

EFFECT OF TEACHER RELATED FACTORS ON STUDENTS PERFORMANCE IN PHYSICS AMONG SECONDARY SCHOOLS IN SAPELE L.G.A. OF DELTA STATE

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Abstract

The focus of this paper was to analyze the effects of teacher related factors on the performance of students in Physics in some selected secondary schools in Sapele Local Government Area of Delta State. One hundred students drawn randomly from five secondary schools using random sampling technique were used for the study. Data were collected using a structured questionnaire and three hypotheses were formulated and tested at 0.05 level of significance using test statistic. The results of the research indicated that teachers attitude towards the teaching of Physics affect the performance of students, the use of guided discovery method for teaching Physics has positive influence on the performance of students and the use of experience teachers for the teaching of Physics also has positive influence on the performance of students.

Introduction

The world today has been rightly described as that of science and technology. Developed nations like America, Japan, Germany, Russia and so on acquired their prosperity through scientific advancement. Nigeria can follow suit if her schools can produce intelligent, committed and competent students with "scientific vision. The federal government seems to have realized this by stating its National Policy on Education (2004) that the aims of education is to inculcate in the child the spirit of enquiry and creativity through the exploration of nature and the local environment. Evidence from the pasts have shown that there is general poor performance of students in science subject especially physics. Okebukola et al (1992) reported that data for WAEC show that relative to many other subject, candidate are not performing as well in science, technology and mathematics (STM) and that is why the performance level over the years show rising spurts, there is clear discernible low level of performance in subjects with STM group.

The factor affecting the teaching and learning of Physics leading to poor performance of student can be classified into:

1. Teachers related factors
2. Parents related factors
3. Students related factors
4. Government related factors

Base on this research, emphasis will be on the teacher related factors.

Teacher's Related Factors

On teacher related factors, issues like the attitude of the teachers in the teaching learning process, the methodology adopted for the teaching of Physics and the experience on the part of the Physics teacher were x-rayed as follows:

Attitude of Teacher

The teacher is the foundation stone in the educational system. Hence his behaviour and attitude to work has great effect on the performance of student. According to Akpotu and Nwaham (2008), the teacher deals with human being and not flies, he is suppose to be interested, competent and comfortable in the job. Igbiwu (2004) opined that every teacher has two basic sets of role to play; one set corresponds with the major functions of instruction, socialization an evaluation while the second set is concerned with motivating pupils, maintaining control and generally creating an environment for learning.

Teacher Experience

Teachers need depth and breath knowledge in the subject that they teach, including an understanding of how new knowledge can be generated in their fields and this comes through experience and acquisition of higher degree. Teaching involves both knowledge base and a performance dimension (Good and Brophy, 1997). Effective physics teaching require a sound knowledge of subject matter or content, the learner and the methodology but if the Physics teachers lack these experiences, then the teaching-learning task become difficult and students are bound to perform poorly.

Teacher Methodology

The methodology of any teacher determines to a large extent the students mastering of the subject that is taught. Nicholl and Nicholl (1980) described methodology in teaching as involving the relationship between pupils, teachers and material and also the organization of the teaching content, manner of presentation to pupils and the activities involved by both the pupils and teachers.

The use of wrong methodology in teaching has not only constituted problem in the teaching process but also in the way students perceived the subjects and this has affected their performance. According to Akpotu and Uwaham (2008), a good teacher should be able to use different methods, such as play-way method, story telling method, demonstration methods, and field trip/excursion method, discussion method, lecturer method, project method and discovery method to teach their students. But considering physics, which is abstract and experimental in nature for the teacher to engage students actively in the class, there is a need for him to adopt the discovering method base on its advantage over the other methods. Brunner (1975), refer to discovery as a method of rearranging or transforming evidence in such a way that one is enable to go beyond the evidence to reassembled to additional new sighs. It includes obtaining knowledge for one self by the used of one's own mind.

This method is adopted when an individual mainly makes used of his/her mental processes in mastering concepts and principles (Sund and Trowbridges (1973).

Essentially, there are two types of discovery methods, namely the open discovery method and the guided discovery method. In the open discovery method, the students are expected to proffer solutions to problems presented to them without any relevant materials or hint given to them. The guided discovery method is a method of teaching where the teacher direct or guide the student to discover facts for themselves. The teacher does this by arranging the learning environment in such a way as to enable the students learn meaningful and not just to listen to talk about what physics is.

Thus, the guided discovery approach is activity oriented both for teachers and students, because it involves a lot of practical demonstration, discussion and experimentation. Hence, the Federal Ministry of Education and Comparative Education Study and Adaptation Center (CESAC) now National Education Research and Development Council (NERDC) in developing National Curriculum for Senior Secondary Schools Science (NCSSSS) in Nigeria, recommended the guided discovery approach to schools as the instructional method due to its advantages and its ability to expose the students to the processes of science.

Statement of the Problem

This study was necessitated as a result of the dilemma that students, teachers, parents, school authorities and the government have over the persistent incidence of poor performance of secondary school students in Physics. Several reasons have been adduced as being responsible for the poor performance of students in Physics, but there seem to be no consensus of research findings as to what factor is responsible. Of all the factors namely teachers related factors, parents related factors, students related factors and government related factors isolated as contributing factors to the noticed poor performance, the teacher related factors seem to be the least studied. This study therefore to seek examined how the teachers related factors such as the attitude of the teacher to the teaching of physics, teaching experience and teacher's methodology can affect student's performance in Physics.

Research Hypothesis

The following hypotheses were formulated for the study.

HO₁. There is no significant difference in performance between students taught by teachers with high attitude scores and those taught by teachers with low attitude score.

HO₂ There is no significant difference in performance between student taught with guided discovery method and those taught with other methods.

HC>3 There is no significant difference in performance between students taught by experienced Physics teachers and those taught by inexperienced Physics teachers.

Research Methodology

Reseai'ch Design

The research design employed for this study is a combination of descriptive survey and exposit facto.

Population

The population of this study entails all the SSII students offering physics in public secondary schools in Sapele local government area of Delta State.

Sample/Sampling Techniques

The target population for the study was SS II students in secondary schools in Sapele Local Government Area of Delta State. Five secondary schools namely; Eziafa Grammar School, Okpe Grammar school, Zik's Grammar school II, Ethiopie Mixed secondary school and Elume Grammar school were selected for the study through stratified random sampling technique. A total of 100 students with 20 students drawn from each school were used for the study.

Research Instrument

Two types of instruments were used for the study, they include the questionnaire and the SSII students past results in physics in their personal record booklet. The questionnaire are of two categories (1) the students questionnaire (2) the teachers questionnaire.

Validation of Instrument

The questionnaires was validated by team of research experts who through all items in the questionnaire.

Reliability of Research Instrument

The questionnaire was tested for reliability using the test-retest method to obtain a satisfactory reliability coefficient of 0.92.

Data Analysis

The t-test for independent means was used to test the three hypotheses formulated for the study at 0.05 level of significance.

Results of the data analysis are presented in table 1 to. 3

Hypothesis 1.

There is no significant difference in performance between students taught by teachers with high attitude scores and those with low attitude scores.

Table 1. T-Test Comparison of Test Scores of Students Taught by High and Low Attitude Teachers

Variable	N	X	SO	t-cal	t-critical	Decision
Low attitude	50	45	2.4	16.5	1.96	Significant
High attitude	50	65	3.1			

$P < .05$

From the table above, the calculated t-value of 16.5 is greater than the table value of 1.96 as a result of this the hypothesis is rejected. Therefore, there is a significant difference in student's performance by those taught by teachers with high and low attitude scores.

Hypothesis 2

There is no significant difference in performance between student taught with guided discovery method and those taught with other methods.

Table 2. T-Test Comparisons of Test Scores of Students Taught With Guided Discovery Method and Those Taught With Other Methods.

Guided discovery	50	66	2.6	12.42	1.96	Significant
Other method	50	52	2.4			

$P < .05$

Table 2 shows that the calculated t-value of 12.42 is higher than the t-critical value of 1.96, thus the hypothesis is rejected. Therefore, there is a significant difference in performance by students taught by guided discovery method and those taught by others methods.

Hypothesis 3:

There is no significant difference in performance between students taught by inexperienced Physics teachers.

Table 3. T-Test Comparison of Test Scores of Students Taught by Experience and Inexperienced Physics Teachers

Variable	N	X	SD	t-cal	t-critical	Decision
Experienced teacher	50	68	3.1	9.692	1.96	Significant
In experienced teacher	50	55	2.8			

$P < .05$

Table 2 shows that the calculated t-value of 9.692 is higher than the t-critical value of 1.96, thus the hypothesis is rejected. Therefore, there is a significant difference in performance between students taught by experienced Physics teachers and those taught by inexperienced Physics teachers.

Discussion

The findings of this study revealed that there is a significant difference in achievement between students taught by Physics teachers that show high attitude towards the teaching of Physics over those that display low attitude towards the teaching of Physics. Students taught by teacher with high attitude performed better. This is in agreement with Atumah and Enudi (2004), who concluded that students tend to perform better when taught by teachers with high attitude. The study also reveals that there is a significant difference in performance between students taught with guided discovery method and Those taught with other methods. Students taught by teachers using guided discovery method perform better than students taught by teachers using other methods. The study also revealed that students taught by experienced teacher performed better than those taught by inexperienced teachers. This finding is in agreement with Atumah and Idiegbc (2007) who carried out a similar research relating to the teaching of physics in secondary schools and concluded that the more the years of experience of the teacher, the higher the level of effectiveness and the higher the performance of his students. The finding also agree with Me. Dowell (1970) who concluded that experience of a teacher have a positive effect on the performance of his students.

Conclusion

From the research, it is evidently clear that wrong attitude to teaching, wrong methodology and inexperience on the part of the physics teachers has negative influence on the performance of the students. To arouse student's interest in physics leading to a better performance, there is need for physics teachers with requisite experience to display the right attitude towards the teaching of physics by using the right methodology of teaching, such as the guided discovery method.

Recommendation

Based on the research findings, the following recommendations are given:

1. Teachers should be committed to their duties so that their students will be encouraged to be more serious and effective
2. Guided discovery method should be used for teaching of physics base on its advantage over other methods.
3. Experienced teachers should be made to teach foundation classes to establish a sound foundation of the subject in the students.

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