



IMPACT OF SCIENCE TEACHERS' QUALITY ON THE ACADEMIC ACHIEVEMENT OF STUDENTS IN SOME SELECTED JUNIOR SECONDARY SCHOOLS IN AMAC

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ABSTRACT

The study aims at investigating the impact of science teachers' quality on the academic achievement of students in some selected junior secondary schools in AMAC, FCT. The researcher raised two (2) research questions to collect data. The research adopted the survey research design and adopted simple random sampling technique in selecting one hundred and fifty (150) students and fifteen (15) science teachers respondents in generating the data for the study. Questionnaire was used in eliciting the necessary information. Simple percentage was used

INTRODUCTION

In Nigeria public discussions frequently focus on educational standards. The public's unhappiness becomes more prominent following the annual release of the West African Senior School Certificate Examination results. Student outcomes do not match the government and parental investment. All stakeholders are concerned about why the system is turning out graduates with poor results. To them, it is questionable whether or not teachers in the public secondary schools, the most important factor in the effectiveness of schools and in the quality of a child's education are competent to teach effectively. The National Policy of Education states, "No Education system can rise above the quality of teachers in the system" (FGN, 2004).

The academic standard in all Nigerian educational institutions has fallen considerably below societal expectations. The quality of education cannot be ignored by anyone who is aware of the significant role of education as an instrument of societal transformation and development. There is a need to focus on science teachers' adequacy and competency in respect to their pedagogical practice and strategies and mastery of the curriculum and subject content (Bryant, 2017). Improving the quality of the teaching force in schools is seen as the key to raising student achievement. Thus, raising educational standards should be the government's number one priority.

Education cannot be provided by just anybody, it requires a teacher who plans and delivers the lessons or instruction in such a way that objectives can be achieved, if an uncertified teacher cannot prepare students for WASCE/GCE because it is unlikely that they could pass. Government should all possible means to retain veteran and



for the method of analysis. The result revealed indicate that teachers' degree, major field of study and professional status are consistent, positive, statistically significant to students' academic achievement, show the significant and positive impact that science teachers' certification area can have on the students' academic achievement. The following recommendations were made based on the result as follows: The best academic qualifications of science teachers which are Bachelor in Education (B. ED), National Certificate in Education (NCE) and Post Graduate Diploma in Education. Teachers' professional development programs and training as it relates To students' academic achievement. Teachers' certification training status as it relates to students ' academic achievement.

Keywords: *Impact, Teachers, Quality, Academic, Achievement*

experienced teachers who are still willing to serve so that they can contribute their wealth of experience to improving the system.

Education empowers the citizenry to question authorities for their negligence or discrepancies and avail their rights as citizens and seek improvement in the structural functioning of governance and economy (Madison, 2018). It is the citizens are aware of the policies of their governments that they can support or protest change. As a whole, people can bring about development only when they where improvement is necessary for the greater good of mankind. Teachers play role in ensuring quality education delivery. They are best known for the role educating students in their care. The most common role science teachers' play in the classroom is to dispense pertinent knowledge to students by following the curriculum. Science teacher use various methods such as lecture, small group activities and hands-on learning activities to dispense knowledge to students (Geoff, 2017). Beyond that, they serve many other roles in the classroom. Science teachers set the tone of their classrooms, build warm environment, mentor and nurture students, become role models, listen and look for signs of trouble etc (Geoff, 2017).

Statement of Problem

This work is set to look into the impact of science teachers' quality on the academic achievement of students in some selected junior secondary schools in AMAC, FCT.

Significance of the Study

Government will see the need for quality science teachers to be provided in our junior secondary schools in AMAC FCT

Aim of the Research

The aim of the study is to examine the impact of science teachers' quality on the academic achievement of students in some selected junior secondary schools in AMAC, FCT.

Research Questions

- To what extent would the impact of science teacher's quality make on the academic achievement of junior secondary school students?



- Is there any relationship between science teacher's quality and its impact on the academic achievement of junior secondary school students?

Research Design

The design of this research was survey methods. The performance of some selected Junior Secondary Students (JSS) in Social studies under this study was tested using questionnaire because of large number of the respondents.

Population and Sample

The population of this study comprises of one hundred and fifty (150) students and fifteen (15) science teachers selected Junior Secondary School III Science students in AMAC, ABUJA. Random sampling was adopted.

Instruments for Data Collection

Questionnaire was the main instrument used in this research. It was designed purposely to collect data from both teachers and students. The questionnaire consisted of seven (7) questionnaires. While the teachers' questionnaire comprised of teachers' qualification, teaching method, instructional materials used by science teachers and relationship with the students.

Validity and Reliability of the Instrument

The instrument was validated by two measure and evaluation lecturers in University of Abuja.

Data Collection

As it has been indicated that the sample for the study was for one hundred and fifty (150) students and fifteen (15) science teachers obtained from five junior secondary schools in AMAC, Abuja, FCT. For the purpose of data collection, an introductory letter was obtained from University of Abuja which was delivered to the five schools. Teachers in the sampled schools were used for distribution and collection of structured questionnaires in their schools.

Method Data Analysis

Due to the nature of the data collected and the hypotheses formulated to test significant relationships, according to Suleiman (2005) and Sambo (2007), simple percentages and t-test statistics was used to test the hypotheses in this study.

Question 1: Academic qualification of teachers teaching ^in some selected junior secondary schools in AMAC, Abuja, FCT.

Table 1

Academic Qualification	Number	Percentage
B. ED	45	30
NCE	30	.20
B.SC	25	16.7
M.ED	22	14.6



PGDE	18	12
Others	10	6.7
Total	150	100

Question 1. indicates the qualifications of science teachers teaching science in some schools in AMAC, Abuja, FCT. From the table, science teachers with B.ED i.e. Bachelor in Education has the highest percentage with 30%, followed by science teacher with (National Certificate in Education) 20%, then comes science teachers with B.SC i.e. Master in Science 16.7%, next are science teachers with M.ED i.e. Master in Education 14.6%, followed by those with PGDE (Post Graduate Diploma in Education) 12% while science teachers with other qualifications other than the above measured once are 6.7%. From above analysis, it shows that the science teachers with B.ED are more in the study area because of their impact on the academic achievement of students.

Question 2: Methods of teaching in some selected junior secondary schools in AMAC, Abuja, FCT.

Table 2:

Teaching method	Number	Percentage %
Discussion	58	38.7
Dramatization	42	28
Note coping	20	13.3
Inquiring	17	11.3
Lecturing	13	8.7
Total	150	100

Question 2 shows the methods of teaching science in the study area. From the table, discussion method with 38.7% has the highest percentage, followed is the dramatization method which has a 28%, next is the note coping method with 13.3%, inquiring method is 11.3% and finally is the lecturing method which is 8.7%. This analysis indicates that discussion method which has the highest percentage is the best method to teach science students in the study area and it has been and is still yielding the best result in the students' academic achievement.

Question 3: Instructional materials/aids used in teaching in some selected junior secondary schools in AMAC, Abuja, FCT.

Table 3

Instructional materials/aids	Number	Percentage
Live sample	60	40
Picture	40	26.7
Chart	30	20
Map	20	13.3
Total	150	100

Question 3 indicates the instructional materials or aids used in teaching in the study area. It shows that the use of live sample with 40% has the highest percentage, followed by the use of picture with 26.7%, next is the use of chart which is 20% and lastly is the use of map which is 13.3%. From the



above analysis, it shows that the use live sample is dominant in the study area because its impact in the academic achievement of the students.

Question 4: Difficulties encountered in learning process of students in some selected junior secondary schools in AMAC, Abuja, FCT.

Table 4:

Learning difficulties	Number of students	Percentage%
Lack of learning materials	51	34
Distraction	49	32.7
Unconducive learning environment	28	18.7
Ineffectiveness of science teachers	22	14.6
Total	150	100

In question 4, there are 51 students with lack of science learning materials difficulties which amount to 34%, followed by 49 students with distraction challenges which is 32.7%, next are those 28 students with unconducive learning environment which is 18.7% and lastly are those 22 students with ineffective science teachers which is 14.6%. The number of students with lack of science learning materials have the highest percentage. This shows that .most students in study area experience more of this difficulty which can make the impact of science teachers' quality on the academic achievement of students in study area very ineffective.

Question 5: Science Teachers' response to learning difficulties of students in some selected junior secondary schools in AMAC, Abuja, FCT.

Table 5:

Science Teachers' response to learning difficulties of students	Number	Percentage %
Prompt response	6	40
Slow response	5	33.3
Weak response	4	26.7
Total	15	100

Question 5 shows the response of science teacher to the learning difficulties of students. Prompt response of science teachers has the highest percentage of 40%, followed by slow response of teachers to students' learning difficulties which is 33.3% and lastly is the weak response which is 26.7%. From the above analysis, teachers response promptly to the learning challenges of students to have maximum impact on the academic achievement of students in the study area.

Question 6: Level of relationship between science teachers and students in some selected junior secondary schools in AMAC, Abuja, FCT.

Table 6:

Science Teachers relationship with students	Number	Percentage%
Friendly	80	53.3
Unfriendly	70	46.6
Total	150	100



From question 6, science teachers' relationship with the students is very friendly with 53.3% while the unfriendly relationship with the students is 46.6%. The friendly relationship of science teachers with students has greatly improve the academic achievement of students in the study area.

Question 7: Science teachers' professional development programs in relation to the students' Academic achievement in some selected junior secondary schools in AMAC, Abuja, FCT.

Table 7:

Science Teachers' professional Development programs in relation to the students' academic achievement.	Number of effect on students	Percentage%
Effective	140	93.3
Non-effective	10	6.7
None of the above	0	0
Total	150	100

In question 7, teachers' professional development programs in relation to the students' academic achievement is very effective because from the analysis, it has 93.3% effect on the students while it has just 6.7% non-effect on the students' achievement which is very negligible. Thus teachers are encouraged to always engage in professional development programs to be able to have maximum impact on the academic achievement of students.

Summary

The main findings are related to the qualities of science teacher which encompass his/her educational qualification, science teacher's professional programmes and training and training, years of teaching experience, method of teaching the student, instructional materials or aids used during teaching and how conducive environment is at the moment of teaching science, distraction, inadequate learning science materials, unconducive learning environment, etc. encountered during teaching which made teaching ineffective and result to poor academic achievement on the part of the students (Faye, 2019). The correlations between teacher quality characteristics such as educational background, certification, use of instructional materials and good teaching method and the student achievement measured as the class performance average were high. In effect, variables correlation for educational background, certification use of instructional materials and good teaching method revealed a consistent relationship between and among the student performance. Particularly this study found a significant relationship between the student achievement and the following variables: highest degree earned, certification area, use of instructional materials and good teaching method, support received rewards gained and participation in collaboration activities. In a general way these findings are consistent with the final conclusions of this study.

Findings related to science teachers' educational background and the students' achievement variables were highest degree earned and major field of study (Heylighen, 2018). This indicate that teachers' degree, major field of study and professional status are consistent, positive, statistically



significant to students' academic achievement. Accordingly, science teachers who hold a higher degree and has a major in the subject taught seem to be those who are able to enhance their students' achievement.

The point here for school leaders and policymakers is that teachers' educational background matters not only to identify good teachers but also to decide how to allocate good science teachers across districts and schools. Furthermore, it should be considered for science teacher evaluation and compensation purposes. This study show the significant and positive impact that science teachers' certification area can have on the students' academic achievement. Other observed certification, certification grades, teaching method, preparation for teaching activities and teacher induction program are also very significant and still relevant as they are most important standard for teaching profession. Ultimately, the function of students' academic achievement is not the effort of science teachers only, the students must be willing, determine and discipline to achieve academic success.

Conclusion

For students in these selected junior secondary schools AMAC, Abuja, FCT to have maximum academic achievement, the quality of science teachers cannot and must not be compromise. Also the students themselves must be willing, determine and discipline to learn. This study attempted to explain how specific observable teacher characteristics are related to the students' achievement. It was successful in demonstrating a clear relationship between some teacher characteristics and the student achievement. In an extensive way, final data results demonstrated that some observable teacher quality characteristics such as the teachers' educational background, certification & training status and professional development activities are significantly related to student achievement in elementary schools. In a particular way, this study demonstrated that specific factors such as the teachers' highest degree earned, major field of study, certification area, rewards gained and participation in collaboration activities are statistically related to the class performance average in the study area.

Since this study's results provide consistent information that can be used in further investigations in similar topics, its conclusions can be incorporated into the existing knowledge base of education quality and/or teaching quality to both complement existing theory and advance the existing understanding to analyse scientifically related issues. There is need for each junior secondary school to map out its institutional values and goals within the framework of the National Policy on Education Policy thrusts, taking into account the expected trends development in their internal and external environment. This will provide each school a clear view of how it wishes to develop and the means of securing such development. This will also assist greatly in promoting system efficiency thereby paving a way for each juniorr secondary school to operate with minimal wastage.

Recommendations

1. The best academic qualifications of science teachers should be Bachelor in Education (B.ED), National Certificate in Education (NCE) and Post Graduate Diploma in Education.
2. Science teachers' professional development programs and training as it relates to students' academic achievement.



3. The best methods of teaching at each level to achieve maximum result are discussion, dramatization and inquiring methods to be emphasized.
4. Instructional materials like live object sample, pictures, charts, maps, etc are very important and compulsory in teaching and learning science process to enhance maximum result.
5. Students' academic achievement in junior secondary school external examinations like ERC and NECO exams to access the level of their academic achievement.
6. Difficulties like distractions, lack of science learning materials, uncondusive learning environment, etc. encountered in teaching and learning process and how science teachers are to response to these challenges.
7. There should be friendly and cordial relationship between science teachers and students. The relationship should be objective and void of sentiment, tribalism and out of a pure conscience and clean motive.

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