education without considering that announcing free educating meaning that some parents will not buy text book and other things for their children.Adequate preparation should be put in place before announcing or bringing out polices of free educations. It is good for both educational planners and policy makers to involve adequate representatives of the society in other to bring out policy that will consider local peculiarities before making any announcement.

What is the extent of unavailability of materials, equipment; tools in teaching physics and arrangement pattern affect the attitude and student's performance in physics?.Ricardo (2006) suggested that physics teachers should arrange their laboratories and classroom in such a way as to give room for effective interaction among students. Ezenwa (2003) defined instructional materials as those items that are used to pass, store and retrieve information for teaching and learning activities. From the above view the finding of the study on the importance of teachings

materials, best arrangement pattern in improving attitude of secondary school student towards physics in Abakaliki Local Government Area has better correlations.

What are the student's factors that can help to improve their attitude towards physics?Miller (1961) state that achievement, motivation and student interest are influenced by positive and student interest has a great influence in their attitude towards a particular subject. According to Gardner and Tamir (1989), interest is refers to preference to engage in some types of activities rather regarded as a highly specific type of attitude. A lot of student has negative attitude towards physics because of their truancy nature. Truancy is one who absents oneself from classes or school functions without permission, many students absent themselves from lectures. Truant prefers, staying somewhere or doing something else during school/ lesson hours. The attitude formed by students towards physics teachers will go a long way to decide and determine the choice and achievement in the subject.

Conclusion

Nagetive attitude of secondary school students towards physics has been a very big problem in Abakaliki Local Government Area of Ebonyi State as well as to the society and for sustainable technological development.Strategies that will improve students attitude towards physics has been identifies as qualified/professional physics teachers, adequate instructional materials, equippment, teaching aids and tools, management/government intensive funding, motivation of both teachers and students, comfortable classroom, recommendation of textbook and comfortable library and laboratory etc.Affort should be made by school administrators/proprietor, teachers and government at all level to make the above strategies available in other to improve attitude of secondary school students towards physics in Abakaliki Local Government Area and society at large for sustainable technological development.

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