

Slide Projector utilisation and the Teaching of Basic Science in Plateau North Education Zone

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Abstract. The study investigated the effect of utilization of slide projector in the teaching of JSS 2 basic science in Plateau north education zone. The population consisted of 743 teachers of basic science of Plateau North Education Zone. The sample for the study consists of 25 teachers spread across 5 schools in Plateau North Zone randomly selected. The 25 teachers are made up of 15 males and 10 females. Data were obtained using a researcher's structured questionnaire and a five point likert scale responses of items designed to elicit answers from the respondents used for the study. The average mean of 3.50 was used as the minimum scale of positive result so that mean score below 3.50 is a negative result while mean score above 3.50 indicates positive response. The instrument was validated by three experts in Science and Technology Department of the rank of Professors from University of Jos, with reliability index of 0.67. The method used for data analysis was mean scores for the research questions and t- test analysis for the hypothesis. Results showed that slide projector enhances teaching and learning of basic science in Plateau north education zone but there is inadequate supply it in the schools, though the few that are in the schools are seldom use for teaching. Reasons given include inadequate supply of slide projector, epileptic power supply, lack of required skills by teachers. Based on the findings of the study, it was recommended

among others that teachers' teaching basic science should always adopt the use of slide projector in the teaching of basic science for it has the potential of making teaching effective and enhancing learning.

Keywords: Investigating, Basic Science, Effect, Slide projector, Teaching.

1. Introduction

Basic science is one of the core science subjects, taught in all the junior secondary schools in Nigeria and it is assumed to be abstract in nature. It is the responsibility of the basic science teachers to make the subject concrete and real to the students by using a variety of teaching methods. Vibrant and resourceful basic science teachers have lots of work to do in finding out new methods of teaching Basic science. Nwosu (2003) has argued that information and communication technology (ICT), which projector is part, based education, if properly utilized, can be made interactive and this can provide activity based teaching methods in which students can actively participate thereby providing experiences that would sink deeper into the students' memories than listening to verbal teaching. Adeyemo (2010) has further argued that method of teaching has gone beyond traditional methods and this makes the integration of information technologies very important in science class. Information technology has broken the monopoly, and

provided varieties in teaching – learning situation in basic science. This means that information technology should be properly rooted in the junior secondary school curriculum so that the level of literacy will be increased with regard to the use of information technology in teaching basic science.

Therefore, information and communication technology, which slide projector is a part of, are instructional materials. The instructional materials are defined by Ikerionwu (2000) as objects or devices which help the teacher to make learning meaningful to the learners. Similarly, Jimoh (2009) classified them into two as visual materials, made up of reading and non-reading materials and audio-visual materials comprising electrically operated and non-electrically operated materials. The purpose of instructional materials is to promote efficiency of education by improving the quality of teaching and learning. Incorporating these tools and materials present, support and reinforces teaching. According to Aduwa-Ogiegbaen and Imogie (2005) these materials and resources including audio tape recorders, video tape recorders, slide projectors, opaque projectors, over-head projectors, still pictures, programmed instruction, filmstrips, maps, chart, graphs and many more offer a variety of learning experiences individually or in combination to meet different teaching and learning experiences.

It is obvious based on the classification above that slide projector is an instructional material. Hence, a slide projector is an opto-mechanical device for showing photographic slides. 35 mm slide projectors, direct descendants of the larger-format magic lantern, first came into widespread use during the 1950s as a form of occasional home entertainment; family members and friends would gather to view slide shows, which typically consisted of slides snapped during vacations and at family events. Slide projectors were also widely used in educational and other institutional settings.

Slide projectors are of great importance in education as can be seen from the work of Eze, 2013 which states that the human being learns more easily and faster by audio-visual processes than by verbal explanations alone. Ejifugha and Opara, 2015 also corroborates this point by

saying that instructional materials perform specific functions in learning such functions ranges from simplifying teaching to making teaching effective.

In spite of the importance of science in national development, students' performance in science subjects is not encouraging. The poor performance of students in basic science has been attributed to poor teaching methods in the form of excessive talking, copying of notes and rote learning of text book materials adopted by science teachers (Opara, 2014). Therefore, the researchers will investigate the effect of utilization of slide projector in the teaching of JSS 2 basic science in Plateau North Education Zone.

2. Statement of the Problem

The role of resources in teaching and learning process in schools cannot be emphasized. It facilitates learning and ensures active involvement of the students in the learning process. It becomes imperative that in designing instructional materials, efforts have to be made to include the criteria for the three domains of educational objectives, so as to integrate the overall achievement of learning. Since Opara, 2014 attribute poor performance of basic science to poor teaching method, hence, the conduct of this research work will examine if science teachers utilise slide projector in the teaching of basic science especially in Plateau North Education Zone.

3. Purpose of the Study

The major purpose of this study is to investigate the effect of utilization of slide projector in the teaching of JSS 2 basic science in Plateau North Education Zone. Specifically the study is designed to find out the extent the teachers utilize slide projector in teaching basic science, to determine the instructional effect of using slide projector in teaching basic science, to determine the motivational effect of using slide projector in teaching basic science, to ascertain the factors militating the use of slide projector in teaching basic science in JSS 2 in Plateau North Education Zone.

4. Research Questions

The following research questions were raised:

- To what extent do teachers utilize slide projector in teaching of basic science in Plateau North Education Zone?
- To what extent does slide projector affect the teaching of basic science in Plateau North Education Zone?
- What are the factors that militate the use of slide projector in teaching of basic science in Plateau North Education Zone?

5. Hypotheses

The under listed hypothesis was tested at 0.05 level of significance:

There is no significant mean difference between the perception of male and female teachers that use slide projector for teaching basic science in JSS 2 in Plateau North Education Zone.

6. Significance of the Study

The use of slide projector technology in teaching and learning has brought into the system, new and emerging technologies that have come to challenge the traditional methods involved in the teaching and learning processes. It can impact on quality and quantity of teaching and learning. Teachers can benefit from the findings of this work by utilizing slide projector in the teaching process which has the potential of making teaching effective. Policy makers can also enact policies that will encourage the effective use of

slide projector to encourage visual learning which has the capacity to improve learning. This work will encourage government and non-governmental organizations to support schools, through the purchase of slide projectors that will encourage effective teaching and enhance learning.

7. Methodology

The researchers adopted a descriptive survey design in which questionnaires were used to collect information from the respondents. The population consisted of 743 teachers of basic science of Plateau North Education Zone. The sample for the study consists of 25 teachers spread across 5 schools in Plateau North Zone randomly selected. The 25 teachers are made up of 15 males and 10 females. Data were obtained using a researchers structured questionnaire, which is made up of two sections, section A to elicit personal information and section B was a five point likert scale responses of items designed to elicit answers from the respondents used for the study. The average mean of 3.50 was used as the minimum scale of positive result so that mean score below 3.50 is a negative result while mean score above 3.50 indicates positive response. The instrument was validated by three experts in Science and Technology Department of the rank of Professors from University of Jos, with reliability index of 0.67. The method used for data analysis was mean scores for the research questions and t- test analysis for the hypothesis.

9. Result

Question 1: To what extent do teachers utilize slide projector in teaching of basic science in Plateau North Education Zone?.

Do you utilize the slide projector for Teaching Basic science in your school?		N	Mean	Decision
1.	The school do not have enough Slide projector for teaching basic science	25	3.2	Disagree
2.	I always use Slide projector when teaching Basic science to my students	25	3.3	Disagree
3.	My course content is not suitable with using Slide projector	25	3.2	Disagree
4.	I use the Slide projector just as a presentation tool for teaching Basic science	25	3.6	Agree
5.	I prefer using the chalk board to the			

Slide projector to teach basic science	25	3.8	Agree
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From Table 1 the data show that the mean score of items 1-3 are below the mean score of 3.5 which implies that slide projectors are not enough in the school, teachers do not always use slide projectors when teaching basic science, that all course content are suitable for slide projector teaching method. While items 4-5 have means of 3.6 and 3.8 which is greater than the mean score. This result shows that most teachers only use slide projector as a presentation tool

without creating interactivity, also most teachers prefer using chalk board despite the importance of slide projector.

Question 2:

To what extent does slide projector affect the teaching of basic science in Plateau North Education Zone?.

Table 2: Mean score perception of the extent slide projector affect the teaching of basic science in Plateau North Education Zone?.

Use of slide projector for Teaching of basic science	N	Mean	Decision
1. Slide projector facilitate the classroom management for me	25	3.6	Agreed
2. Slide projector helps my lessons be more interactive	25	3.5	Agreed
3. My lessons have become more effective with Slide projector	25	3.7	Agreed
4. Slide projector helps me to manage my instructional time effectively	25	3.6	Agreed
5. Slide projector provides advantages to make course content more visual	25	3.8	Agreed
6. I believe using an Slide projector helps my students learning	25	3.7	Agreed
7. Using an Slide projector makes it easier for my students to remember what they learned in class	25	3.6	Agreed
8. My students learn faster when I teach with an Slide projector	25	3.5	Agreed
9. Slide projector helps my students learn in groups	25	3.4	Agreed
10. Using an Slide projector helps students to learn concepts easier	25	3.6	Agreed

The data in Table 2 show that the mean scores of items 1-8 and 10 are above the mean score with the range of 3.5 to 3.8 which implies that the respondents generally agreed that Slide projector enhance teaching and learning of basic science but item 9 with a mean score of 3.4 has it that

the respondents do not agree that Slide projector encourages students to learn in groups.

Question 3

What are the factors that militate the use of slide projector in teaching of basic science in Plateau North Education Zone?.

Table 3:Mean perception of the factors militating the use of slide projector in the teaching of basic science in Plateau North Education Zone.

The following are problems Militating								
against utilization of slide			MALE	FEMALE	projector	in teaching Basic Science. N=15	Mean	Dec.
N=10	Mean	Dec.						
1.	Inadequate supply of slide projector in my department		3.7	Agree	3.6	Agree		
2.	Lack of required skills and competences on the part of teachers		3.5	Agree	3.6	Agree		
3.	Inadequate slide projector digital materials and resources to be used with the interactive board		3.7	Agree	3.5	Agree		
4.	Poor connection between the slide projector and computer							
3.2	Disagree	3.4	Disagree					
5.	Virus problems, which lock programs and files		3.6	Agree	3.7	Agree		
6.	Low quality of speakers		3.4	Disagree	3.3	Disagree		
7.	Computer programs which are not updated such as multimedia programmes			3.4	Disagree	3.3	Disagree	
8.	Epileptic power supply		3.8	Agree	3.5	Agree		
9.	Technician is not always available in the classroom when there are some problems with slide projector.		3.5	Agree	3.7	Agree		
10.	There is no shared vision among the staff concerning how the slide projector is to be used for teaching Basic.			3.6	Disagree	3.5	Agree	
Cluster mean				3.54	3.52			

From Table 3, items 1,2,3,5,8, and 9 have means greater than the minimum mean rating for positive response. By implication it then means that these items are the factors militating against successful utilization of slide projector in the teaching of basic science, while items 4,7 and 10 with means below 3.5, leads to the conclusion that the items do not serve as factors that militate

against utilization of interactive boards in the teaching of basic science.

Hypothesis Testing

There is no significant mean difference between the perception of male and female teachers that utilize slide projector for teaching Basic science.

Table 4: t-test of non-significant difference between the mean perception of male and female teachers on the factors militating against utilization of slide projector in teaching of Basic Science.

Groups	N	Mean	S.D	DF	t-cal.			
t-crit.								
Remark								
Male	15	3.54	2.112		1.516	1.960	Accepted	
Female	10	3.52	2.115					23
Total	25							

From Table 4, calculated t-value is 1.513 which is less than critical t-value of 1.960 at degree of freedom of 23; hence the null hypothesis is accepted. The study concludes that there is no significant difference between the mean perception of factors militating against

utilization of slide projector in teaching of Basic science in Plateau North Education Zone.

10. Discussion

From Table 1 it indicates that slide projectors are not enough in schools and also teachers do not always use slide projectors when teaching basic science, this result is in total agreement with the works of Ndirika and Kanu (2012) who reported that the extent of science teachers' utilization of ICT infrastructure is low in Oyo State Nigeria.

Furthermore, Table 2 results buttress the point that the general agreement among respondents is that Slide projector enhance teaching and learning of basic science. This is line what Jotia and Matlale (2011) reported that using of slide projector enhance teaching and learning.

Also in Table 3, it shows that inadequate slide projector, Lack of required skills and competences on the part of teachers are factors that militate against the use of slide projector in the teaching of basic science. Also, this work collaborates with the findings of Kiptalam and Rodriguess, (2011) which revealed that the integration of technology into education is highly dependent on the availability and accessibility of the resources in schools.

Lastly, the hypothesis testing showed clearly that there is no significant difference between the mean perception of factors militating against utilization of slide projector between male and female teachers in teaching of basic science Plateau North Education Zone. This indicates that both male and female teachers hold the same view as to the factors that militate against the use of slide projector. This submission is buttress by the submission of Kosoko-Oyedeko and Adeyinka, 2010 which showed that generally, irrespective of gender, teachers have the same perception that ICT contributes immensely to students' performance.

11. Summary of Findings

Slide projectors are not enough in schools and also teachers do not always use slide projectors when teaching basic science.

Slide projector enhances teaching and learning of basic science.

Inadequate supply of slide projector, epileptic power supply, lack of required skills among others are factors that militate against the use of slide projector in the teaching of basic science.

That both male and female teacher holds the same view as to the factors that militate against the use of slide projector.

12. Conclusion

It is obvious that despite the importance of slide projector as a product of educational technology, its availability and teachers attitude to use the few available slide projectors in schools has become a challenge to a large proportion of teachers in Plateau North education zone. If the slide projector will be used effectively in discharging lessons, especially that of basic science, effective teaching will be achieved and attendant improved learning will be obtained. These are few among other results deduced from the research work.

13. Recommendations

The following recommendations were made:

- Teachers teaching basic science should always adopt the use of slide projector in the teaching of basic science for it has the potential of making teaching effective and enhancing learning.
- It is recommended that teachers should be train and encourage on how to use slide projector for teaching basic science.
- Government, sponsoring bodies and donors should come in and support the purchase of slide projector in large quantity to go round the large population of teachers to teach basic science.

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