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THE PERCEPTION OF TEACHERS' AND STUDENTS' ON THE CAUSES OF POOR ACADEMIC PERFORMANCE IN SCIENCE SUBJECTS AMONG SENIOR SECONDARY SCHOOLS IN NIGER STATE, NIGERIA

Muhammad M. Idris, Leah M. Tsado, Elizebeth C. Hounveneou, Maimunat Shaaba & Rabi A. Yusuf
Research Scholar, Department of Primary Education. Federal College of Education, Kontagora, Niger State, Nigeria

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ABSTRACT

This study examines the perception of teachers' and students' on the causes of poor academic performance students in science among senior secondary schools in Niger State. The study was carried out in the three senatorial zones of Niger State. Descriptive survey designed was adopted for the study. Six null hypotheses were formulated to guide the study and tested at0.05 level of significance. The sample of two hundred (200) academic staff was draw from the population through random sampling technique from the three senatorial zones. The Instrument Perception of Teachers and Students on Student's Poor Academic Performance in Science (PTSSPAPS) was used for data collection after been validated by three research experts pilot test was conducted to ascertain the instrument validity. The reliability Coefficient was obtained using Cronbach Alpha with index of 0.87. Inferential statistics of Chi-Square was used to test the research hypotheses. The results revealed that teachers' qualification, method of teaching, learning materials and environment do influence students' academic performance. It is therefore recommended among others that; teachers be given in-service training with full sponsorship, modern teaching methods be embraced by the teachers including the use of computer in teaching science, provision should be made by government for learning materials and laboratory equipment for proper teaching and learning of science, provision of conducive teaching and learning environment etc.

KEYWORDS: *Academic Performance, Perception, Qualifications, Environment, Method of Teaching, Students and Teachers*

INTRODUCTION

Education is essentially about the training of an individual for effective integration in to the society. This training process comes about through study and instruction. Education is a human activity which is concerned with preparation and development of an individual in a way that makes him/her intellectually, psychologically able and disposed to promote his/her welfare and that of others in the society Bamisaye [4]. One of the crucial steps in the development of a nation is the provision of education. This is because education provides basic knowledge, attitudes and skills necessary for the development of nation's wealth through productive manpower development, economic growth and social upliftment. This is probably the reason why the National Policy on Education [5] insists that education shall continue to be highly rated in national development. Nigeria's quest for development politically, economically and technologically calls for the production of healthy citizenry through education. This is borne out of the axiom that it is only a healthy population of a nation that has the physical and intellectual capabilities to subdue their environment and free resources for the

development. Healthy and functional education ensures acquisition of relevant knowledge, skills and increased capacity for work which are required for national development. Adesoji [1] stated that education plays critical roles in the areas of production of goods and services, health development and reinforcement of society's sense of meaning and purpose.

It is no gain saying that developing countries such as Nigeria can only become developed through advancement in science and technology. Sound science education therefore become very essential for proper national development. Science reflects societal thoughts, feelings, beliefs and action Orji [12]. The society is dynamic; it becomes increasingly more complex, sophisticated and its institutions change in their nature and structure. These changes also call for reforms in teaching and learning of science especially at the secondary school level since it is at this level that the foundation is laid for future work in science and science related fields by acquainting the younger generation with certain basic knowledge, skills and attitudes which forms the bedrock upon which scientific and technological development of any nation depends.

Aremu and Oluwole [3] submit that students' performance in science subjects in examinations such as the Senior School Certificate Examination (SSCE),National Business and Technical Examination Board (NABTEB), National Examination Council (NECO) is worrisome and as one of the criteria for measuring and establishing the effectiveness or otherwise of Nigeria secondary schools and Technical colleges respectively. The implication of this is that the expected scientific development becomes a mirage because of poor science foundation. Poor performance of students in science and its feedback on the economy of Nigeria has always been the major concern of various science educators, educationalist and other institutions directly involved in the educational system Ndioho [10].

Ajewole and Okebukola [2] are of the view that criticism of science teaching and learning at secondary school level has been wide spread due to poor performance of students each time school certificate examination result is released. Poor performance implies low or failure grades ranging from D7 to F9 which employers of labour and institutions of higher learning do not accept as pass. Perhaps, the most disturbing is the WAEC Chief Examiner's report on trend in the SSEC students' Performance over the years in science subjects. Adesoji [1] while citing from WAEC Chief Examiner's report maintained that students' performance in science is poor despite the fact that several crucial efforts have continually been made over the years to remedy the poor performance and also improve students' performance in science. The essence of this study is therefore to assess the teachers and students perception on the causes of poor academic performance in science subjects among secondary school students in Niger State; Implications for the state and the nation at large.

Statement of the Problem

Poor performance of students in science subjects in secondary schools is an issue that has been well known and discussed by many scholars for so long in Nigeria. Many research findings have been carried out but performance seems to be dropping in our secondary schools. Lawal [8] stressed that the national policy on Education states clearly in its aim and objectives that the learner would be given opportunity to acquire basic practical skills for self- reliance. The aim of which is to reduce the persistent unemployment problem in the nation. The role and importance of science is clearly seen and known in the scientific and technological development. For anyone to appreciate the knowledge underlying threads of intellectual life in his or her own time there is need to understand the science that goes with it Nbina [9]. The National Science curriculum has three basic science subjects (Biology, Chemistry and Physics) of which a student is expected to offer or choose one at the Secondary School level of the Nigeria Education. These basic science subjects occupy a unique

position. It is a pre–requisite for the study of many courses, such as medicine, biochemistry, pharmacy, agricultural science, laboratory technology, geology, agricultural science and so on Ibrahim [7]. Osokoya[13] opined that implementation of educational policy in Nigeria was unfortunate because of the inadequate allocation of funds for equipment and services and this usually have serious adverse effect on teaching and learning of science and technology which unlike other subjects cannot be properly learned with theories only without proper laboratory equipment and qualified personnel. It has been observed that most students fear science and hence wrongly perceived science as difficult to understand. It was equally observed that many factors such as poor teaching methods, mathematical nature of science, and abstract nature of science concepts and laws account for students' performance Ekejiorfor 1993 in Njoku [11]. This may implies that the delivery of science has been through the wrong method. Consequently, it has become necessary to seek innovative learning strategies to enhance the quality of instruction and teaching of science to improve students' academic achievement.

RESEARCH OBJECTIVES

The specific objectives of this study are to identify a. The students' perception on teachers' qualification and students' poor academic performance. b. The perception of teachers' on student poor academic performance and teachers' method of teaching. c. The teachers' perception on students' environment/home and their poor academic performance.

Research Hypothesis

In attempting to reach decisions, it is useful to make assumptions about the population involved. Such assumptions, which may or may not be true, are called statistical hypothesis. Three hypotheses are formulated to guide the study and would be tested using chi-square test.

Ho1: Students perceive that teachers' Qualification does not affect their academic performance in science.

Ho2: Teachers' method of teaching and learning materials does not influence students' academic performance.

Ho3: Teachers' perceive that students' environment does influence students' academic performance.

SIGNIFICANCE OF THE STUDY

The study focus on identifying the major factors that are responsible for secondary students poor academic achievement in science subjects as perceived by both the teachers and students and also to determine whether there is significant difference between the methods of teaching, teachers' qualification, students' environment and poor academic performance in science. The findings of this study will significantly benefit the school heads, teachers, parents, students, educationists, researchers, communities and non-governmental organizations by providing a framework for research and intervention on how to develop, build, and motivate students' performance in science.

SCOPE OF THE STUDY

The boundary of this study was the public secondary schools in the three senatorial zones of Niger State. It covers the perception of both the teachers and the students on the causes of poor academic performance of students in science among senior secondary schools in Niger State.

Research Design

Research design is a term used to describe a number of decisions which need to be taken regarding the data before collection Frank [6]. The research design used for this study is the descriptive survey methodto give the researcher the opportunity to study the population by selecting and studying samples chosen from the population to discuss the relative incidence, distribution and interaction of the variables.

Population of the Study

The Population of this study is all the senior secondary school teachers and students in Niger State.

Sampling Procedure

Simple random sampling was used to select ten (10) Senior Secondary Schools in each of the three senatorial zones of Niger State. The standard of the schools was taken into consideration for better yield of result.

Instrumentation

The main instrument designed for the study is a self-designed questionnaire on Perception of Teachers and Students on Student's Poor Academic Performance in Science (PTSSPAPS). The questionnaire contained two (2) sections:

- Contains information on the bio-data of the respondents
- Requires responses of alternation options from the respondents. Options ranged from strongly agree to strongly disagree.

Validity and Reliability of the Instrument

Content validity was established using four experts in the field of Measurement and Evaluation in Federal College of Education, Kontagora. Niger State. These experts was requested to critically examine and rate the instrument with respect to suitability, clarity of language and relevance of the instrument to research questions and purpose. The reliability of the instrument was determined using Cronbach's Alpha in Statistical Package for Social Science (SPSS)

Data Collection

At the various schools, the researchers introduced themselves to the principals, class teachers and the students that are randomly selected for the study. The instruction on the questionnaire was explained to the respondents. The questionnaires administered were carefully collected from the respondents.

Method of Data Analysis

The data collected was compiled organized coded, analyzed and interpreted. This led to the computation of percentages of teachers and student responses to the questionnaire based on their perception of the problems. Inferential statistics (analysis of frequency count was used to analyze demographic data while the inferential statistics (Chi-Square) was used to analyze the collected data**.**

Presentation of Results

The data collected were compiled and interpreted. This led to the computation of percentages of teachers and students responses to the questionnaire based on their perception of the problems causing poor achievement of

students in science subjects in the studied area. The data collected were analyzed using frequency court and chi-square test as presented below.

Table 1 shows the number teachers and students that responded to the questionnaire.

$H0_1$: Students perceive that teachers' qualification does not affect their academic performance in science.

Ho2: Teachers' method of teaching and availability of learning materials does not influence students' academic performance.

H03: Teachers' perceive that students' environment does influence students' academic performance in science.

Table 1: Demographic Information of Respondents

Respondents	Number	%
Teachers	100	50
Students	100	50
Total	200	100

Table 2: Perception of the Students on Effects of Teachers' Qualification and its Effect on Students' Academic Performance

Items	Variables	Sa	A	D	Sd	Raw Total
1.	Many teachers do not have adequate knowledge of their subject matter,	38 (21)	41 (54)	18 (22)	3 (3)	100
2.	Teachers are not dedicated to their teaching subjects.	28 (16)	25 (21)	33 (32)	14 (31)	100
3.	Teachers lack basic teaching skills and method of teaching.	32 (15)	25 (20)	21 (45)	22 (20)	100
4.	The language used by the teachers in teaching science is complex.	48 (25)	21 (27)	18 (38)	13 (10)	100
5.	Poor economic status of the teachers affects their performance.	25 (67)	32 (16)	25 (12)	18 (5)	100

Calculation

At 0.05 level of significance, the degree of freedom = 12

X^2 = 197.51 (calculated)

X^2 = 21.03 (critical)

Table 3: Perception of Teachers on the Availability of Learning Materials and Method of Teaching and its Effect on Students' Performance in Science

Items	Variables	Sa	A	D	Sd	Raw Total
1.	Lack of standard laboratory and equipment.	52 (60)	30 (30)	12 (6)	6 (4)	100
2.	There are no adequate relevant science textbooks	35 (51)	27 (32)	24 (10)	24 (7)	100
3.	Large number of students in science classes.	61 (70)	35 (25)	3 (4)	1 (1)	100
4.	Lack of seminars, workshop and in service training.	45 (24)	30 (28)	21 (29)	4 (19)	100
5.	Direct dependent of teachers on textbooks to teach.	20 (45)	23 (28)	32 (15)	25 (12)	100
6.	Inadequate supervision by the inspectorate unit.	28 (30)	35 (26)	28 (21)	9 (23)	100

At 0.05 level of significance

Degree of freedom = 15

X^2 = 175.36 (calculated)

X^2 = 25.00 (critical)

Table 4: Perception of Teachers on the Effect of Science Students' Environment / Home on Their Academic Performance

Items	Variables	Sa	A	D	Sd	Raw Total
1.	Students' background/environment does not stimulate learning or studies.	28 (30)	44 (44)	15 (12)	13 (14)	100
2.	Students have no negative attitude to their studies.	15 (13)	38 (20)	26 (38)	21 (29)	100
3.	Peer group promote students' performance.	25 (41)	60 (25)	5 (15)	10 (19)	100
4.	Level of parents' education affect students' performance.	30 (25)	32 (20)	24 (26)	14 (29)	100
5.	Divorce among parents affect student academic performance.	15 (15)	40 (35)	25 (26)	20 (24)	100
6.	Students attitude and believe towards science.	35 (30)	25 (29)	18 (21)	22 (20)	100
7.	Parents' lukeworm attitude on their children's education.	29 (20)	31 (39)	18 (27)	22 (14)	100
8.	Facilities available in students home affect their learning.	32 (18)	36 (45)	17 (23)	15 (14)	100
9.	School location has adverse effect on students' performance.	25 (15)	17 (25)	28 (35)	30 (25)	100
10.	Parents' socio-economic status affects students' performance.	37 (25)	32 (40)	18 (10)	13 (25)	100
11.	Size of the family affects students' performance.	30 (26)	28 (26)	22 (32)	20 (16)	100
12.	Absenteeism affects students' performance.	42 (45)	30 (22)	18 (18)	10 (15)	100
13.	Personal commitment to learning affects students' performance.	36 (30)	28 (36)	19 (18)	17 (16)	100

Calculation
At 0.05 level of significance
Degree of freedom = 36
X^2 = 180.67 (Calculated)
X^2 = 51.60 (Critical)

SUMMARY OF FINDINGS

- Perception of students' on their poor academic performance and teacher's qualification the findings revealed that the $x^2(197.51)$ calculated value is greater than $x^2(21.03)$ critical value from the table 3 the null hypothesis is therefore rejected and the alternative hypothesis is retained.
- Perception of teachers on the influence of teacher's method of teaching and availability of learning materials on student poor academic performance, the result shows that the calculated value of $x^2(175.36)$ calculated is greater than the critical value of $x^2(25.00)$ from table 4 therefore the null hypothesis is rejected and the alternative hypothesis is retained.
- Perception of teachers on the students' environment and their poor performance, the result from table 4 revealed that the $x^2(180.67)$ calculated value is greater than critical value $x^2(51.60)$ the null hypothesis is rejected and alternative hypothesis is retained.

CONCLUSIONS

The study investigated the correlation between students' and teachers' perception on the causes of poor academic performance of students in science subjects in senior secondary schools in Niger State. A four point likert scale was used to survey the perception of teachers and students on students' poor performance in science subjects using one hundred (100) teachers and one hundred (100) students in ten (10) randomly selected secondary schools in the three senatorial zones. Based on the findings the following conclusions were drawn;

- Availability of teaching and learning materials generally affect the performance of students. These materials should be made available and they should be of good quality in order for them to produce accurate results during a practical session. Some schools have no equipment at all and they opted for alternative to practical which is not applicable since these students require this knowledge for their future career as scientists.
- The teaching and learning environment in some of the secondary schools was found to be unfit for science lessons. Some had no laboratories and the practical lessons are done in the classroom. Parents, government and the society at large should ensure that the environment is conducive for learning to take place effectively.
- The number of qualified science teachers in senior secondary schools is inadequate and because of insufficient science teachers in some schools, teachers with lower qualification were found teaching at senior classes.

RECOMMENDATIONS

The following recommendations were made based on the study's findings.

- The low achievement level in science subjects at secondary level demands for evolutionary ideas to motivate students in learning of science subjects. The teachers should use modern methods including the use of computers in teaching science subjects in order to motivate and sustain students' interest in sciences.
- The government, parents, school administration and the society at large should work together to ensure that the teaching and learning environment is conductive to the teachers and the students for effective learning to take place. They should give support by providing the necessary materials and equipment required which include well equipped laboratories.
- Teachers should be more innovative in preparing teaching and learning materials to help them modify their teaching strategies in order to embrace the benefits of interactive teaching, including longer and increase students' conceptual understanding.
- Comprehension, enhanced learning and easy remembering is enhanced by inquiry and interactive teaching approach. Therefore, science educators should employ computer, modeling and animations through technological innovativeness while preparing educational materials. Curriculum material preparation principles should also be observed while preparing these materials.
- The curriculum developers must always involve the curriculum implementers in the process of revising the curriculum. This which should be done at specified intervals and to ensure the views of the implementers and other stakeholders are incorporated. And also make provision in the science curriculum for teachers to involve resource persons in their teaching.

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