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Original Research Article

Factors and Effect of Poor Background on the Students Academic Performance in Physics at Senior Secondary School in Birnin Kebbi Metropolis

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Abstract

The study investigated the effect of poor academic background on students' performance in physics in Birnin Kebbi Metropolis. The study adopted descriptive survey design to collect data on effect of poor background on students' performance in physics in Birnin Kebbi Metropolis. From the population of 5,285 students' and 34 teachers', using stratified sampling; six (6) schools were selected in three strata that is mixed schools, Boys schools and Girls schools. Further, in each sampled school only 30 (ss2) students' were involved in the study and 2 physics teachers'. Data were collected using questionnaire for the physics teachers and (ss2) students' in the sampled schools. The findings were summarized and reported using percentage and frequency distribution tables. The study found and concluded that family background, teachers' attitude towards work, methods of teaching and gender affect students' performance in physics in senior secondary school in Birnin Kebbi Metropolis. Finally, the study recommended that policy makers/ministry of Education should ensure proffer curriculum implementation by physics teachers and increase enrolment in physics.

Keywords: Factors and Effect, Poor background, Student performance in Physics.

INTRODUCTION

Background to the Study

Physics as a course of study is very stimulating and rewarding subject, its study prepares the students to obtain the ability of thinking critically and how to solve problems. Physics is a natural science that involves the study of matter and its motion through space and time, along with related concepts such as energy and force. In other words, it is the phenomenon or system pertaining to the physical aspects. Physics is an important science subject that makes enormous academic demands on students in its learning. The learning of physics is difficult at best and almost impossible at worst. But because of its great importance to science and technology, there is understandably huge interest in students' achievement in physics. Thus, the background of students' performance in physics has generated a huge deal of discussion for a long time. Most subjects (Physics included) offered at senior secondary school level have some factors which have problems that affect the assimilation of students. The poor academic performance of students in physics at senior secondary school level has been a subject of concern to many people including parents, administrators, educators, psychologists and counselors. Poor academic performance according to Aremu [1], "is a performance that is adjudged by the examine/testee and some other significant as falling below an expected standard". Also, Aremu, [2] "stresses that academic failure is not only frustrating to the pupils and the parents, its effects are equally grave on the society in terms of dearth of manpower in all spheres of the economy and politics". Various factors have been identified in several research studies to be responsible for continuous decaying of our educational system. Such factors include; Family background, lack of interest of the student, attitude of teachers towards work, methods of teaching used by the teacher, gender, environmental factors, poor primary school background in science, teachers qualification and inadequate laboratory facilities. Orhungur [3], "asserted that the cultural background of the family is determined to a large extent by its socio-economic background. The setting and socializing influence of the family mold the personality of the child". Morankiyo [4], "believes that the falling level of academic achievement is attributed to teachers non-use of verbal reinforcement strategy". Others found out that the attitude of some teachers to their job is reflected in their

poor attendance to lessons, lateness to school and unsavory comments about students' performance. The national policy on Education (NPE) [5], stipulated that primary Education is an instrument for national development that fosters the worth and development of the individual for further Education, general development of the society and equality of Educational opportunities to all Nigerian children irrespective of real or marginal disabilities. However, different people at different time have passed the blame of poor performance to students because of their low retention, parental factors, association with wrong peers, low achievement and the likes [1, 6, 2]. Saage [7], identified specific variables such as poor primary school background in science, lack of incentives for test, lack of interest on the parts of students, students not interested in hard work, incompetent teachers in primary schools, large classes, and fear of the subject psychologically. Despite all the possible efforts put forward by various government and voluntary agencies to curb the trends, the country is yet to witness the rise it wishes to see in the Educational system. Therefore, the researcher's interest and motivation in this topic is the fact that some students are particularly good in their work, while some are extremely bad. When such differences in scores are traced, it is more often discovered that the background is the major contributory factor. Therefore, it is more important that such levels of contributions and effects that background have on children be examined so that useful suggestions to parents, teachers, Educational planners and government could be made.

Statement of the Problem

In recent years, a great awareness has developed among parents, teachers, Educators, government officials, researchers and Educational planners over those factors that affect students' performance in physics in Nigeria. It has been quite clear that student's performance in physics as well as participation (especially in Birnin kebbi Metropolis) is poor and require immediate attention. All over the country, there is a consensus of opinion about the falling standard of Education in Nigeria [8]. Improvement in students' performance has become the researchers concern. It is therefore based on this issue, this study was designed to determine the factors and effect of poor background on the students' academic performance in physics at senior secondary school level in Birnin kebbi Metropolis.

Objectives of the Study

The main of this study is to examine the factors and effect of poor background on the students' academic performance in physics at senior secondary school level in Birnin kebbi Metropolis with following specific objectives.

1. To determine the effect of family background on students' performance in physics.
2. To find out the effect of teachers' attitude towards work on students' performance in physics
3. To ascertain the teaching method use by the physics teachers in teaching physics
4. Determine the effect of gender on students' performance in physics

Research Questions

For the purpose of this research work, the following research questions have been formulated;

1. Do family background have any effect on students' performance in physics?
2. What is the effect of teachers' attitude towards work on students' performance in physics?
3. Which type of teaching method do physics teachers use in teaching physics at senior secondary school level?
4. What is the effect of gender on students' performance in physics?

Research Hypothesis

The following hypothesis would be tested to guide this study;

Ho1: There is no significant relationship between family background and students' performance in physics

Ho2: There is no significant relationship between teachers' attitude towards work and students' performance in physics

Ho3: There is no significant relationship between methods of teaching used by teachers and students performance in physics

Ho4: There is no significant relationship between gender and students' performance in physics.

Significance of the Study

The study will be of significance to a number of beneficiaries in the sense that it will provide information on effect of family background on students' performance in physics. It will also give information on how students' interest and attitude of teachers towards work affect students' performance in physics. However, it will provide information on effect of environmental factors and methods of teaching employed by teachers on students' performance in physics. Furthermore, it will give information that would guide curriculum planners in planning the curriculum without rigidity to suit diverse cultural environment. Also, it will provide information which is likely to help Kebbi State in particular and Nigeria in genera in terms of knowing the possible solutions on how to improve students' performance in physics.

Scope and Limitations

This study is limited to schools that offer physics subject in Birnin Kebbi Metropolis.

The List of Schools Are

1. Salamatu Husaini Government Day Secondary School Birnin Kebbi.
2. Nagari Science Collage Birnin-Kebbi.
3. Government Girls Collage (UNITY) Birnin Kebbi
4. Polytechnic Staff Academy Birnin Kebbi.
5. G.D.S.S Junju Birnin Kebbi
6. Abdullahi Fodio Government Day Secondary School Birnin Kebbi.

METHODOLOGY

Research Design

Descriptive survey design was adopted. This enables the researchers to obtain and asses' opinions, attitudes and practices of physics teachers and senior secondary schools (ss2) students'. According to Polit and Hungler [9], a survey obtains information on a sample of people by means of self-report, that is, the people respond to series of questions posed by the investigator. The design helped to describe the effect of poor background on students' performance in physics at senior secondary school level (public schools) in Birnin Kebbi Metropolis. According to Ogula [10], descriptive research design attempts to accurately describe a given situation. This design was used to collect information, record the information collected, analyze and report conditions that existed.

Population of the Study

The population of the study is senior secondary schools offering physics subject and their physics teacher's in Birnin Kebbi metropolis.

Sample Size and Sampling Technique

The sampling size was limited to six (6) senior secondary schools (ss2) students' who have completed the recommended physics scheme of work for two years. The six schools were selected by the means of simple random sampling technique. In each of these six schools, thirty (30) students' were randomly selected. This brings a total of one hundred and eighty (180) and two (2) physics teachers from each school were selected. According to Heiman [11], stratified random sampling is a sampling technique that involves the identification of important sub-groups in a particular population. In this case the sub-groups were mixed schools, boys' schools and girls' schools. To allocate the sample size in the stratum, proportional sampling method was used. At the school level the study used purposive sampling. Therefore the study only involves senior secondary schools (ss2) who have already made their subject choice. Finally at the class level "randomly drawn" was used in sampling. In mixed schools proportional sampling method was used to ensure boys and girls were equally represented. The Table-1 below shows the representation of strata in three categories of schools.

Table-1: Representation of Strata in the Categories of Schools

Strata/nature of school	Population	Sample
Mixed schools	521	60
Boys' schools	572	60
Girls' schools	334	60
Total	**1427**	**180**

Source: (Field work 2018)

Instrument for Data Collection

The study employed questionnaires for teachers and students'. The questionnaires include both open and closed ended items. According to Orodho [12], the close ended items were used because they are easy to fill, relatively objective and easy to tabulate. The open ended items were used to allow teachers and students' to express themselves freely without restriction. The questionnaires consist of two sections, where section one contained items that generated demographic data while section two contained items on effect of poor background on students' performance in physics.

Validity of the Instrument

According to Mugenda and Mugenda [13], validity is the accuracy and meaningfulness of inference, which are based on researcher's result. Validity means the accuracy with which a test measures what it is or what it intends or supposed to measure. Thus, the first draft of the questionnaire was given to expert in the Department of Science Education, Faculty of Education and Extension Services, Kebbi State University of Science and Technology Aliero to validate, and make necessary corrections to avoid ambiguity.

Pilot Study

The pilot study was carried out in three randomly chosen schools (one from each stratum) in birnin kebbi metropolis.

Reliability of the Instrument

According to Mugenda and Mugenda 14], reliability is a measure of the degree to which an instrument yields consistent results or data after reported trials. The split half technique was employed to test the reliability of the instrument. In this approach, an instrument is designed in such a way that there are two parts. Therefore, the questionnaires are divided into two sections using spearman rank order correlation coefficient to determine reliability of the instruments. The coefficient of 0.70 was obtained for the students' questionnaires and 0.71 for the teachers questionnaires. All the instruments were reliable. According to Rama [15], an instrument with 0 as coefficient is full of error, while with 1 shows the absence of error. Any instrument with 0.5 and above as coefficient is reliable.

Procedure for Data Collection

Each selected physics teacher was given a questionnaire. The respondents were given adequate explanation before filling the forms. In the administration of students' questionnaires, the assistance of physics teachers was sought. The teachers assisted in distributing the questionnaires to the students'. After two (2) weeks the questionnaires were collected from the respondents.

Procedure for Data Analysis

After administration of the instrument to the respondents, the data was examined for completeness so that it can be coded appropriately. Descriptive statistics such as percentages, means and frequency will be used to present data. The findings would be reported in summary form using frequency distribution tables and pie charts.

DATA ANALYSIS AND PRESENTATION

INTRODUCTION

This chapter presents data analysis, presentation and discussion of the study the data were collected from 192respondents (180 students and 12teachers) from six senior secondary schools, (ss2) Student in Birnin Kebbi Metropolis. This gave a response rate of 100%**.** The research focuses on various factors that affect student performance in physics at senior secondary school in Birnin Kebbi Metropolis. The result were presented and discussed in accordance with the research objectives and questions. Simple percentages were employed as statistically tool in the data analysis.

Analysis of the Questionnaire

Table-2: Effect of Family Background on Students' Performance in Physics

Option	Frequency	Percentage
Yes	9	75%
No	3	25%
Total	**12**	**100%**

Source: (field work 2018)

Table-2, Shows that 75% (9) of teachers believed that family background affect students' performance in physics while 25% (3) of teachers didn't believe that family background affect student performance in physic. Therefore, study show that majority of the teachers (75%) believed that family background affect students' performance in physics and only 25% of the teachers response that family background does not affect student performance in physics.

Table-3: Students' Interest in Physics

Option	Frequency	Percentage
Yes	101	56.1%
No	79	43.9%
Total	**180**	**100%**

Source (field work 2018)

Table-3, Shows that 56.1% (101) of the student have interest in studying physics while 43.9% (79) don't have interest in studying physics. Therefore, this shows that majority of the students have interest in studying physics only few of the students have no interest in studying physics.

Table-4: Teachers Attitude towards Work as Rated by Students'

Option	Frequency	Percentage
Excellent	42	23.3%
Good	56	33.9%
Satisfactory	61	33.9%
Poor	21	11.7%
Total	**180**	**100%**

Source: (field work 2018)

Table-4, Shows that only 23.3% (42) of students' rated teachers are having excellent attitude towards their work,31.1% (56) had a good attitude, while 33.9% (61) had a satisfactory attitude and 11.7% (21) of the student rated the teachers were having poor attitude towards their work.

Table-5: How Many Teachers are Trained to Teach Physics?

Option	Frequency	Percentage
Trained	10	83.3%
Not Trained	2	16.7%
Total	**12**	**100%**

Source (field work 2018)

Table-5, Shows that 83.3% (10) percent of the teachers were trained to teach physics while only 16.7% (2) are not properly trained to teach physics.

Table-6: How Many Teachers Enjoy Teaching Physics?

Option	Frequency	Percentage
Those Enjoy	101	56.1%
Not Enjoy	79	43.9%
Total	**180**	**100%**

Source (field work 2018)

Table-6, the result Shows that 56.1% (101) of the teachers enjoy teaching physics while 43.9% (79) did not enjoy teaching physics.

Table-7: Methods of Teaching Employed

Option	Frequency	Percentage
Lecture method	3	25%
Demonstration method	3	25%
Discussion method	4	33.3%
Discovery method	2	16.7%
Total	**12**	**100%**

Source (field work 2018)

Table-7 Above indicates that 25% (3) of the teachers used lecture method in teaching physics, another 25% (3) used demonstration method while 33.3% (4) used discussion method and 16.67% (2) used discovery method in teaching physics. Therefore, the

finding shows that discussion method (33.33%) used more often by teachers in teaching physics than lecture method (25%), demonstration method (25%) and discovery method (16.67%).

Table-8: Lesson Presentation of the Physics Teacher

Option	Frequency	Percentage
Yes	93	51.7%
No	87	48.3%
Total	**180**	**100%**

Source (field work 2018)

Table-8 Shows that 51.7% (93) of the students enjoy presentation of the lesson by their physics teachers while 48.3% (87) of the students' did not enjoy the lesson presentation by their physics teachers. Therefore, the finding shows that the majority of the students' enjoy the lesson presentation of their physics teachers.

Table-9: Kind of Language Physics Teacher Use

Option	Frequency	Percentage
Simple language	97	53.9%
Difficult terms	80	44.4%
Proverb	3	1.7%
Total	**180**	**100%**

Source (field work 2018)

Table-9 Above shows that 53.9% (97) of students responded that their physics teachers use simple language during content delivery, 44.4% (80) responded that their physics teacher use difficult terms and 1.7% (3) responded that their physics teachers use proverbs during content delivery.

Table-10: Laboratory Equipment

Option	Frequency	Percentage
Yes	5	25%
No	9	75%
Total	**12**	**100%**

Source (field work 2018)

Table-10 The result study shows that 25% (5) of teachers responded that laboratories are well equipped with laboratory facilities while 75% (9) of teachers responded that laboratories were not well equipped with facilities. Therefore, most of the school's laboratories have inadequate practical facilities which may cause so much failure for achieving physics objectives, since most of the physics topic deal with practical's.

Table-11: Teaching of Practical Lesson in the Laboratory

Option	Frequency	Percentage
Yes	8	66.7%
No	4	33.3%
Total	**12**	**100%**

Source (field work 2018)

Table-11 Shows that 66.7% (8) of teachers teach practical lessons in the laboratories while 33.3% (4) do not teach practical lesson in the laboratory.

Table-12: Are Practical Lesson Taught in the Laboratory?

Option	Frequency	Percentage
Yes	72	40%
No	108	60%
Total	**180**	**100%**

Source (field work 2018)

Table-12 Shows that 40% (72) of the student respond that practical lesson are taught in the laboratory and 60% (108) of student believed that practical lessons were not taught in the laboratory.

Table-13: Role of Gender

Option	Frequency	Percentage
Yes	7	58.33%
No	5	41.67%
Total	**12**	**100%**

Source (field work 2018)

Table-13 Shows that 58.33% (7) of teachers believed that gender plays a role in the performance of student in physics while 41.67% of teachers did not agree that gender play a role in student performance in physics. Thus, the study found that the majority of the teachers believed that gender plays a significant role towards understanding of physics.

Table-14: How Do You Feel During Physics Lecture?

Option	Frequency	Percentage
Motivated to read more	55	30.6%
Lack of motivation	47	26.1%
Tired and sleepy	78	43.3
Total	**180**	**100%**

Source (field work 2018)

Table-14 Show that 30.6% (55) of students feel motivated when studying physics, 26.1% (47) of students' lack of motivation and 43.3% (78) of students feel tired and sleepy when studying physics. Therefore, this show that majority of the students (43.3%) feel tired and sleepy when studying physics.

SUMMARY

The purpose of this study is to determine the effect of poor background on students' performance in physics at senior secondary school in Birnin Kebbi Metropolis. Four factors were considered family background, students' interest, teachers' attitude towards wok, Different methods of teaching used by teachers, gender and environmental factors which forms the research questions. Based on the research findings 75% of the teachers believed that family background affect students' performance in physics while 25% of teachers didn't believed that family background affect students' performance in physics. 56.1% of students' have interest in studying physics while 43.9% are not interested. 23.3% of students rated the attitude of their teachers towards work as excellent, 31.3% as good,

33.9% as satisfactory and 11.7% as poor. Also, teachers in Birnin kebbi metropolis employed different methods of teaching; 25% of teachers employed lecture method another 25% use demonstration method, while 33.3% employed discussion method and 16.7% employed discovery method. 53% of teachers believed that gender plays a role in students' performance in physics while 41.7% did not agreed. 25% of teachers respond that their school laboratories are well equipped with facilities but 75% respond that their school laboratories are not well equipped with facilities.

CONCLUSION

The conclusion drown from this study examined the factors and effect of poor background on the student academic performance in physics at senior secondary school in birn in Kebbi metropolis.

The result of the study clearly show that gender has effect on the performance of students toward physics subject, developing Students' attitude positively increases and motivates students' interest in the study of physics which in turn brings positive development to both the nation and the individual. Students' interest toward studying physics subject should be developed in both boys and girls. This is because girls showed low interest or negative attitude toward physics subject; there is need for both parent and teachers to encouragement the student to have more interest toward physics subject. The encouragement should be continuously until these factors militating against students' performance in Physics are addressed.

RECOMMENDATION

1. Parents/Guardian should encourage and motivate their children by providing necessary materials for science Education.
2. Physics teachers should avoid missing classes and head-teachers should take their responsibility of curriculum instruction and supervision, and ensure lessons are not missed.
3. Physics teachers should employ appropriate method of teaching physics.
4. Policy makers/ministry of Education should ensure proper curriculum implementation by physics teachers and increased enrolment in physics.

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