

THE INTERNATIONAL JOURNAL OF SCIENCE & TECHNOLEDGE

Teacher Qualification, Teaching Experience and School Location Are they Determinants of Students Achievement in Basic Science in Junior Secondary Schools?

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Abstract:

The study examined the relationship between teacher qualification, teacher's years of experience and school location on the academic achievement of students in basic science. The study adopted an ex-post facto design. A total of 397 students and 50 teachers were used as active participants. Teacher's qualification inventory scale (TQIS) and the results of Junior Certificate Examination (JCE) of the students for 2007, 2008, and 2009 were used as instruments for the study. Three research questions and a corresponding three hypotheses were raised to guide the study. The data collected were analyzed using the Chi-square(x) while the research questions were answered using the descriptive statistics (mean and standard deviation). The result showed that teachers' factors (teacher's qualification and years of teaching experience) have significant relationship with students achievement. However, school location was not a deterrent of the students achievement.

Keywords: Teacher Qualification, teaching experience, academic achievement, Basic science and school location

1. Introductory Background

The Nation overall development is inextricably tied to its educational system. If this view is correct, then there is absolute need to introduce quality into the system. Most educationists believed that there could be no meaningful socio-economic, political and technological development without the right type and appropriate quality of our educational system (Ikpi, 2010). To become educated requires the combination of several factors and processes. In the centre of these processes is the presence of an educator (the teacher) who is the most indispensable factor in the effective administration of any education system (Ejiogu, 1991). The importance of the teacher in the meaningful education at all levels is reflected in the National Policy on Education (2004) as it declares that no educational system may rise above the quality of its teachers. This declaration in the policy document underscores the need for teachers' effectiveness in our schools. Teachers effectiveness has been seen and viewed as the core for students performance in any field of endeavour. (Eso, 1998) teachers effectiveness is the managerial skills essential for enhancing classroom control and discipline. It is the teacher's competence, ability, resourcefulness and ingenuity to effectively and efficiently utilize the appropriate language syntax, methodology and available instructional materials to bring out the best from the students (learners) in terms of academic performance, teachers are described as effective when their teaching can make a remarkable change in behaviour on the learner. It is therefore important that the teacher must see the business of teaching as an attempt on his own part to transfer what he has to the students.

From the general background, teachers qualification gives on the right to be engage in the teaching profession in Nigerian primary, secondary and technical colleges. The basis of this differentiation or qualification is to foster the excellent academic performance of the Nigerian child. According to Elmore (2002), the changing and expanding demands of teaching job have prompted increased attention to the importance of professional development in providing teachers with opportunities to acquire new knowledge and keep abreast of advances. Ajoku (2004) stated that effective teaching requires the demonstration of certain skills which invariably enables students to learn, and for these skills to be effectively demonstrated, one needs to master the subject for which he/she was trained for.

One of the major causes of teacher's effectiveness or ineffectiveness can be traceable to his or her qualification. Bajah (1979) argued that everywhere in the chemical world, emphasis was on the unique role of teachers. The view that teachers are more important than equipment of the laboratory for the understanding of the chemical concept has always been evident.

All other things being equal highly qualified teachers produce greater students. Indeed (Ferguson, 1991) concluded from a research he conducted, that good teachers have distinguishable impacts on student achievement in terms of examination scores. In the same vain (Sanders, 1998) found out that the single greatest factor affecting academic growth of students' population was the

difference in classroom teachers effectiveness. He further observed that highly skilled teachers are the key to improving students achievements academically.

Many states like Rivers State however, are faced with the problem of shortage of inadequate qualified teachers. The aftermath of the situation explained was poor academic achievement on the path of the students since they are being handled by “unqualified teachers” who felt that they have to take the teaching as a job and not a profession.

The qualification of the teacher is important to both the educational system and to the learner in view of their achievements. All of these are required to boost the performance of students, The qualification of the teacher as well as their importance in the education system is not all that is required to boost the achievement of students in science, teacher’s teaching experience equally has been implicated. Ikpi (2010) Fabunmi, (1997) found out that the teacher’s qualification, experience and age are significant and positively related to academic performance. It is interesting to note that many occupations recognize employees’ years of experience as a relevant factor in human resource policies, including compensation systems, benefits packages and promotion decisions. The idea is that experience, gained over time, enhances the knowledge, skills and productivity of workers. Although scanty information related to the role of teacher’s experience in academic achievement exist, the study of U.S Department of Education (1999) revealed that effective professional development promotes learning through, among other things modeling the methods to be used with students and showing how method are adopted for different types of students.

Furthermore, the academic achievement of students in the secondary school also depends on the position or the location of the school. Schools, may have, qualified and experienced teachers yet, if the school environment or location does not encourage them to put their wealth of experience and expertise it is as good for nothing. Take for instance schools located at the remote areas of the state where the necessary facilities, laboratories, and library are dearth, the teacher, though qualified and experienced may not be able to actualize the optimal performance of the students like those in the location were these abound. Okoh (2004) noted that the school environment, (where the school is situated) matters a lot a school characterized with the rural, no seats for the learners, no tables for the teachers, very dirty and unfenced premises cannot yield high achieving students. In the findings of (Richardson, 1989), he opined that school position or location can affect academic achievement either positively or negatively. It presupposes that the school location determines the kind of students expected to be attending the school.

The geographical location of the home of the child influences learning. A child’s ability to learn can positively or negatively affect the learners readiness to adopt and cope with harsh learning environment been used. School cannot be determine by the child but it is within the control of the parent and society.

Interestingly, a student from a slum lacks basic amenities like electricity, hospital, play ground and the child is exposed to so many social hazards such as rape, cultism gangsterism, drug, premarital sex, problems of teenage pregnancy, child labour and child abuse by neighbours parents and relations (Ekweme & Ogbondah, 2003). The position of a school determines to a large extent the success and the failure of that school because it goes a long way to effecting learning to a great deal. A school located in a very good site with modern learning facilities such as electricity, a well equipped laboratory, a good library, good infrastructure makes life more comfortable for a great learning practices. It is therefore, appropriate and necessary to investigate the relationship between teachers qualification, years of learning experience and its contributions to students’ academic achievement in basic. Science in the various location of schools in Rivers State.

2. Methodology

The study adopted a survey framework to investigate the relationship between teachers’ qualification, years of teaching experience and school location on students academic achievement in Basic Science.

3. Population

The population for the study consists of all the students drawn from all the junior secondary schools selected for the study.

4. Participants

The simple random sampling was employed to select 397 students from the entire population for the study as active participants and 30 teachers of varied degrees of teaching experience.

5. Instruments

Two instruments were employed to gather data for the study.

- The results of junior certificate examination (JCE) 2007, 2008, and 2009.
- Teachers qualification inventory scale (TQIS).

6. Analysis

The standard Chi-square (χ^2) statistic was used to test the hypotheses while cross-tabulation was used for the research questions.

7. Research Question

- Does Teacher qualification determines students academic achievement in basic science?
- Does years of experience of a teacher determines the academic achievement of students?
- How does school location determines the academic achievement of students in basic science?

8. Hypotheses

- H_{01} : Teachers’ qualification does not significantly determines the students academic achievement in Basic science.
- H_{02} : Teachers year of experience does not determine the academic achievement of student in Basic sciences.
- H_{03} : School location does not determine the with students academic achievement in Basic science.

9. Results

What extent does teacher’s qualification determines the students achievement in basic science.

TQ.	Fail 0-39	Fair 40-44	Pass 45-49	Good 50-59	V. Good 60-69	Excellent 90-100	Total
NCE %	2 16.7	2 16.7	4 33.3	3 25.0	1 8.3	0 0.3	12
B.sc, Ed %	0 0.0	7 19.4	12 33.3	9 25.0	7 19.4	1 2.8	36
B.sc	15 11.4	1 2.3	11 25.0	24 54.5	3 6.8	0 0.0	44
PGDE	0 0.0	0 0.0	0 0.0	2 1.5	48 35.0	37 63.5	137
Total	7	10	53	97	136	94	397

Table 1: percentage response on the relationship between teacher’s qualification (TQ) and students achievement in Basic science

Table 1 shows the relationship between teachers qualification and the students academic achievement in Basic science in secondary schools. The results clearly showed that 4 (33.3%) of the students taught by teachers with NCE qualification passed the exams though in varied grades. While 87 (63.5%) of students taught by teachers with master of Education degree, (M,Ed) had excellent results. This is a strong indication that teacher qualification determines to a very great extent students academic achievement in basic science in secondary schools. Giving the background that MED is higher than NCE in terms of knowledge acquisition.

- How does teacher’s years of teaching experience determines students academic achievement in Basic science?

Experience	Fail 0-39	Fair 40-45	Pass 45-49	Good 50-59	V. Good 60-69	Excellent 70-100	Total
1-4 years %	0 0.0	1 0.3	37 10.8	85 24.7	128 37.2	93 27.0	344
15-8 years %	15 33.3	2 13.3	26.7	3 20.0	1 6.7	0 0.0	15
9-12 years %	2 5.2	7 18.4	12 31.6	9 23.7	7 18.4		38
Total	7	10	53	97	136	94	397

Table 2: Shows the percentage response on the relationship between teachers years of teaching experience and academic achievement of students Basic science

Table 2 shows that the students taught by teachers with less years of teaching experience (1-4 years) had more students who performed excellently 93 (27.0%) than those taught by teachers with more years of teaching experience 2 (5.3%). However, the failure column was different such that more failure 5 (33.3%) was recorded for teachers with small years of teaching experience. This indicates that years of teaching experience of a teacher has relationship with students academic achievement.

- RQ3: Does school location determines with the academic achievement of student in Basic science in secondary schools

Location	N	X	SD	Df	t-cal.	t-crit.	result
Urban	22	64.27	14.18	134	3.65	1.960	s
Rural	114	65.29	11.52				

Table 3: Z-test on influence of school location on students academic achievement in Basic science

Table 3 shows that school location does have significant influence on the achievement of students in basic science, since $z\text{-cal} (.365) < t\text{-cal}z(1.960)$ at $df\ 134\ p = 05$ level of significant.

- H_{01} : There is no significant relationship between teacher’s qualification and students academic achievement in Basic science.

$(x^2\ cal = 0-E)/E$	$x^2\ Crit$	df	p.	Result
355.1	36.4	24	0.05	S

Table 4: Chi-square (x^2) analysis on the relationship

between the qualification of teachers and students achievement in Basic science
 $N = 397 P < 0.05$

The table above shows that there is a significant relationship between the teachers' qualification and students' achievement in Basic science $\chi^2_{cal} = (355.1) 7\chi^0$, crit = (36.4) at $df = 24 = 0.05$.

- H_{02} : There is no significant relationship between the years of teaching experience of the teacher and student academic achievements in Basic science.

$(\chi^2_{cal} = 0-E)^2/E$	χ^2 Crit	df	p.	Result
178.0	18.3	10	0.05	S

Table 5: Chi-square (χ^2) analysis on the relationship between the teachers years of teaching experience and students academic achievements

Table 5 shows that there is a significant relationship between the teachers' years of teaching experience and students academic achievement in Basic science, since χ^2 -calculated (178.0) $>$ χ^2 = crit (18.3) at the df of 10 and 0.05 level of significant.

- H_{03} : School location does not correlate with students academic achievement in Basic science.

$(\chi^2_{cal} = 0-E)^2/E$	χ^2 Crit	df	p.	Result
150.6	11.1	5	0.05	S

Table 6: Chi-square (χ^2) Analysis on the role location of school in the academic achievement of students.

From the table 6 above χ^2 calculated (150.6) $>$ χ^2 critical (11.1) at the df of 5 and 0.05 level of significance. We reject the null hypothesis. The result is that there is significant relationship between school location and students academic achievement in Basic science.

10. Discussion

The study reveals that teacher factors (teacher qualification (T.Q), years of teaching experience (T.T.E.) have significant relationship or determines to a great extent the academic achievement of students in basic science.

Students taught by teachers with higher qualification (B.Ed & M.Ed.) outperformed their counterpart taught by those having lower qualification (N C E). This corroborates the findings of Gold Haber and Brevier, (1997) who in their work reported that teachers having advanced degrees improve the achievement of their students.

The important of teachers' qualification in the academic achievement of students was showcased in the studies of Ikpi (2010) Fubunmi (1997) who found that teachers' qualification, experience and age are significant and positively related to academic achievement of students. In the same vain Ferguson (1991) found out that good teachers with higher qualification distinguishably impact students achievement in terms of examination scores.

Conversely, Ebrenberg and Brewer (1994) showed negative effects, and still others have maintained that the requirement for teachers to have a second degree raise cost. Finance as well as in time of teacher education, which may prevent quality candidates from choosing this profession (Munane, 1996).

In education, teachers experience is probably the key factor in personnel policies that affect current employees. It is a cornerstone of traditional single-salary schedules. It drives teachers transfer policies that prioritize seniority; and it is commonly considered a major source of inequity across schools and therefore a target for redistribution, the underlying assumption is that experience promotes effectiveness.

This study agrees with the above assertion, and revealed a positive relationship, between years of teaching experience of the teacher and academic achievement of the students in Basic science. The performance of students taught by teachers with many years of teaching experience were better than those taught by those with small years of teaching experience' This result agrees with (Ikpi, 2010, Fubunmi, 1999, US department of education 1999, Murnane and Philip, 1981) who have revealed a positive relationship between teachers effectiveness and their years of teaching experience but not always a significant or an entirely linear one. The finding of (Akinsolu, 2010) also support the findings that teacher's years of experience has significant relationship with academic achievement. Owolabi (2007), Abraham and Morrison (2006) and Darling-Hammand (2010) agreed that teachers' years of experience as a measure of quality is important in the achievement of students academic performance. The evidence currently available suggests that while inexperienced teachers are less effective than more senior teachers, the benefits of experience appear to level off after a few years (Rivkin, Hanusket and Kain, 2002). Teachers several years of teaching experiences, however, have been shown to determines students achievement in different degrees depending on the environment (Consigner, Rice and Rath Bun, 2003).

This research agrees with the former, as it reveals a strong relationship between school location and academic achievement of students in the Basic science significantly, the students from the school situated in the urban areas show superiority over their rural counterpart, this result is in congruent with the research of (Okoh 2004) who noted that the rural is characterized with lack of adequate learning and teaching materials, decay of infrastructure, no seats, no good sanitation and other amenities that usually can promote learning. This disadvantage gap hampers the academic progress of the students. This apply specifically to all rural schools where essentials of teaching and learning resources are grossly inadequate.

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