Teacher's Quality and Work Environment as Determinants of Academic Performance of Secondary School Physics Students in Otuocha Education Zone in Anambra State.

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ABSTRACT

This study investigated the teacher's quality and work environment as determinant of academic performance of secondary school physics students in Otuocha Education Zone. The survey research design was used. The population of the study consists of twenty six (26) government owned secondary schools. One hundred and eighty (180) physics students and nine (9) physics teachers were used for the study. Stratified random sampling technique was used. Three research questions and two hypotheses were used for the study. Data were analysed using mean and t-test to answer the research questions. The finding indicates that work environment has effect on secondary school student's academic performance in physics. Based on the findings, discussion, conclusion and recommendations were made. Among the recommendations is enhancement the process of teaching and learning for effective understanding of physics in secondary schools, the stake holder should endeavour to recruit educational qualified teachers to teach the concept. The idea of employing anybody as a teacher should be discontinued.

Keywords: Teacher's Quality, Work Environment, Determinants.

INTRODUCTION

Teacher quality is said to be the most important factor influencing learner outcome. Teachers have varied backgrounds making the targeting of professional development programmes difficult [1]. Teacher quality focuses on the need to recruit and retain effective teachers while supporting and enhancing the knowledge and skills of current staff with job embedded professional learning. Students enrolled in successive class taught by effective teachers which show greater gains in student performance than student groups taught by less effective teachers [3]. Teachers' work environment is the final aspect of teacher quality. The model for thinking about teacher quality began with different types of teacher learning and ended with the support teachers receive to pursue continued learning. This model suggests that in addition to teacher learning (both per service and continued), one key factor to understanding teacher quality is focusing on what happens to teachers once they enter the work force, including if they receive support from the schools and communities in which they work (e.g, induction programmes for new teachers and the number of students for whom teachers are responsible) and from the parents of the children they teach [4].

Three features of teacher's work environment were measured

    i. Induction programs

    ii. Class size and

    iii. Teachers' perceptions of parent and school support

Induction programs are for new teachers; it is designed to improve the teaching skills of beginning teachers and reduce attribution. Providing support for beginning teachers. In Nigeria, new teachers are often, isolated in their classrooms, and provided little assistance with their often overwhelming duties [5]. Comprehensive induction programs are often tied on instructional support in the form of skills, knowledge, and strategies for effective classroom teaching, and

psychological support in the form of encouraging confidence building [6].

Class size: The Second feature of the work environment examined is the class size. Reducing class size is among President Clinton's priorities as outlined in his education and training priorities for the fall [7]. Research evidence suggest smaller classes contribute to improved student performance, especially for elementary school students and students who are at risk. Parent and school: the final aspect of teachers' work environment is the teachers' perceptions of parent and school support. According to the center on organization and restructuring of schools [8]: "Teachers must feel they are honoured for their expertise within the school as well as within the district, the parent, community and other significant group. Physics as a concept is concerned with all aspect of nature, covering behaviour of bodies under the action forces such as gravitational, friction, nuclear forces etc. [9] further stated that physics is a natural science that involves the study of matter and its motion through space and time, along with the related concept such as energy and forces. Good achievement in schooling could be the partial contributions of an individual's gender, sensitivity, cognitive, affective and psychomotor domains. [10], argued that one key overriding factor for the success of students academic acheivmeent is the teacher. In the same view, [11] believes that teacher's qualifications and exposure can go a long to bring about students high academic achievement. [7] asserted that no education system can rise above the quality of its teacher. [9] argued that shortage of qualified teachers is responsible for the poor academic achievement observable among the students while [6] argued that students taught by more qualified and experienced teachers in terms of knowledge of the subject matter perform better than those taught by less qualified but experienced teachers. However, teachers have been shown to have an important influence on student's achievement and they also play a crucial role in educational attachment because the teacher is ultimately responsible for translating policy into action and principles based on practice during interaction with the students [5]. No wonder an effective teacher has been conceptualized as one who produces desired results in the course of his duty as a teacher [5]. There is a need to focus on teachers, adequacy and competency in respect to their pedagogical practices and strategies and mastery of the curriculum and subject content [7] Learning can also be said to occur through ones effective interaction with ones environment. Environment refers to availability to facilitate students learning and yielding a positive outcome on their academic performances. This environment ranges from books, audio-visual, software and hardware of educational technology, classroom size, sitting position and arrangement, availability of tables, chairs, chalkboards, shelves on which instruments for practical's are arranged [11].

STATEMENT OF PROBLEM

Influence of teacher quality and school environment on positive academic achievement of students has been an issue of concern to all stakeholders and researchers in education. This has been a problem in the rate of mass failure of students in both internal and external examinations which might be narrowed down to lack of basic infrastructural facilities like good buildings and classrooms, teachers qualifications, experience and competence. However, several research students have fail to identify other factors such as school climate, discipline and physical facilities, teacher quality, type of location of school and over population of students in classroom as being responsible for poor academic achievement of students. However, the researchers are examining the teacher's quality and work environment, as determinants of secondary school physics students academic performance on Otuocha zone.

Significance of the study

The outcome of this will form a useful guide for school management/boards on type of school environment that can facilitate better learning among secondary school physics students

1. The result of this study will also help in maintaining discipline among teachers because of the major role they play in student's academic performance

2. This research will also serve as a resource base to other scholars and researchers interested in carrying out further applied will go to an extent to provide new explanation to the topic.

Research questions

1. What are the effects of work environment on secondary school student's academic performance in physics?

2. What is the correlation between the teacher's quality and secondary school student academic performance in physics?

3. What are the factors encouraging secondary school students academic performance in physics?

Hypothesis

Ho_1: There is no significant difference between the mean rating of teachers and students on the effects of teacher quality and work environment on student's academic performance in physics.

Ho_2: There is no significant difference between the mean rating of teachers and students on factors affecting students academic in physics.

Research Design

A survey research design were used for the study.

Area of the study

The research was carried out in Otuocha Education zone, in Anambra State, which comprises of Anambra East, Anambra West and Ayamelum L.G.A

Population of the study

The population of the study comprises of all physics students and teachers in the twenty six (26) government owned secondary schools in Otuocha Education zone.

Sample and sampling techniques

Sample random sampling techniques were used in selecting nine (9) schools out of twenty six government owned secondary schools in Otuocha Zone. Nine (9) physic teachers and one hundred and eighty (180) students from each local government.

Instrument for data collection

A structured questionnaire was used to elicit information. From both the teachers and students. The questionnaire was divided into two (2) parts, section A and B. Section A comprises of personal data of the respondents while section B sought information on teachers quality and work environments as determinants of secondary school physics students academic performance. A modified like type rating scale was used to measure the item, in which the respondents are to answer SA, A, D and SD with weights as 4,3,2, and 1 respectively.

Validation of the instrument

To ensure the validity of the instrument, it was submitted to lecturer in physics education department and also to an expert in measurement and evaluation.

Reliability of the instrument

The researchers adopted test – retest technique in testing the reliability of the instrument. The research instrument was first administer to two (2) physics

teachers and twenty (20) secondary school physics students outside the study. The researchers repeated the exercise to the same people after three (3) weeks of the first operation using the item and the two sets of the results gotten from both teachers and students were correlated using Pearson Product Moment Correlation Coefficient and the reliability coefficient value of 0.94 was obtained.

Method of Data Collection

The researchers administered the questionnaires personally to the teachers and students in the selected schools. The questionnaires were collected on the spot immediately after filling to ensure one hundred percent return.

Method of Data Analysis

The data generated from the study was analysed using mean. Mean score ranging from 2.50 and above were accepted while those below 2.50 were rejected.

Research question one: What are the effects of work environment on secondary school students academic performance in physics?

Table one: Mean rating on teachers and students response on the effect of work environment on secondary school student's academic performance in physics.

s/n	Items	X	Remark
1	Acoustics and noise	3.78	Agreed
2	Lack of atmospheric ventilation	2.38	Disagreed
3	Overcrowded classrooms	3.32	Agreed
4	Shortage of school furniture and equipment	2.98	Agreed
5	Lack of learner's development	2.99	Agreed
6	Government lack of interest on schools	3.58	Agreed
7	Shortage of laboratory equipment and personnels	3.64	Agreed
8	Lack of vision or focus by the school authority	3.0	Agreed
9	Unserious attitude displayed by the students	2.53	Agreed
10	Unconducive teaching/learning environment	2.77	Agreed

The table above indicates that teachers and students accepted item 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 have a mean score of 2.5 and were accepted which indicated that the respondents agreed that items 1, 3, 4, 5, 6, 7, 8, 9 and 10 have effects on work environment on secondary school student's academic performance in physics while the me has a mean score below 2.50 which was r ejected.

Research question two: What is the correlation between the teacher's quality and secondary school student's academic performance in physics?

Table two: Mean rating of the correlation between the teacher's quality and secondary school student's academic performance in physics.

s/n	Items	X	Remark
1	Effective teaching strategies help students to have a good mastery of the subject matter	3.19	Agreed
2	Eliminates phobia on the students	2.83	Agreed
3	Boost students interest in physics	3.64	Agreed
4	Makes some physics concept that are abstract to be concrete	3.80	Agreed
5	Eliminates note memorization	3.0	Agreed
6	Stimulates and enhances	2.53	Agreed
7	Helps the students to acquire basic concept and principles of physics	2.79	Agreed
8	Helps the students to acquire the necessary skills and attitude	2.78	Agreed
9	Provide students with basic literacy in physics	3.23	Agreed
10	Makes students to know what physics is all about	2.58	Agreed

The table above shows that items 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 have "mean rating of 2.5. So it was agreed that majority of the respondent Agreed, the researchers viewed that there is correlations between the teacher's quality and secondary student academic performance in physics. Research question three: What are the factors encouraging secondary school students academic performance in physics.

Table three: Mean rating of the respondents on the factors encouraging secondary school student's academic performance in physics.

s/n	Items	X	Remark
1	Good knowledge of the subject matter	3.64	Agreed
2	Attending to all learners by the teacher	3.80	Agreed
3	Teacher mastering of the topic	3.00	Agreed
4	Use of appropriate instructional materials by the teacher	2.53	Agreed
5	Well planned learners activities	2.79	Agreed
6	Students showing respect to the teacher	3.58	Agreed
7	Effective delivery of lesson	3.64	Agreed
8	Working with others	3.00	Agreed
9	Welcome diverse perspectives	2.53	Agreed
10	Paying attention to learners and show that you care about them	2.77	Agreed

From the analysis above, the mean scores of the respondents from items 1 to 10 are above the accepted mean sore of 2.50, showing that the respondents agreed on all the items.

Result of the hypotheses

Ho_1: There is no significant difference between the mean rating of teaches and students on the effects of teacher quality and work environment on student's academic performance in physics.

Table 4: The t-test result of the mean responses of students and teachers on the effect of teacher quality and work environment on student's academic performance in physics.

	N	Mean	SD	Df	Level of Sig
Teacher	9	1.23	0.14	65	0.05
Students	180	3.21	1.45		

t-cal	t-crit	Remark
2.15	2.00	Non-significance

From the table above, it shows that the t-calculated value is 2.15 which is greater than the t-critical value of 2.00. hence, the hypothesis is rejected. This implies that there is a significant difference between the mean perception of students and teachers on teachers quality and work environment.

Ho_2: There is no significance difference between the mean rating of teachers and students on factors affecting students academic in physics.

Table 5: The t-test result of the difference between the mean rating on teachers' quality and work environment do not have any effect on factors affecting students academic in physics

	N	Mean	SD	Df
Teacher	9	1.08	0.16	65
Students	180	3.21	0.33	

Level of sign	t-cal	t-crit	Remark
0.05	29.6	2.00	Non-significance

From the table above, it reveals that the t-calculated value of 29.6 is greater than t-critical value of 2.00. Thus, the null hypothesis is therefore rejected. This implies that there is a significant difference in the mean responses of

students and teachers responses of students and teachers on teaches quality and work environment do not have any effect on secondary school student's academic performance in physics.

DISCUSSION OF FINDINGS

From the result of the study, it was revealed that the mean scores of item 1, 3, 4, 5, 6, 7, 8, 9 and 10 were above 2.50 and were accepted while item 2 were below 2.50 which was rejected. This goes to buttress the point that work environment has effects on secondary school students' academic performances. This findings is in agreement with the opinion of [5] who together pointed out that teachers work environment have been shown to have an important influence on student's academic achievement and they also play a crucial role in educational attainment because the teacher is ultimately responsible for translating policy into action and principles based on practice during interaction with the students'.Data presented in table 2 shows that there is correlation between the teacher's quality and secondary school students academic performance in physics. The item 1 to 10 shows that both the mean scores are above 2.50, which were all accepted this finding is inline with the assertion of [8] that students taught by more experienced teachers achieve at a higher level because their teachers have mastered the content and acquired classroom management skill to deal with different types of classroom problems.Table 3 shows that the mean score from items 1 to 10 have 2.50 and above, which shows that factors encouraging secondary school students academic performance in physics. The hypotheses in table 4 shows that there is a significance difference between the mean perception of students and teachers on teachers quality and work environment and also there is a significant difference in the mean responses of students and teachers on teacher's quality and work environment do not have any effect on secondary school student's academic performance in physics do not have any effect on secondary school student's academic performance in physics.

CONCLUSION

In conclusion, it is a well known fact that the teacher is the pivot upon which the educational system revolves. The findings of the study clearly shown that the success of any academic programme is largely determined by the relationship between the input and the outputs. Inputs into the education system include library service, in-service training and re-training programmes for teachers, supervision of instruction, computer services and provision of education resources centre services for teaches all these will no doubt determine teacher quality. In conclusion, the provision of educational services for teachers in public senior secondary schools in Otuocha Education zone, was grossly inadequate, it is very clear that the teacher quality would have improved if the situation were different. Lack of these essential had contributed immensely to teacher's poor performance and hence students consistent failures in their examinations.

RECOMMENDATIONS

Based on the conclusion, the following were recommended

1. The stakeholders should endeavour to recruit qualified teachers to teach the concept. The idea of employing anybody as a teacher should be discontinued.
2. There is needed for those in charge of recruiting teachers to endeavour to attach the newly recruited teachers to an experienced own who will act as a trainer for them.
3. Teachers should endeavour to vary their method of teaching and not to believe that one good method if enough.

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