

## Relationship Between Teachers's Quality And Senior Secondary School Students Academic Performance In Chemistry In Maiduguri Metropolis, Borno State, Nigeria

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### Abstract

The study examined relationship between teacher's quality and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State, Nigeria. Two objectives were stated and two null hypotheses were tested in the study. The objectives were to determine relationship between teachers' qualification and senior secondary school students' academic performance in chemistry in Maiduguri Metropolis and teacher's experience and senior secondary school students' academic performance in chemistry in Maiduguri Metropolis. The population of this study is thirty-eight (38) chemistry teachers and seven thousand six hundred and eighty-seven (7687) SS3 chemistry students across the sixteen (16) senior secondary schools in the Metropolis. Stratified random sampling was adopted in drawing the sample of three hundred and sixty seven (367) SS3 students while all the thirty (38) chemistry teachers were used as the sample of the study. Teacher's quality questionnaire and profoma was used for data collection. Pilot study was carried out to determine the validity and reliability of the questionnaire. Reliability was determined by test and re-test of the instrument. The data collected for the study was analyzed using chi-square. The findings of the study revealed that there was significant relationship between teachers' qualification and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State, there was significant relationship between teachers' experience and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State. Based on the result of the study it was concluded that teacher's quality has significant relationship with secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State, Nigeria. Based on the findings of the study, it was recommended that Government should regularly organize seminars, workshop and training programmes to foster teachers' mastery of the subject, and Ministry of education should organize refresher training for teachers so that they can employ different strategies while teaching in the classroom in order to build students capacities.

**Keyword:** Teacher's Quality, Teacher's Qualification, Teacher's Experience, Academic Performance

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### I. Introduction

The benefits of education cannot be over-emphasized as the root of economic, industrial, political, scientific and ecological, and religious development. Education has been accepted as the key to success and as an index for national development (Whitehead, 2003).

Ashimole (2011) emphasized that teaching and learning depend largely on teachers, and it is on teacher's quality and devotion that rest the effectiveness of all educational arrangement, development and growth. Similarly, Akinsolu (2010) observed that teacher's quality is a vital pre-requisite for students' attainment of educational goals and objectives. The Federal Republic of Nigeria in the National Policy on Education (FRN, 2006) also recognized the importance of the quality of teachers by stating that no nation's educational system can be greater than the standard of their teachers. Therefore, teachers remain the major factor in any educational system and their quality of teaching is undoubtedly one of the most important factor shaping the teaching/learning and performance of students (Fenstermacher and Richardson 2005).

Darling-Hammond (2000) states that, the characteristics of teachers' quality depends solely on subject-matter knowledge, teaching experience, training, verbal ability, qualification and the ability to use a wide range of teaching strategies adapted to student's needs. Quality of a teacher is another very influential determinant of the classroom environment (Lundberg and Linnakyla 1993). Teacher's qualities include preparation, qualification and training, the use of particular instructional and experience in teaching. This insight is shared by Mullis, Kennedy, Martin and Sainsbury (2004) who indicate that teacher quality is an important determinant of

students' performance. Perhaps the most local approach of characterizing teacher quality is the "expert teacher study," which focuses on teachers who have been identified as successful by their administrators or peers.

The quality of the education depends on the ability, hard work and dedication of the teacher. If a teacher fails to keep himself in touch with the rapid scientific and educational developments, then he would become inefficient and ineffective as indicated in national education policy (1998-2010), that teacher is considered the most crucial factor in implementing all instructional reforms at the grassroots level. It is a fact that the academic qualifications, experience, knowledge of the subject matter, competence and skills of teaching and commitment of the teacher has effective impact on the teaching learning process". Teacher's quality in this study refers to qualification and experience.

According to Usman (2012), a qualified teacher can be defined as one who holds a teaching certificate and/or licensed by the state, owns at least a bachelor's degree from a four-year institution and well qualified in his/her area of specialization. Moreover, Usman quotes the Pakistan Ministry of Education officials who described a qualified teacher as one who possesses knowledge of the subject matter, bachelor's degree and development, ethical values, instructional planning and strategies, assessment, learning environment, communication and advocacy, collaboration and partnership, continuous professional development, code of conduct and skillful use of information communication technologies.

Several studies have revealed that qualification is one of the critical factors that drive students' academic performance. Hakielimu (2011) observed that one of the most important factors in the teaching process is qualification of the teacher. The perspective of this was that teachers' qualifications can go a long way to bring about students' higher academic achievement. It relates to competence in instruction and management of students and materials in the classroom. Teachers' qualifications, therefore, might not only be the idea you have on a particular subject teaching as erroneously conceived by some people but the certificate on a particular course you acquired from school. Teachers with qualifications are often seen simply as "good" teachers and are considered to be those who exhibit desirable traits and uphold the standards and norms of the profession. These teachers are also considered to be those who bring about students learning and are called "effective" (Berliner, 2005) or "successful" (Fenstermacher and Richardson, 2005).

The importance of experienced teachers in schools has been highlighted by many researchers (Akinleye, 2001). Researchers have also given different views about teaching experience and students' performance in secondary schools (Al-Methen, 2003). Their arguments centered on the fact that experience improves teaching skills while pupils learn better at the hands of teachers who have taught them continuously over a period of years (Ijaiya, 2000). The more the teachers know about students, the better the teachers can connect with them and the more likely they will be able to benefit from the teachers' experience in reconstructing their world (Fullan, 1992). The knowledge that teachers need about students in order to connect with them is gained through interaction. For many reasons, measuring the real impact of experience on teacher's effect is complex, more so than measuring any other teacher attribute. Consequently, many well-constructed research attempts to interpret the effect between experience and performance have produced varying results that reveal no particular pattern. In investigating possible differences in the teaching strategies. Schuler (2010) grouped teachers into three levels of teaching experience (3 – 6; 7 – 10 and more than 10 years). This findings revealed that experienced teachers' perception of their teaching objectives was significantly more subject oriented than was that first year teachers. Hence, effective teaching could be measured by the level of a teachers' subject matter competence which Mullens (2003) regarded as a prime predictor of students learning.

The impact of the teachers in the performance of the students is related to the subject being learnt by the teacher. The teachers are the facilitators who are to impact into the students the concepts expected to be learnt. Adeogun (2001) noted that the problem of students' development in Maiduguri Metropolis seems to be that of inadequacy of sufficiently trained teachers and this has been a major constraint on the rate of the performance of students in Biology. Teacher is the main man power saddled with the responsibility of impacting the concepts considered fundamental to performance through the teaching of these basic concepts from the secondary school. Research studies have also shown that many secondary school products in Maiduguri Metropolis seems to be poor in reading, writing, computational and vocational skills as a result of unqualified teachers. Many of them also seems to perform woefully in various examinations most especially Biology (Foster, 1999). Therefore, this study examined relationship between teachers' qualification and senior secondary school students' performance in Biology in Maiduguri Metropolis, Borno State.

### **Statement of the problem**

Teaching and learning of Chemistry depends to a large extent on teacher's own knowledge of the content and ability to adequately deliver the instruction to the students. However a lot of factors or variables may inhibit or hinder effective dissemination of knowledge to the understanding of the content by the students, such variables may seem to be lack of qualified teachers, teachers' qualification, experience, inadequate use of instructional materials among others. While the present study sought to determine relationship between

teachers' quality and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State, Nigeria.

**Objectives**

The objectives of this study determined:

- i. Relationship between teacher qualification and senior secondary school students academic performance in Maiduguri Metropolis
- ii. Relationship between teacher experience and senior secondary school students academic performance in Maiduguri Metropolis

**Hypotheses**

The following two hypotheses were formulated were and tested at 0.05 level of significance to guide the study:

H<sub>01</sub> There is no significance difference between teacher qualification and students' academic performance in Chemistry in Maiduguri Metropolis

H<sub>02</sub> There is no significance difference between teacher experience and students' performance in Chemistry in Maiduguri Metropolis

**II. Methodology**

The study adopts correlation research design which involved correlating students' performance based on teacher's qualification and experience in Chemistry in Maiduguri Metropolis. The population consisted of all senior secondary school students who wrote Chemistry in 2017/2018 West African School Certificate Examination in Maiduguri, Borno State and the teachers that taught and prepared the students for the examination. The population of Chemistry teachers in public senior secondary schools in Maiduguri Metropolis is thirty eight (38), while the population of SS3 students is seven thousand six hundred and eighty seven (7687) across the sixteen (16) senior secondary schools in the Metropolis. All the thirty (38) Chemistry teachers were used as the sample of the study while 367 Senior Secondary Schools students were randomly selected through stratified random sampling techniques across the Metropolis in Borno state. The year's results summary of each school was collected through the schools' examination officer while the teachers supplied their bio data. The data were analysed using chi-square.

**Instrumentation**

Research instruments used in this study was questionnaire and profoma which was used to obtain data on relationship between teacher qualification, experience and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis. The questionnaire was used to collect data on teacher's qualification and experience while profoma was used to collect information on students' performance in Chemistry in Maiduguri Metropolis. The questionnaire was divided into two (2) sections A and B. section A comprised of demographic information of the respondent such as name of school. While section B comprised of questions on teacher qualification and experience with six (6) items. A pilot study was carried out to determine the validity and reliability of the questionnaire. Reliability was determined by test and re-test of the instrument at .87 at alpha level.

**III. Results And Discusion**

**Table 4.1: Results of Chi-Square on Teachers' Qualification and Students' Academic Performance**

Variable	Df	$\chi^2$ -Value	Asymp. Sig.	C-Value	P-Level	Remarks
<b>Teachers' Qualification</b>						
	4	28.74	0.001	.66	.05	S
<b>Academic Performance</b>						

**Key: S = Significant**

Table 4.1 indicated that the Asymp. Sig. value .001 is less than p-level .05, this implies that there was significant relationship between teachers' qualification and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State. Therefore, hypothesis one which states that there is no significant relationship between teachers' qualification and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State was rejected. Furthermore, contingency coefficient value of .66 was obtained; this confirmed that there was significant relationship between teachers' qualification and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State.

Ho<sub>2</sub>: There is no significant relationship between teachers' experience and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis.

**Table 4.2: Results of Chi-Square on Teachers' Experience and Students' Academic Performance**

Variable	Df	$\chi^2$ -Value	Asymp. Sig.	C-Value	P-Level	Remarks
<b>Teachers' Experience</b>						
	4	76.00	0.001	.82	.05	S
<b>Academic Performance</b>						

**Key: S= Significant**

Table 4.2 indicated that the Asymp. Sig. value .001 is less than p-level .05, this implies that there was significant relationship between teachers' experience and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State. Therefore, hypothesis two which states that there is no significant relationship between teachers' experience and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State was rejected. Furthermore, contingency coefficient value of .82 was obtained; this confirmed that there was significant relationship between teachers' experience and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State.

#### **IV. Discussion**

The study determined relationship between teacher's quality and senior secondary school students' academic performance in Chemistry in Maiduguri Metropolis, Borno State, Nigeria. The first hypothesis stated that there was no significant relationship between teacher's qualification and senior secondary school students' academic performance in chemistry in Maiduguri Metropolis.

The study revealed that, there was significant relationship between teacher's qualification and senior secondary school students' academic performance in chemistry in Maiduguri Metropolis. The finding of the study agreed with Yala and Wanjohi (2011) found that there was significant relationship between teachers' qualification and senior secondary school students' academic performance in Chemistry. The finding of the study showed that students' taught by qualified teachers performed better academically than those taught by unqualified teachers. It also showed that student performed better in Chemistry when taught by qualified teachers. On the contrary Uchendu 2010;Olayele 2011, and Zakarya2011, in their separate studies found that there was no significant relationship between teacher qualification and senior secondary school students' academic performance in Chemistry.

The finding with regard to the second hypothesis which states that there was no significant relationship between teacher's experience and senior secondary school students' academic performance in chemistry, showed that there was significant relationship between teacher's experience and senior secondary school students' academic performance in chemistry. The finding of the study concord with Rivers and Sander 2002; Akinsolu 2010; Abu and Fabunmi 2005; Nye, who reported that there was significant relationship between teacher's experience and senior secondary school students' academic performance in chemistry. The result of the study shows that, the more experience a teacher is the better he used different strategies in teaching, the better the performance of students in chemistry in Maiduguri Metropolis. On the contrary Huang, and Moon, 2009, Hanushek, Kain, O'Brien, and Rivkin, (2005) reported that there was no significant relationship between teacher's experience and senior secondary school academic performance in chemistry.

#### **V. Conclusion**

Teacher quality contributes significantly to the academic performance of senior secondary school students in chemistry in Maiduguri Metropolis. In this study, students' seemed to gain more knowledge and performed better when taught by quality teachers as revealed by the results of the findings. This also implies that factors such as teacher's qualifications, experience and trainings are good determinants of secondary school students' academic performance in chemistry in Maiduguri Metropolis. So also students taught by experience teachers' performed better in chemistry. This shows that, the more experience a teacher is, the better the understanding of students which can lead to their good performance in examinations. Finally, teacher's quality plays a fundamental role in the performance of chemistry students' in Maiduguri Metropolis, Borno State.

## **VI. Recommendations**

1. Government should regularly organize seminars, workshop and training programmes to foster teachers' mastery of the subject.
2. Government should also make sure that teachers employed possess the necessary teaching qualifications to certify them to teach chemistry

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