

Influence of Teacher's Qualifications on the Performance of Secondary School Students in Physics in Osun East Senatorial Zone, Osun State

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ABSTRACT

The study investigated the difference in the performance of secondary school Physics students taught by teachers with high qualification and those taught by teachers with low qualification in Osun East Senatorial Zone, Osun State. It examined the difference in the performance of secondary school Physics students between those taught by skilled teachers and those taught by unskilled teachers; and between those taught with long year of experience and those taught without least year of experience. These were with a view to improving students' academic performance in Physics in Osun State. The study adopted descriptive survey research design. The sample for the study consisted of 120 senior secondary school physics students in Osun State and 80 teachers that taught physics in the school selected. Three hypotheses were formulated and tested at 0.05 significant level. The data collected were analysed using inferential statistics (t-test statistics). The result of the study showed that students taught by teachers with higher qualification performed better than those taught by teachers with lower qualification ($t\text{-cal} = 11.86$, $t\text{-crit} = 1.96$, $df = 96$). However, the experience of the teacher was significant at influencing the student's academic performance in physics ($t\text{-cal} = 8.47$, $t\text{-cal} = 1.96$, $df = 96$). The study concluded that teacher's qualification is not enough to positively influence academic performance of secondary school students, experience of the teachers cannot be overlooked when considering teacher's effectiveness. Based on the findings of the study, it was recommended that long time experience teacher with higher qualification should teach physics at the certificate level.

Keywords: Teacher's qualifications, influence, performance, secondary school, students, physics.

INTRODUCTION

Education and its benefits can never be over emphasised as the root of economic, industrial, political, scientific and technological and even religious development. All aspects of development are centered on education. Education is one of the vital instruments for development in any nation. Every educational system at every level, depends heavily on teachers for the execution of its programmes. Teachers are highly essential for successful operation of the educational system and important tools for the educational development.

Teachers at all levels of education play the decisive role in pivoting the growth and the direction of education. It is an acceptable fact that teacher is the most important cog in the educational machine and is highly instrumental to the success of any educational programme embarked upon by any government. This is because, apart from being at the implementation level of any educational policy, the realization of these programmes also depends greatly on teacher's dedication and commitment to their work (Adeniji, 1999).

Quality of a teacher is another very influential determinant of the classroom environment (Lundberg and Linnakyla, 1993). A teacher's qualities include preparation and training, the use of a particular instructional approach and experience in teaching. The insight is shared by Mullis, Kennedy, Martin and Sainsbury (2004) who indicate that teacher quality is an important determinant of pupil's performance.

Kaplan and Owings (2001) indicate that two broad areas define teacher quality. Darling-Hammond (2000) also states that the characteristics of teacher quality are: verbal ability, subject-matter knowledge, knowledge to teaching and learning the ability to use a wide range of teaching strategies adapted to student's needs.

The quality of education hinges on the quality of teaching that goes on in the classroom reinforcing the idea that quality teachers make up for the deficiencies in the curriculum and in educational resources (Anderson 1991). Teacher quality is widely thought of as an essential determinant of academic performance, yet there is little agreement as to what specific characteristics make a good teacher (Hanuchek and Rivkin, 2006). This is an important issue as the economic impact of higher student's achievement can be a function of the depreciation rate of student learning, the total variation of teacher quality (as measured by student's achievement on standardized tests), and the labour market return to one standard deviation of higher achievement.

Researchers, policy makers, parents and even, teachers themselves agree that teacher quality matters. But defining, measuring and identifying teacher quality is a far more controversial task.

Subject-matter knowledge is another variable that one might think could be related to teacher quality. While there is some support for this assumption, the findings are not as strong and consistent as one might suppose. Studies of teacher's scores on the subject-matter tests of the National Teacher Examinations (NTE) have found on consistent relationship between this measure of subject-matter knowledge and teacher's performance as measured by student's outcome or supervisory ratings. Most studies show small, statistically insignificant relationships, between teacher's quality and student's academic performance. Secondary education is the pivot around which the development of the nation's economy revolves. It is the engine room that provides the input, resources into the nation's economy and higher education production systems.

The National Policy on Education (FRN, 2011 Revised Edition) looks at secondary education thus;

1. Secondary education is the education children receive after primary education and before the tertiary stage.
2. The broad goals of secondary education shall be to prepare the individual for
 - (a) Useful living within the society: and
 - (b) Higher education.
3. In specific term, secondary education shall:

Provide all primary school leavers with opportunity for education of a higher level, irrespective of sex, social status, religious or ethnic background;

- a) Offer diversified curriculum to cater for the differences in talents, opportunities and future roles;
- b) Provide trained manpower in the applied science, technology and commerce at sub- professional grades;
- c) Develop and promote Nigerian languages and culture in the context and world cultural heritage.
- d) Inspire its students with a desire for self-improvement and achievement of excellence;
- e) Foster national unity with an emphases on the common ties that unite us in our diversity;
- f) Raise a generation of people who can think for themselves, respect the values and feelings of others, respect the dignity of labour, appreciate those values specified under our broad national goals and live good citizens; and
- g) Provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development.

To achieve the stated goals, secondary education shall be of six years duration given in two stages; a junior secondary school stage and a senior secondary school stages; each shall be of three years duration.

The development of Nigeria's education system since independence has been characterized by a rapid expansion. Due to the development or expansion, the registration concerning Universal Basic Education (UBE) claims that

access is to be provided for all children by the year 2015. UBE also aims to improve equal and qualitative learning opportunity for all children. How can the nation get a qualitative education? Who is a qualitative teacher?

Research for education and learning (Marzano R. Pickering, & Pollock, 2011). Teacher effectiveness research is grounded in classroom and often uses classroom-based assessments. However, the recent Aspen institute report, beyond NLB (Commission on No Child Left Behind, 2007), written to guide the reauthorization of NCLB, defines “effective” in terms of teacher’s ability to improve student-s achievement as measured on standardized tests.

Qualitative teacher is the one who selects right approaches to teaching, knowledge, intelligent content mastery, hardworking and efficiency, self-discipline, tolerant, friendly, who serves as a role model through good characters and manner commitment, respect for profession, dedicated, loyal and responsible. The current framework for teacher training in Nigeria is based on the NPE (FRN, 2004) which emphasized on the quality of teachers.

On the other side, student’s achievement refers to their academic performance. However, the research will focus on the qualitative aspect to teachers and its relationship for the performance of student academically.

A good teacher is perhaps the most common and least precise of all terms. Shulman, president of the Carnegie Foundation for the advancement of teaching, describes a good teacher in the following way: in the classroom of a teaching, students are responsible for their learning; they are accountable for their understanding. Good teaching engages practical solving skills that can be applied in a variety of settings. And good teaching affects students’ values, commitments and identities.

As stated above, the definition of teacher quality indicates certain qualities that make a qualitative teacher. There are so many problems that are associated with teacher quality, more especially in our secondary schools. The percentage of the students that pass their final exams that is, the Senior School Certificate Examinations (SSCE) conducted by the West Africa Examination Council (WAEC) and the National Examinations Council (NECO) in the last five to six years, the rate of failures in the examinations is become so alarming. Some elites see the problem as a supply/demand issue.

The profession is not attracting the “right” individuals into teaching. Some view the quality problem as associated with preparation. From this vantage point, teacher who complete university-based programmes do not leave with the appropriate knowledge and practices to be effective in contemporary classrooms. A number of reasons can be identified to be accountable for the poor performance of students in science-based disciplines. These include the science, curricula, teacher’s methods of teaching, parents, government, lack of science facilities and others (Ahalewo, 2003). Survey from schools (Ajayi, 2007) revealed that inadequacy of good instructional materials, equipment and laboratory facilities in the schools also affect negatively the effective learning of Physics in the school. According to Ango (1990), student’ poor performance in Physics globally is basically due to lack of involving the students in the teaching learning activities right from the beginning of any new concept to be taught, lack of qualified teachers as well as experiences in teaching and unavailability or insufficiency of materials in the laboratory.

When considering growth in technology, the development of human capital is paramount (Fajanyomi, 2007). This was in line with the view of Ogbezi (1987) who noted that problem of industrial development in Nigeria is that of inadequacy of sufficiently trained human resources and this has been a major constraint on the rate of technological and economic development of the country.

The teacher is the major manpower of saddled with responsibility of impacting the concepts considered fundamental to technology through the teaching of these basic concepts from the secondary school. This was why Adeniyi (1993) noted that a country’s manpower development depends on the quantity of her well-qualified teachers. As stipulated in Nigeria National Policy on Education (FRN, 2004), physics teaching at the secondary school is meant to develop essential scientific skills in the learners so as to prepare them for technological application in order to stimulate and enhance creativity in them. This laudable objective would not be realized

when the students are taught by incompetent teachers. Such teacher would not be able to properly and adequately disseminate the concepts to the students. Physics, being one of the pivotal subjects in technology, its effective teaching must be handled with all seriousness. The competence of the Physics teacher, in this regard, would be of immeasurable value. One thing is to be well grounded in the conceptual understanding of a subject, another thing is to be well acquitted with the best method to pass the concepts across to the learners for proper comprehension.

Statement of the problem

The Federal Ministry of Education (2010) reporting on Nigeria, revealed that the academic performance of science students in the Senior School Certificate Examinations (SSCE) conducted in 2010 and 2011 was below fifty percent (50%). The falling standard of Education in the nation is becoming so high, especially, in the secondary schools. The students are performing very poor in their academic performance. However, Physics being one of the major science subjects meant to provide the basic concept needed to enhance the development of technology in the country. The Federal Ministry of Education revealed the performance of Students in science subject call for great concerns. The consequence of this might results from improvement teacher handling the subject.

Purpose of the study

The main objective of the study is to examine the influence of teacher's qualification on the performance of students in Physics at the secondary school level with a view to improving students' academic performance in Physics in Osun State.

The specific objectives of the study are to:

- a) investigate the difference in the performance of secondary school Physics students taught by teachers with high qualification and those taught by teachers with low qualification;
- b) examine the difference in the performance of secondary school Physics students between those taught by skilled teachers and those taught by unskilled teachers; and
- c) examine the difference in the performance of secondary school Physics students between those taught with long year of experience and those taught without least year of experience.

Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

H₀₁: There is no significant difference in the performance of secondary school Physics students taught by teachers with high qualification and those taught by teachers with low qualification.

H₀₂: There is no significant difference in the performance of secondary school Physics students between those taught by skilled teachers and those taught by unskilled teachers.

H₀₃: There is no significant difference in the performance of secondary school Physics students between those taught with long year of experience and those taught without least year of experience.

METHODOLOGY

The study employed descriptive survey research. The population consisted of students in SS II and teachers in all selected schools in Osun East Senatorial Zone in Osun State. The sample for the study consisted of 120 Senior Secondary School students and 80 Physics teacher who were randomly chosen through purposive and stratified techniques across the zone. There were 62 male and 18 female Physics teachers in the sample. Stratified sampling method was used to select different categories of Physics' teacher such as graduate, polytechnics and NCE, skilled and unskilled, teacher's year of experience, and teacher with mastering of the subject matter. The promotion year results summary of each school was collected through the schools registered while the teacher supplied their bio data. Teacher with Nigeria Certificate in Education (NCE) and Ordinary National Diploma (HD) are regarded as low qualification level while Higher National Diploma (HND) and University Degree are

considered as high qualification level. The data collected were analysed using frequency counts and mean while t-test statistics were used to test the hypotheses.

RESULTS

H₀₁: There is no significant difference in the performance of secondary school Physics students between those taught by teachers with high qualification and those taught by teachers with low qualification.

Table 1: T-test Analysis of Teacher’s Qualification level and students’ Performance.

Variable	N	X	df	t-cal	t-crit	Decision
High qualification level	56	6.21	96	11.86	1.96	S
Low qualification level	24	49.35				

Significant at $P > 0.05$

Table 1 shows that t-cal (11.86) is greater than t-tab (1.96), thus, the null hypothesis was rejected. This mean that there is a significant difference in the performance of secondary school Physics students between those taught by teachers with high qualification level and those taught by teacher with low qualification level.

H₀₂: There is no significant difference in the performance of secondary school Physics students between those taught by skilled teachers and those taught by unskilled teachers.

Table 2: T-test Analysis of Teacher’s Skill level and Students’ Performance.

Variable	N	X	df	t-cal	t-crit	Decision
Skilled teacher	31	69.50	96	8.21	1.96	S
Unskilled teacher	47	52.00				

Significant at $P > 0.05$

Table 2 shows that t-cal (8.21) is greater than t-cal value (1.96). The null hypothesis was therefore rejected which mean that there was significant difference in the performance of students in secondary school Physics between taught by skilled teachers and those taught by unskilled teachers.

H₀₃: There is no significant difference in the performance of secondary school Physics students between those taught with long year of experience and those taught without long year of experience.

Table 3: T-test Analysis of Teacher’s years of Experience and Students’ performance

Variable	N	X	df	t-cal	t-tab	Decision
Long year of experience	21	68.20	98	8.47	1.96	S
Short year experience	50	59.30				

Significant at $P > 0.05$

Result of Table 3 revealed that t-cal (8.42) is greater than the t-tab (1.96). therefore, the hull hypothesis was rejected. This implies that there was no significant different in the performance of secondary school Physics students between those taught by teachers with long year experience and those without long year experiences.

DISCUSSION

The finding revealed that teachers’ qualification level has impact on student’s performance in secondary school Physics. This is line with Olarewaju (1986) submission that student’s low performance in Physics is due to the teacher ignorant. Adeniyi (1993) who supported the findings when he observed that the manpower development

is a function of quality teacher. It is also evident from the outcome of the finding that students' performance in Physics is also affected by the teacher's skilfulness on the prescribed field of study. The result of this finding also showed that experience counts in the efficiency of teachers. The teachers with long years of teaching experiences were able to impact more on the students that without long year of teaching experience.

CONCLUSION AND RECOMMENDATIONS

The study concluded that teacher's qualification is not enough to positively influence academic performance of secondary school students, experience of the teachers cannot be overlooked when considering teacher's effectiveness.

Base on the finding of this study, the following recommendations are put forward for consideration:

Government should find all possible means to retain veteran and experienced teachers who are still willing to serve in order to contribute their wealth of experience to improving the system. Teacher with professional qualification at higher level should teach Physics in the secondary school. Teacher of Physics should be encouraged to go for both long-term and short-term training to boost their quality in teaching and learning.

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