



INFLUENCE OF NIGERIA CERTIFICATE IN EDUCATION (NCE) PHYSICS TEACHERS ON THE ACADEMIC PERFORMANCE OF PHYSICS STUDENTS IN SENIOR SECONDARY SCHOOLS IN POTISKUM LOCAL GOVERNMENT AREA OF YOBE STATE

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ABSTRACT

This researcher studied the influence of Nigeria Certificate in Education (NCE) physics teachers on the academic performance of senior secondary school physics students in Potiskum local government area of Yobe state. Ten senior secondary schools that offer physics were captured in the research. Senior secondary school two (SSS2) was put into consideration. Twenty (20) students were randomly sampled from each school. Two groups of ten (10) students were randomly sampled from the twenty (20) students from each school. Fifty percent (50%) were male students and fifty percent (50%) were female students. To determine the performance of the students, one group was taught by NCE physics teachers while the second group was taught by B sc (Ed) physics or B. tech (Ed) physics teachers some selected topics from SSS2 first term scheme of work and a multiple choice questions was administered to the students by the help of the various physics teachers in each school. To compare the performance of the students, percentage of students pass and fail was computed and a statistical mean and standard deviation were also computed. It was discovered in the research that students taught by B Sc (Ed) or B Tech (Ed) physics teachers performed better than those taught by Nigeria Certificate in Education (NCE) physics teachers. Suggestions and recommendations were made by the researcher.

Keywords: *physics, teachers, , students, influence, performance*

INTRODUCTION

The quality of education of a nation could be determined by the quality of her teachers. The most important factor in improving students' performance in physics is by employing seasoned qualified teachers in all schools (Abe and Adu,

2013). Measurement of teacher's preparation and certification correlates students' performance in science and mathematics. Teachers' characteristics such as certification status and degree in area of specialization are very significant and positively correlated with students learning outcomes in science and mathematics.

Abe and Adu (2013) and Wiki (2013) said that, a teaching qualification or teacher's qualification is one of a number of academic and professional degree that enables a person to become a registered teacher in primary and secondary schools. Such qualifications are not limited to, Postgraduate diploma in education (PGDE), the professional diploma in education (PDE), bachelor of education (B.Ed) and Nigeria Certificate in Education (Ahiazu and Princewill, 2011). Teachers who are academically and professionally qualified are expected to carry out instructional process.

Academically qualified teachers refer to those who have academic training as a result of enrolment into education obtaining qualifications institution such as HND, B.Sc, B.A, M.A, and so on: while professional qualified teachers are those who got professional training that gave them professional knowledge, skills, techniques, attitudes and different from the general education. (Edu and Kalu, 2012), they hold degrees like, B.Ed, B.Sc. Ed, B.A .Ed, and M.Ed and so on. On the other hand, there are studies that have found no significant relationship between teacher educational qualification and students' academic performance.

Izumi and Evers (2002) says that teacher's quality is most important among other critical factors like quality curriculum, funding, small class size and learning situation. Ojo (2001) stated that lack of qualified teachers, lack of facilities and poor teaching method are factors to be considered when it comes to student's performance in science education. Apata (2007) confirmed that students taught by qualified and experience teacher performed better than students taught by unqualified and experience teacher. Lassa (2005) Argued that no one gives that he/she does not possess. He further said that no matter how course curriculum is, if we do not have well trained qualified and motivated teachers we may not achieve the desired goals.

In view of this, a teacher is someone who has been exposed to a good measure of training in a teaching subject area as well as in professional education: such professional qualified teachers may, according to the Federal Ministry of Education (2004) fall into a number of academic categories. Mkpa (2007) regarded the trained teachers as someone who underwent and completed his education in a formal teacher training institution or in a planned programme of training. Among such areas of training may include principles and practice of

education as well as being exposed to an observed period of teaching practice either after or as part of period of training. People who fall within this category should under normal circumstances be able to fulfill the various functions expected of teachers within and outside the four walls of the class room.

According to Adieze (2004), non-qualified and professional teachers in teaching profession are killing the profession because they are not really teachers. He regarded them as 'bird' of passage that create unnecessary vacuum wherever they see greener pasture and better prospect trained for. The comparison of students score in physics performance test based on teachers qualification becomes necessary in other to know if formal teaching method has any significant influence on students' academic achievement in physics or not.

RESEARCH QUESTIONS

1. Is there any decrease in academic performance of secondary school students in physics when taught by NCE (Nigeria Certificate in Education) physics teachers compared to those taught by B Sc (Ed) or B Tech (Ed) physics teachers?
2. Is there any increase in academic performance of secondary school students in physics when taught by B Sc (Ed) or B Tech (Ed) physics teachers compared to those taught by NCE (Nigeria Certificate in Education) physics teachers?

HYPOTHESIS

1. There is difference in academic performance of secondary school students in physics when taught by NCE (Nigeria Certificate in Education) physics teachers compared to those taught by B Sc (Ed) or B Tech (Ed) physics teachers?
2. There is no difference in academic performance of secondary school students in physics when taught by NCE (Nigeria Certificate in Education) physics teachers compared to those taught by B Sc (Ed) or B Tech (Ed) physics teachers?

REVIEW OF RELATED LITERATURE

The impact of teachers in the performance of the students is germane. The teachers are the facilitators who are to impact on the students the concept to be learnt. As stipulated in the national policy on education (NPE, 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 objectives would not be realized when the students are taught by incompetent teachers. Physics being one of the pivoted subjects in technology, its effective teaching must be handled with all seriousness. The competences of the physics teacher in this regards will be of immeasurable value. One thing is to be well grounded in the conceptual understanding of the subject; another thing is to be well acquitted with the best method to pass the concept across to the learners for proper comprehension. A professional teacher will be desirable in this regard.

The issue of professionalism in teaching has been on cause for quite some decades ago. Scholars argue the necessity of skilled teachers for effective learning. Seweje and Jegede (2005), noted that the ability of a teacher to teach is not derived only from one`s academic background but its best upon outstanding pedagogical skill acquired

The realization of the Nation`s growth in technology as highlighted in the national policy on education (NPE, 2004), Hinges (among others) largely on the quality of the physics teachers. This view is supported by Nkwadimah`s (2003), submission that teachers quality will inevitably be seen in the citizens tomorrow. Nggada (2008), while remarking on teacher`s quality observed that 80% respondents in a survey research were of the view that teachers are carriers of weaknesses. These weaknesses include among others, inadequate exposure to teaching practice, poor classroom management, shallow subject matter and lack of professionalism.

Ajayi`s (2009), point of view, the professional qualities of a teachers have to do with the following: Mastery of the subject matter, Sense of organization, Ability to classify ideas, Ability to motivate students, Good imagination, Ability to involve the students in meaningful activities throughout the period of teaching, Management of details of learning and, Frequency monitoring of student`s progress through test, formal and informal, writing and oral quizzes.

Adele S.A (2000), which says “ A physics teacher who is attempting to teach without inspiring the students to and himself with a desire to learn and a desire to teach is hammering on cold iron”. So inspiration by the Physics teacher is very important in any school.

There is need to ensure adequate preparation of efficient and effective Physics teaching personnel of science and technological development. Azubuki, (2001), suggested that teachers now should even be trained to teach more than they know if the challenge of effectiveness in teaching physics subject will be met. The physics teacher should acquired basic and specialized training as related to their field. If physics teacher must be effective in his work he must be properly trained

and of high quality. He must have good practical and theoretical knowledge of the subject matter (Fafunwa 2003). No one give what he does not have. Teacher of physics cannot be if they did not possess the necessary skills required for teaching of the subject.

For a physics teacher to assert full control over his/her class, he or she must adequately prepare for his/her lesson before going into the class. A good mastered of his/her subject is a necessarily confidence on his/her part, creates good atmosphere for teaching and learning. A good physics teacher should ensure good preparation; the teachers should plan his lesson very well before he/she goes to class (Adewale 2005).

According to Denial, (2001), teachers need to expose to the production of instructional and learning material using available resources and most especially in this age of information technology. Academics performance of students in Physics in our secondary school is worrisome and therefore called for an investigation. It therefore become necessary to find out if there are instruction materials to aid teaching and learning of physics and if teachers are exploring instruction materials sufficiently and adequately.

Ferguson (2001), concluded from his research in Ghana that “Good teachers have distinguishable impacts on students examination score.

Sanders (2005) and Wenghinsky (2005), found that the simple largest factors effecting academic growth of population of students is different in effectiveness of individual classroom teachers. He further propounded that the higher a teacher is qualified, the higher his/her level education in the teaching profession. The method employed by the teachers in an attempt to impact knowledge on the learners is referred to as methodology. Omotoshow (2007), sees teaching method as the strategy or plan that outline the approach that teacher intend to take in order to achieve the desirable objectives. It involved the way teachers organized and used techniques of subject matter, teaching materials tools and teaching materials to meet teaching objectives. Fafunwa (2003) said most untrained teachers point accusing fingers at students rather than on themselves when the students are unable to carry at the expected behavior at the end of the lesson or examinations. Therefore teachers plan should include: Choice of appropriate teaching method, choice of appropriate teaching material, Intensive on the topic to be taught and determination of the objectives for the lesson.

Ferguson (2001) and Koffinan (2004), carried out a study on the effect on instructional methodology and student’s performance. These instructional methods he referred to as technical skills on teaching. At the end of the study, they found out that only effective method (s) of teaching can bring out effective

learning, hence teachers creature and dynamic in this regard to ensure that there is an increase in average student`s performance in their subject area.

A teacher`s academic qualification is another quality of a teacher this means that the qualification of a teacher matters when it comes to effectives teaching. Darling – Hammond (2000) reports that certificate or licensing status is a measure of teacher qualifications. Wenglingsky (2002) has suggested, a teacher cannot be determined to be qualified by checking his/her qualifications, years of experience or teaching certificates. Teachers influence students through their interactions with them, especially in the classroom. Thus, teacher education level and experience only represent a portion of the ability to manage the classroom effectively and to promote students performance in physics. Studies have consistently shown that teachers` quality whether measure by content, experience, training and credentials are strongly related to students` achievements (Darling-Hammond 2000, Anderson, 2001).

Researchers and analyst argued that assigning experienced and qualified teacher to low performing schools and students is likely to pay off in better performance gaps. (Adebile & Adeyemi, 2008), said that subject matter knowledge, teacher qualification, teaching experience, classroom behavior are strongly variable that indicate student academic performance. Darling Hammond (2000) emphasize on the characteristics of a teacher. He reported a study carried out by the National Commission on Teaching & American`s future on the relationship between teachers` academic qualification and other schools variable such as class size. On the performance of student, the results showed that students who are assigned to unqualified teachers in a class have significantly lower performance and those who were assigned to qualified teachers have higher performance.

The importance of teachers` academic qualification, qualified teachers cannot be over stressed this is because teachers, play a number of roles. Specifically teacher has been referred to by Bamidele (2004) as an agent of innovation. For meaningful innovation, teacher academic qualification is very important. This is because teacher education is a very complex enterprise. The complexity arises as a result of several factors which include determination of what effective teachers are. Teachers are expected to fulfill a variety of roles that common to all teachers. Others uniquely relate to certain kinds of environment of students or subject matter. Added to this is the fact that teacher education involves the training of professionals who will educate students in future. Despite the complexity in the field of teacher education one cannot over emphasis the importance of academic training of teacher of all categories. This depends on the efficiency of any institution of the teaching staff since no educational system can rise above the

qualities of its teachers (FGN.2004, P.38). Ojo (2001) state that lack of qualified teachers, lack of facilities and poor teaching method are factors to be considered when it comes to student's performance in science. Education program depend to a large extent on the teacher. Apata (2007), confirmed that student taught by qualified and experience teacher performed better than student taught by unqualified and inexperience teacher.

Okuruwa (2002), Found that policy investment on quality of teachers is related to improvement in students' performance. Specifically, the measurement of teacher preparation and certification correlates to student's performance in science and mathematics. Abe and Adu (2013) and Wiki (2013) said that, a teaching qualification or teachers qualification is one of a number of academic and professional degree that enable a person to become a registered teacher in primary or secondary school. Such qualification include but are not limited to the post graduate Certificated in Education (PGDE), Nigeria Certificate in Education (NCE) Bachelor of Education (B.Ed). Adieze (2004) non qualified and non – professional teachers in teaching profession are killing the profession because they are not really teachers, Ogunleye (2003) cities Ukeje in his book to have said “poor performance of student in science especially in physics is due to the teachers who are neither qualified nor interested in teaching. Some teach the limit of their Knowledge. Sanders (2005) and Wenglisnky (2005) found that, the simple largest factors affecting academic growth of population of students is difference in effectiveness of individual classroom teachers. He further propounded that the higher a teacher is qualification, the higher his or her level education in the teaching profession. Ehrenberg and Brewer (2000) and Ferguson (2001) asserted that students learn more from teacher with strong academic skills. To this research, teachers' assignment depends on their qualification of the subject being taught. Model and high schools Students learn more from teachers who hold Bachelor's or master degree in the subject they teach and from experience teachers than the less experience one, darling – Hammond. (2000)

Ijaiya (2007) concurred and opined that improving the quality of the teaching force in school seen as the key to raising student's performance.

METHODOLOGY

Ten senior secondary schools that offer physics were captured in the research. Twenty (20) students were randomly sampled from each school. Fifty percent (50%) were male students and fifty percent (50%) were female students. The twenty (20) students from each school were divided into two groups of ten (10)

by random selection. One group was taught by NCE physics teachers and the second group by B sc (Ed) physics or B. tech (Ed) physics teachers.

Senior secondary school two (SSS2) was put into consideration. To determine the performance of the students selected topics from SSS2 first term scheme of work was taught and a multiple choice test questions was administered to the different group of students that were randomly selected by the help of the various physics teachers in each school. To compare the performance of the students, percentage of students pass and fail was computed and a statistical mean and standard deviation were also computed.

ANALYSIS OF DATA

Table 1: Number and percentage of students that passed and students that failed when taught by NCE physics teacher

SCHOOLS	TOTAL NUMBER OF STUDENTS	NUMBER OF STUDENTS PASSED	OF NUMBER OF STUDENTS FAILED	PERCENTAGE OF STUDENTS PASSED	PERCENTAGE OF STUDENTS FAILED
1	10	4	6	40	60
2	10	3	7	30	70
3	10	5	5	50	50
4	10	6	4	60	40
5	10	3	7	30	70
6	10	4	6	40	60
7	10	5	5	50	50
8	10	7	3	70	30
9	10	6	4	60	40
10	10	5	5	50	50

Table 2: Number and percentage of students that passed and students that failed when taught by B Sc(Ed) physics or B. Tech(Ed) physics teacher

SCHOOLS	TOTAL NUMBER OF STUDENTS	NUMBER OF STUDENTS PASSED	OF NUMBER OF STUDENTS FAILED	PERCENTAGE OF STUDENTS PASSED	PERCENTAGE OF STUDENTS FAILED
1	10	6	4	60	40
2	10	5	5	50	50
3	10	9	1	90	10
4	10	7	3	70	30
5	10	8	2	80	20
6	10	6	4	60	40
7	10	5	5	50	50

8	10	7	3	70	30
9	10	6	4	60	40
10	10	5	5	50	50

Table 3: Mean pass, average percentage pass and standard deviation of students taught by NCE physics teachers and B Sc(Ed) physics or B. Tech(Ed) physics teachers

QUALIFICATIONS	MEAN PASS (\bar{X})	STANDARD DEVIATION(SD)	AVERAGE % PASSED
NCE PHYSICS TEACHERS	4.8	1.249	48
B SC(ED) PHYSICS AND B. TECH(ED) PHYSICS TEACHERS	6..4.	1.281	64

Table 4: Mean fail and standard deviation of students taught by NCE physics teachers and B Sc(Ed) physics or B. Tech(Ed) physics teachers

QUALIFICATIONS	MEAN FAIL (\bar{X})	STANDARD DEVIATION(SD)	AVERAGE % FAILED
NCE PHYSICS TEACHERS	5.2	1.249	52
B SC(ED) PHYSICS AND B. TECH(ED) PHYSICS TEACHERS	3.6	1.281	36

DISCUSSION OF RESULT

The average percent of the students taught by NCE physics teacher that passed the test was 48% while the average percent of students that failed the test was 52%

On the other hand, the average percent of the students taught by B.Sc(Ed) physics or B.Tech (Ed) that passed the test was 64% while the average students that failed the test was 36%

Therefore, there is a difference in the performance in physics between the students taught by NCE physics teacher and B.Sc(Ed) physics or B.Tech (Ed). The performance of those taught by B.Sc(Ed) physics or B.Tech (Ed) is quite higher than those taught by NCE physics teacher with 16%.

The mean pass of students taught by NCE physics teachers is 4.8 while the standard deviation is 1.249 and that of students taught by B.Sc (Ed) physics teachers or B.Tech (Ed) physics teachers are 6.4 and 1.281 respectively.

Performance of students taught by B.Sc (Ed) physics teachers or B.Tech (Ed) physics teachers deviated from that taught by NCE physics teachers with 1.6 and 0.032 respectively.

The mean fail of students taught by NCE physics teachers is 5.2 while the standard deviation is 1.249 and that of students taught by B.Sc (Ed) physics or B.Tech(Ed) are 3.6 and 1.281 respectively. Performance of students taught by B.Sc (Ed) physics or B.Tech (Ed) deviated from that taught by NCE physics teachers with 1.6 and 0.032 respectively.

CONCLUSSION

The finding was in accordance with the recommendations of National Commission for Colleges of Education: Nigeria Certificate in Education Minimum Standards for Vocational and Technical Education 2012 edition which states that the mandate of the training programme at the NCE level, which is the recognized minimum teaching qualification in Nigeria, is to produce qualified teachers for the basic education subsector. The basic education subsector encompasses the following categories of education: Pre- Primary Education or Early Childhood and Care Education, Primary Education, Junior Secondary Education, Adult and Non-Formal Education and Special Needs Education. This research work has shown that NCE physics teachers are not qualify to teach physics in Senior Secondary Schools.

SUGGESTIONS/RECOMMENDATIONS

1. This research work can be carried out in other state of the Federation to find out the effectiveness of the studies.
2. The researcher considered only SS2 students in his studies, but this work can be carried out also by considering SS1 and SS3 students
3. The government and the private school owners should obey the recommendations of National Commission for Colleges of Education: Nigeria Certificate in Education Minimum Standards for Vocational and Technical Education 2012 edition which states that the mandate of the training programme at the NCE level, which is the recognized minimum teaching qualification in Nigeria, is to produce qualified teachers for the basic education subsector.

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