

**EFFECTIVENESS OF ACTIVITY –BASED AND LECTURE METHODS OF TEACHING
SCIENCE EDUCATION AMONG SECONDARY SCHOOL STUDENTS IN JIGAWA STATE,
NIGERIA**

BY

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Abstract

The study examined the effects of activity based and lecture method of instruction in enhancing academic performance among science education students in Jigawa State. A quasi – experimental pre-test, post-test design was used and fifty (50) students who were randomly selected were divided into Experimental and Control group constitute the samples for the study. The students in the two groups were taught Improvisation in science teaching as part of the courses in curriculum studies. For the experimental group, the method of instruction was activity based while the teaching lasted for three weeks. The mean and standard deviation was used to analyze the results while a t-test statistics was employed to determine the level of significance between the mean scores of the two groups at 0.05 level of significance. The findings revealed that the experimental group performed significantly better than the control group which used pure lecture method. Besidest students in experimental group participated actively in the lesson, feel free to ask questions and participated actively in the lesson to show evidence of good learning. Among other recommendations is that science educators should always try to use activity based method and make use of instructional materials to bring about effective learning.

Keywords: Comparative, Activity-based, Lecture method

Introduction

Science as a discipline deals with the study of nature through observation and experimentation. According to Nwagbo (2005), in most of the science subjects, Biology in particular, emphasis is on practical application of science and the role of science and technology in the Nigerian society. That is science teaching is meant to foster the right attitude and skills in the learner. Based on the above, common to all science subjects, the objectives of Biology among others are spelt out to include: ability to observe carefully and thoroughly, organize information through experimentation and use method and specimen to explain phenomena as the need arise. But there are evidences suggesting that some science teachers are not using the recommended teaching instructional strategy (activity based), thus discouraging students from offering science education or students not performing satisfactorily in their examinations (Omolewa, 1977; Ibrahim, 2014).

It is assumed that findings from this study will provide necessary information to show administrators across the states in Nigeria and permit the curriculum planners to reemphasis the importance of activity based method of instruction in enhancing learning and retention. Besides that it will also assist the policy makers to evaluate policies objectively as it relates to science teaching and provision of instruction and instructional materials to the schools by the government at various levels of education. The quality Assurance section of the Ministry of education will also find this useful most especially when carrying out observation or assessment of the teachers while teaching in the classroom. In addition it will permit and emphasize the importance of feedback to teachers as a way of assessing their teaching, because in a single teaching of a lesson it is possible to use combination of instructional strategy (lecture method combined with questioning approach in a single teaching).

Statement of the Problem

At all levels of education, for the student to be able to understand some concepts, laws and principles, it is suggested that the activity based instructional methods should be adopted as there are many

teaching aids which science teachers can use, to develop in the students manipulative skills ,contrary to this many science teachers use more of conventional lecture method to teach, the result of which is ineffective teaching as evidenced in partial learning, poor retention and poor performance in examinations by the students

Purpose of the Study

The activity based approach involves observation, interaction, analysis, discussion, and drawing appropriate decisions. The purpose for this study therefore is to:

- i. Investigate the effects of activity based and lecture method of instruction in enhancing academic performance of science education students.

Hypothesis

There is no significant difference in the performance of students in the two groups.

Methodology

A quasi experimental design was adopted while the sample consisted of 25 students in each of the group which are randomly selected from 100 students. A pretest was administered before the students were divided in to two groups of experimental and control group. While the experimental was taught using Activity based, the lecture method was used for the control group. There after both groups were exposed to six (6) lesson of 45mins duration. At the end of the three weeks of the research period for data collection, an Achievement Test constructed by the researcher was used. The instrument was subjected to content validity having a reliability coefficient of 0.078. The data collected were analyzed using mean and standard deviation, while a t-test statistics was used to test the hypothesis of the study.

Results

Table 1: Results of pretest on T- test difference between the mean scores of Activity based and Lecture methods of instruction

Group	N	\bar{x}	DF	Table value	Remarks
Discussion	50	2.07	98	1.984	Not significant
Lecture	50	2.00			

Table 1 Shows that students score in both test were not significantly different to select students in two groups of 25 each.

Table 2: Results of t test difference in means score between experimental and control group on achievement test

Group	N	\bar{x}	SD	t	Table value	Remark
Experimental	25	8.43	2.11	2.85	2.01	Significant
Control	25	7.84	2.24			0.5

Table 2 revealed that experimental group who were taught using activity based method has mean score of 8.43 while control group has a mean score of 7.84, when subjected to statistical analysis. The t value of 2.85 was observed to be greater than the table value, thus the hypothesis is rejected. Meaning that the mean score between the two groups is significantly different.

Discussion

Across the countries Nigeria inclusive, science educators have been looking for better ways of not only impart knowledge for effective learning but also trying to find other ways to promote easy retention and academic performance. To avoid a situation where students became passive listener or conformist as in lecture method, there had been a movement, to activity based method of instruction in sciences (Bajah 1983; Olorundare, 2010). The findings in this study is similar to that reported by Simpson and Anderson (1981), and Soyibo and Ezeiroma (1987).

Conclusion

From this study science educators need to continue to emphasize and encourage the use of activity based method of instruction in handling some topics, particularly those that are practical in nature. In this method of instruction there is always a need for the use of instructional materials and where there is none, the teacher should improvise to make presentation more interesting. This study also indicated that lecture method is responsible for poor academic performance in examinations.

Recommendations

On the basis of the findings, the following recommendations are offered:

1. As it appears that many teachers do not comply with the governments recommended practice, efforts should be made through the quality assurance unit to sanction the affected staff.
2. Government should endeavor to provide adequate instructional materials to schools for the teacher use.
3. Government should try to employ only qualified, committed and well trained teachers otherwise those who enter teaching as a stepping stone are not helping the situation.

References

- Bajah, S. T. (1983). *Teaching Integrated Science Creativity*. Ibadan University Press.
- Federal Republic of Nigeria. (2004). *National Policy on Education*. (Revised Edition), Lagos. NERDC Press.
- Hadzigeorgiour, Y. Forkiab, P. and Kabouropoulous, H. (2012). Thinking about creativity in Science Education. *Creativity Education*, 3(5), 603 – 611.
- Ibrahim, A. I. (2014). Use of Orientation Exercise towards Effective Teaching Practice Supervision in Teacher Education Programme. *American Journal of Education*, 2(9), 840 -849.

- Nwagbo, C. R. (2005). *Attainment of Professionalism in Science Education: Competencies and Skills among SSI Biology students in Enugu State Unpublished Ph.D, Thesis, University of Nigeria, Nsukka.*
- Nwachukwze, J.N and Nwosu, A. N (2007). Effects of Demonstration method on different levels of student cognitive achievement in Senior Secondary School Biology. *Journal of Science Teachers Association of Nigeria, 42(1&2), 43 –50.*
- Omolewa, A. (1977). Some earliest problems of science education in Nigeria. *Journal of Science Teachers Association of Nigeria, 15(3), 72 -92*