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Original Research Article

Lack of Availability of Science Teaching Facilities on Students Teaching and Learning Science in Some Selected Secondary Schools in Kebbi State

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Abstract

This study investigates the lack of availability of science teaching facilities on students teaching and learning science in some selected secondary schools in Kebbi State. Five research questions are developed to capture the topic and questionnaire is designed to obtain information from the respondents which comprise of teachers of the selected schools, 30 population samples were randomly selected from the four schools in the state, percentage and frequency distribution were used to present the result of the information gathered. The analysis of the data shows that teachers (administrators and classroom teachers) procure instructional material majority by improvisation. Other sources include donations, gifts from philanthropists, spirited people and international organizations. They utilize instructional materials to demonstrate learning concepts in the classroom; they have certain way of maintaining these instructional materials for teaching and learning purposes. However, problems such as poor maintenance culture of school heads, inadequate funds, inexperience in the use of some science teaching materials (laboratory materials) by some teachers, lack of in-service training for teachers, poor storage facilities, lack of interest of some administrative heads and teachers over instructional materials. The findings of the study discovered that some classroom teachers do not use instructional materials to bring about effective learning in the classroom because they lack the required knowledge on how to use the instructional materials appropriately. As a result of low knowledge by some of these teachers, they prefer not to make use of these facilities because they fear not to damage them. Recommendations are made based on the findings that seminars, in-service training and workshop should be organized for teachers on the effective use of instructional materials in the teaching and learning process, there should be supervision and monitoring of the teachers by school administrators during instructional process under classroom condition. The findings also revealed the positive impacts of adequate teaching materials to student's academic performance, problems affecting the use of educational facilities and how it can be resolved in the study area.

Keywords: teaching facilities, improvisation, appropriately.

INTRODUCTION

There have been series of research which concluded that there is insufficient science teaching facilities such as laboratories, tables, chairs, classes and most of all laboratory equipments in schools for the teaching of science education [1-3]. This situation is more critical in the rural areas where access to basic education infrastructure is negligible.

The relevance of science laboratory and equipment's to the teaching of science lies in the fact that these facilitates science practical. Science practical is considered a key in making science learning more effective. Science practical provide experience to science learners and develop science skills, knowledge and understanding of their world. The goals of scientific literacy and a sufficient supply of science graduates from higher education require that elementary, secondary and higher secondary schools offer realistic and inquiry oriented science curricula that engage students and inspire them to continue their studies of science [4]. According to Linn [5], the aims of widely using laboratories in science education are as follows:

- To get students comprehend abstract and complex scientific concepts by using concrete materials.
- To give students problem-solving and analyzing skills by comprehending the nature of science.

- To develop practical experiences and special talents of students
- To motivate students with laboratory activities and by this way to develop positive attitude towards scientifically working.

Statement of Problem

Lack of adequate science teaching facilities will surely affect the teaching and learning process in science subjects. There are some problems outlined below encountered in schools due to lack of adequate facilities. It is known that the academic performance of each student depends to a large extent on the facilities exposed to while learning, but when these facilities are lacking some problems is faced.

The first problem would be generated when there is no conducive teaching and learning condition. The un-conduciveness could be as a result of non-availability of facilities like table and chair in the classroom. Whenever there is unconducive environment, at the end of the lesson the students will not achieve the specific objectives. The discomfort of sharing sits, and desks among students in class is enough to distract and discourage the interest of students for the whole day's work.

- Since students have low interest in science subjects, they will have a low level of understanding, because interest also plays a vital role in facilitating learning and for that reason knowledge delivered to the students would not be fully understood.
- Laboratories are lacking in many schools and in some schools were they can be found reagents and equipment are lacking. For instance science students who always learn in abstract, without practical knowledge of what the teacher is saying, cannot have effective learning and this will automatically affect his/her academic performance. These lack of laboratories have resulted to low interest in science subjects such as physics, chemistry and biology today.
- Also the non-availability of teaching facilities like textbooks, buildings, charts, chalkboards etc. Have hindered student's performance academically and this has resulted in their low interest in most of the subjects offered in their various level in secondary schools.
- Finally, it is observed that students apply their acquired knowledge ineffectively since they have not been able to be taught with the practical aspects but rather expressed to only theoretical aspects of their field of specialization, if they have been opportune to make use of facilities in different aspects they would have been effectively appropriate.

Purpose of the Study

The purpose of this study is to identify the problems and damage that the use of inadequate science teaching materials does to science education, so that measures can be taken to remedy the situation.

It will facilitate the drive towards provision of qualitative teaching facilities for teachers and also highlight the role of teaching facilities in promoting among leaners. Finally, this study help us to know the importance of teaching facilities.

Significance of the Study

This study is meant to help educators and education planners realize the problems science secondary schools in Kebbi State are facing, which have to be met adequately.

The study is also meant to identify these problems and how much effect it has on the academic performance of science students, since these facilities exist to be very essential in facilitating and stimulating the instructional programme of the school system they should be provided and maintained.

Research Questions

This project aims at the lack of science teaching facilities and how it affects the performance of students in science subjects in some selected institutions. In order to achieve this, the following research questions are very essential.

- Is there a relative difference in academic performance between schools with adequate teaching facilities and school without adequate teaching facilities?
- What are the problems encountered by schools without proper teaching facilities?
- What are the benefits of having effective teaching aids?
- What are the problems of not having enough teaching facilities in a school?
- Is there good teaching and evaluation condition in your school?
- How can the government improve effective teaching in schools?

METHODOLOGY

Research Design

The research were carried out in Zuru and Aleiro Local Government Areas, of Kebbi state to examined the lack of availability of science teaching facilities on students teaching and learning of science in secondary schools.

Sampling Techniques

To select the number of sample, a simple random sampling technique were adopted so as to give, 1 representation. This involved selecting 30 respondents out of the total population of this study.

Research Instrument

The instrument used for gathering information is the questionnaire. The questionnaires were designed

by the researcher from experience gathered, from various books, articles and observations made during the gathering of materials for the literature review.

It is used to collect opinions about the different views that school had and teachers have related to questions in the questionnaire.

Validity of Instrument

The questionnaire were constructed under the guidance of an expert for language, clarity, relevance and comprehensiveness of the content. It is valid by the use of his expert opinion.

Reliability of Instrument

This instrument undertaken by the researcher after a collection of instrument. The questionnaire consists of a close-ended two rating item scale of "true" or "false".

Data Procedure

The questionnaires were administered to school heads and teachers. They were cooperative in filling the questionnaire, oral discussion made to equally serve as source for admitting that their responses were considerable.

Data Analysis

The data obtained from the sample were subjected to various statistical techniques, so as to answer the different research questions regarding the study.

The method of data analysis used for this study were simple percentage. Reason is because the targeted population is within a reasonable limit for an easy analysis of data collection.

The formula used was:

$$\frac{R}{N} \; X \frac{100}{1} = \text{percentage of respondents}$$

Where,

R = responses

N = number of students.

RESULTS AND DISCUSSION

The findings are in accordance with the research questions after presenting the information of respondents.

Is there a relative difference in academic performance between schools with adequate teaching facilities and school without adequate teaching facilities?

From the above question, teachers believe that schools with adequate teaching facilities perform more than schools without adequate teaching facilities. It is a general agreement that facilities will help student's development. A well standardized school will have students with better performance compare to a low developed school. Ojelabi [6] shows that sport from the fact that geographical location of any school situation is very important without the adequate required facilities, learning cannot take place conclusively though the atmosphere contributed to the ease learning. This is a fact in a situation which a school is geographically located in a fine environment but lack of the essential facilities which will affect the student's performances compare to a well equipped school but have bad location. The provisions of facilities equally help to instigate the idea of self-learning. The educational system will be structured to develop the practice of self-learning in a standard school, a student can walk into a laboratory and carryout the practical he wants to learn himself without waiting for a teacher. Finally, with facilities and a smooth learning and teaching process, the educational assessment or evaluation will be attained after teaching has taken place. Facilities play a vital role in the evaluation of the leaner's achievements.

What are the problems encountered by schools without proper teaching facilities?

The result from the question above indicates that students understanding of science subjects will be low and will affect the academic performance of students. Teachers believe that lack of teaching facilities have effect on students.

What are the benefits of having effective teaching aids?

The responses from the above question revealed that there is advantage of using teaching facilities.

Facilities like laboratory, chemical and storage facilities like the refrigerators, lockers, chairs, test tubes, flasks, specimens and burners increases the skill of the students and help to expand their scope of knowledge.

How can the government improve effective teaching in schools?

- The government should regularly organize activities like workshops, seminars, conferences and lectures on educational administration and planning so that participants can be exposed and enlightened more about the new innovations and inventions in school administration process in order to over shadow the old and obsolete ways of school administration that are used before.
- Adequate teaching facilities should be provided and regular check up for better improvement where necessary.
- Government should take note on the population growth in the country for the present and future demand for education.
- The required quantity and quality of facilities that will enhance learning should be provided by

government. Government wouldn't have failed because facilities provided were based on Nigerian demographic data. Considering the accuracy of population will enable government provide for facilities. The higher the population the greater the facilities required.

Is there good teaching and evaluation condition in your school?

The result from the data collected for the question above shows that teaching and evaluation condition is not good in their schools because it is only with facilities that smooth learning and teaching process can take place, the educational assessment or evaluation depends on the instructional material used in teaching. Facilities play a vital role in the evaluation of the leaner's achievements.

SUMMARY OF THE FINDINGS

The following findings were made:

- Inadequate facilities adversely affect overall performance of students.
- The provisions of facilities are inadequate in schools.
- The rate of progress of students depends on the availability of facilities that aid learning.
- Students exposed to adequate facilities perform better than those without adequate facilities.

CONCLUSION AND RECOMMENDATIONS

The conclusion drawn from this research shows that administrators in schools have high positive attitude towards the provision of adequate and effective facilities to school. They strongly believe that the provision of facilities will definitely prove to be a more valid way of improving individual and overall achievers.

Dale E [7]. Stated it all when he remarked that resources can make or man a nation's educational programme. Babatunde [8]. Also stressed the need of using stimulating objects and aids in teaching, and that the quality of education on children receive bears direct relevance to the availability or the lack of physical facilities and overall atmosphere of which those learning take place.

Also the inadequate provision of lecture room spaces, laboratories and workshops, result in a noisy and stuffy atmosphere as students cluster in the small space available.

In conclusion, the importance of facilities cannot be overemphasized, efforts should be made in providing quality facilities in large quantity to all schools.

RECOMMENDATIONS

The analysis of the research work has shown the great effects of lack of facilities in our educational system.

In order to have a positive change towards the provision of facilities to our schools today, the following recommendations were made to enhance a normal teaching and learning process. Three groups of people should be considered as important in the achievement of our aims. These are the school administration, teachers and government.

School Administrators

- The government appoints the school administrators as the sole head and leader of the school organization. He is also referred as the sole authority of the school. He executes the school curriculum. He should be cautious of his office as he controls coordinate and also describe the future of the school standard. Ease should be taken in appointing school administrators.
- The school administrators should also departmentalize their schools into various smaller units so as to enhance easy flow of teaching and learning for the better administration process.
- The school administrators should be able to provide all departmental, because the facilities provided by government should be appropriately used. Where the facilities are not adequate, the school administrators should be able to make substitute provision for them.
- School administrators should be good at financial matters' by being creator of funds and also judicious user of funds because funds enhance objective and goals.
- Zonal educational officers should ensure that principals keep adequate records and reports about the administration of the school by this, check and balance will be administered.
- School administrators should organize fund raising events to draw attention to the areas where facilities are seriously needed.

Government

- The government should regularly organize activities like workshops, seminars, conferences and lectures on educational administration and planning so that participants can be exposed and enlightened more about the new innovations and inventions in school administration process in order to over shadow the old and obsolete ways of school administration that are used before.

- Adequate teaching facilities should be provided and regular check up for better improvement where necessary.
- Government should take note on the population growth in the country for the present and future demand for education. The required quantity and quality of facilities that will enhance learning should be provided by government. Government wouldn't have failed because facilities provided were based on Nigerian demographic data. Considering the accuracy of population will enable government provide for facilities. The higher the population the greater the facilities required.

Teachers

Akpabio [9] sees a teacher as a person who has acquired the special skilled required for effective imparting of knowledge and is actually involved in the teaching profession. Teachers are regarded to be very vital in schools.

- Adequate skilled teachers in the different field should be employed to handle various areas of specialization. When teachers in training, they should be well exposed to various courses for enlightenment.
- Educational technology which will enable teachers to make certain teaching aids on their own and at least be able to improve on existing relevant ones, should be compulsorily taught to the teachers at their training levels. The teachers will be able to utilize the facilities provided and not complain that government did not provide such facilities.
- Teachers should show personal interest and manage with the little facilities present in their schools. Maintenance should be seen by teachers as part of their teaching job.

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