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COMPARATIVE STUDY OF THE INFLUENCE OF LECTURE AND DEMONSTRATION METHODS ON THE TEACHING OF AGRICULTURAL SCIENCE IN SENIOR SECONDARY SCHOOLS IN BENDE LOCAL GOVERNMENT AREA

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Abstract

Teaching methods are teacher's skills and manipulations on the subject matter and the desired responses from the learner. With the

application of effective method, the teaching of agricultural science will be facilitated. The study compared the influence of lecture method and demonstration method on the teaching of agricultural science. One research question and one null hypothesis guided the study. The design of the study was descriptive survey design. 266 senior secondary school students from 6 schools in Bende Local Government Area formed the sample. A questionnaire structured by the researchers on 4 point response scale was used for data collection. The reliability of the instrument was calculated to be 0.60 using Cronbach alpha. Mean ratings were used in answering the research question while correlation was used to analyse the null hypothesis at $P < 0.05$ level of significance. The findings revealed that demonstration is one of the best methods used in the teaching of agricultural science in senior secondary schools. The findings equally revealed that demonstration method exposes students more to all the practicals in agriculture and equally enhances understanding. Based on the findings, recommendations were made among which are that government should ensure that all the practical facilities, machineries and tools needed for the teaching of agricultural science are provided in schools. Student teachers should be employed in schools.

Introduction

Education is the springboard to socio-economic growth and development of every nation. It is a weapon for combating ignorance, poverty and disease, as a bridge between confusion and comprehension, as a dam for conserving man's store of civilization and for generating the power to move to greater civilization, as a rocket for transporting man from a state of intellectual subservience to state of intellectual sovereignty. According to Fatum (2004), education is the aggregate of all the process by which a child or young adult develop the ability, attitude and other forms of behaviour which are of positive value to the society in which he lives. It is the methodic transference of civilization values to someone who hasn't yet know them or properly has comprehensive and understood these values.

Teaching is the action of a person (teacher) imparting skills, knowledge or giving instruction, or the job of a person who teaches. It is the process of guidance by which the learner is made to grasp ideas and facts and develop skills (Ukeje 1998). Teaching is the process of developing the cognitive, affective and psychomotor powers of the learner through giving the learner knowledge of facts about subject matter; reinforcing or developing positive attitude in the learner and also developing in the learner certain physical or manipulative skills.

The concept of teaching method is derived from teaching approach and it is procedural. Teaching method is the series of actions or activities planned by the teacher and systematically provided to the learner to enable him receive and process the information; retain and recall it in order to be able to use it to tackle emerging life tasks and problems. It is the overall procedure in which the process of an instruction is organized and executed. Amadi (1992) asserts that teaching method refers to all the things the teacher does in the classroom to enable the learner learn. Teaching method involves the teacher's skills and manipulations on the subject matter and the learning situations in order to secure positive and desired response from the learner, Ugboaja (2008). Teaching methods are not synonymous with teaching approaches rather it is derived from it and that is why it highlights the finer points of the theoretical assumptions underpinning the approach from which it is derived. Otagburuagu (1997) asserts that method is an organized sequence of steps by means information is consistently presented to the learner in line with a given teaching approach. The teaching method employed by the teachers is an attempt to impart knowledge on the learner and that is why Omotosho (1991) sees teaching method as the strategy or plan that outlines the approach that teachers intend to take in order to achieve the desirable objectives. It involves the ways teachers organize and use techniques of subject matter, teaching tools and teaching materials to meet teaching objectives. Fafunwa (1970) in Akinfe, Olofinniyi and Fashiku (2012) said that most untrained teachers point accusing fingers at students when the students are

unable to carry out the expected behaviour at the end of the lesson or examinations rather than on themselves in failing to utilize appropriate and effective teaching methods in teaching the students. Different teaching methods are available to the teacher, to use in communicating ideas, knowledge, skills, and attitudes etc. to the learners in order to achieve the desired objectives of a given lesson but this work is limited to comparing the influence of lecture method and demonstration method of teaching agricultural science.

Lecture method is the oldest teaching method. As used in education, the lecture method refers to the teaching procedure involved in clarification or explanation to the students on some major ideas (Obunadike, 2011). This method lays emphasis on the presentation of contents by the teacher (Gore, 1998). The teacher is more active and students are passive but he also uses questions and answers to keep them attentive in the class. It is used to motivate, clarify, expand and review the information. Domitrovich Cortis and Greenberg (2007) noted that the lecture method is associated with the telling or didactic teaching method. This means that the teacher centred teaching happens in a highly teacher dominated environment (Egbo, 2008). Teachers using the lecture method have very limited concern about student's ideas and reasoning when they prepare their lessons (Olulube, 2006). Thus we can say that when teacher takes the help of a lengthy-short explanation in order to clarify his ideas or some fact that explanation is termed as lecture method. Usually teachers use lecture method because they are accustomed to them (most probably they were lectured at tertiary institutions). Lecture method allows easy control over students (Kirk, 2000). Teacher's actions are more on helping students to develop understanding of subject matter. In other words, the teacher gives more attention to student's cognitive knowledge, and teachers also use assessment as a tool to assign grades. Leichnetz (2006) noted that even where the teacher-students interactions focus on nurturing the development of understanding of concepts and students reasoning about them, the setting tends to be strongly teacher-directed in its nature and in the physical setting and

use of resources. Many secondary school teachers tend to demonstrate this kind of approach to teaching. Researchers, especially in Africa and Asia, see lecture method as a valuable tool for effectively teaching and high student academic performance (Obanya, 2009) in Obunadike (2011). The application of contemporary knowledge and ideas, effective use of appropriate questioning, time management and the arrangement of the classroom, proper curricular development, and the statement of the instructional objective and mastering of subject matter are seen as effective instructional methods (Creemers, 1994). Pedagogy experts like Fafunwa (1991) and Hegarty (2000) believe that instructional competence is needed to do well in the use of the lecture method. They see having quality teachers in schools, districts, states, professional groups, and institution enable, as high-quality teaching and learning is critical to the welfare of the nation's education system and the young people it serves. It leaves us asking if teachers can be trained to provide an enriched environment and teach a curriculum in such a way that every child is challenged to perform far above grade level (Miranda and Landmann, 2011).

The demonstration method demands that the teacher models the correct skill and procedure while the learner observes, at the end of which he (the learner) is asked to imitate what he has observed. According Maduwesi (1999), demonstration is an example of teaching by showing. He went further to say that demonstration method employs sight and touch rather than hearing as the major means of communication. It is an activity which combines telling, showing and doing for the benefit of the students. However, it is a teacher-centred method of teaching because he does the demonstration using his voice, movement of the body, his chalk, drawing and illustrating. But it is the teacher's greatest assets in arriving at fundamental skills and practice in a very short time. It is the basic method for introducing new skills to students and for developing understanding. It is also basic to getting students accept new and better ways of doing something. The demonstration is done by the teacher while the students watch. The teacher does the explanation,

manipulative skills, physical principles and the working of mechanical devices are often more effectively taught by demonstration than by other methods. It is also good in developing and appeal to the sense of vision and also good in creating a desire to emulate the work of the teacher. Demonstration is a method and can also be used as a technique. It is also important to note that demonstration is not synonymous with “experiment”, this is because demonstration is used to enable the learner see an object or the process of doing something while an experiment is carried out to verify a scientific principle or used as a means of observing, measuring and interpreting data in the laboratory, Abdullahi (1990). Demonstration method is used in our language classrooms teaching phonology; in teaching music we use it to demonstrate how to place fingers on the keyboard; in Fine-art we use it to show how to derive secondary colours or produce batik. In Agricultural science, we use it to show how to cut and plant cassava stems or mulch the soil; In Physical and Health Education demonstration is used to show how to throw a javelin, discuss, or perform forward-roll. In using demonstration, the teacher should use simple explanations and explain only those things which are needed to perform the skills competently. He should use diction or language that the students can easily understand and when a technical word is unavoidable, a thorough explanation is necessary. He should not only vary his method of explanation, but speak clearly and distinctively.

Teaching of agricultural science requires the application of effective and efficient method(s), skills and attitude. This is in order to make the learning of agricultural science real and practical for students and to increase students’ interest and participation in agriculture both when still in school and when they must have left school. This is because according to the 6-3-3-4 system of education which senior secondary schools are among. The agricultural curriculum is patterned to embrace learning by-doing. This would enable students to produce food and other agricultural products for themselves and the communities within which they found themselves, (NOUN, AGE 421 Pg-10).

Statement of the problem

Agricultural science has been seen by students as the most boring subject in Nigeria schools. This is why senior secondary school students are seen to be disinterested in registering agricultural science for both internal and external examinations and the performance of those seen to be offering it seems to be very bad. This ugly condition is rooted to how students were taught right from their early stage of studying agricultural science and this may be as a result of the teachers wrong use of teaching techniques in the teaching off agricultural science; hence the researcher seeks to carry out a comparative study of the influence of lecture method and demonstration method of teaching agricultural science in senior secondary schools in Bende Local Government Area of Abia State.

Purpose of the study

The major purpose of the study is to compare the influence of lecture and demonstration methods of teaching agricultural science.

Specifically, the study seeks to;

1. Examine the difference between lecture method and demonstration method of teaching agricultural science in senior secondary schools.

Research question

1. What is the difference between lecture method and demonstration method of teaching agricultural science?

Hypothesis

This hypothesis guided the study: There is no significant relationship between lecture method and demonstration method ($P < 0.05$).

Methodology

This study adopted a descriptive survey. The population adopted for this research consists of all students in public or government owned Senior Secondary Schools (S.S.S) in Bende L.G.A. There are twenty

three (23) secondary schools in this LGA which is under Umuahia education zone. The total number of students in S.S.S class in this LGA is one thousand, six hundred and eighty two (1682) Source: State Education Management Board (2013). Multi-stage sampling technique was used to get the sample size.

Firstly, simple random sampling technique was used to select six schools out of the twenty three schools in Bende Local Government Area. Secondly, purposive sampling technique was used to get students who will fill the questionnaires. Therefore the total sample for the study is 266 senior secondary school students. The instrument for data collection was a questionnaire titled comparative study of the Influence of lecture Method and demonstration method (CSILDm). The researcher constructed a questionnaire on the difference between lecture method and demonstration method of teaching agricultural science. The questionnaire is divided into two sections. Section A is information on respondents' demographic data. Section B was on the difference between discussion and demonstration methods of teaching agricultural science. The instrument was given to three experts in Agricultural Education, Psychology and Measurement and Evaluation in MOUAU for face, content and construct's validity. The instrument was pilot tested on 20 respondents (students) from 2 schools in Ikwuano local government area of Abia State and reliability coefficient was 0.60.

A well constructed questionnaire was used to collect data for the study and was administered to the respondents by the researcher but was collected the following day. The questionnaire items were formulated to elicit necessary information from the respondents on the influence of lecture and demonstration methods of teaching agricultural science. A total of 266 questionnaire was distributed in the six various schools, but after the total collection, it was discovered that 243 questionnaires were appropriately filled and returned to the researcher. All the items were structured on a 4 point response scale of strongly agree (SA) 4, Agree (A) 3, Disagree (D) 2, and Strongly disagree (SD) 1

respectively. Any mean score of 2.50 and above was accepted where as mean score below 2.50 was rejected.

Mean was used to analyze research question while correlation was used to analyze hypothesis.

Results

Research Question 1: *What Is the Difference Between lecture and demonstration Methods of Teaching Agricultural Science?*

Table 3: Mean scores of respondents on the difference between lecture method and demonstration method of teaching agricultural science

S/N	ITEM	SA	A	D	SD	Mean	Remark
1	I enjoy when my teacher tells me about agricultural science	19 7.8%	45 18.5%	122 50.2%	57 23.5%	2.11	Disagree
2	Topics taught by my teacher only through talking in the class hardly go out of my memory	31 12.8%	43 17.6%	93 38.3%	76 31.3%	2.12	Disagree
3	I remember what I do with my hands faster than any topic lectured in the class	85 35.0%	155 63.8	2 0.8%	1 0.4%	3.33	Agree
4	From sitting and listening while my teacher teaches, I retain more knowledge than any other method	20 8.2%	44 18.1%	101 41.6%	78 32.1%	2.02	Disagree

5	Lecture topics in agricultural science helped me master the subject than when implements are used	27 11.1%	58 23.9%	99 40.7%	59 24.3%	2.22	Disagree
6	My performance is usually better in test and exams when taught with demonstration method than when taught with lecture method	98 40.3%	123 50.6%	15 6.2%	7 2.9%	3.28	Agree
7	I understand topics taught using demonstration method better than discussion method	117 48.1%	115 45.7%	13 5.3%	2 0.9%	3.39	Agree

Data on table 1 shows that the mean scores on the difference between lecture and demonstration method of teaching agricultural science. Items with 2.50 and above agree with demonstration method while those below 2.50 disagree with lecture method. The table revealed that 3 out of the 7 items used in measuring the difference between lecture and demonstration methods of teaching agricultural science agree with demonstration method with the mean scores of (3.28), (3.33) and (3.39) for item 6, 3 and 7 while 4 out of the 7 items disagreed the lecture method as seen in item 4 (2.02), 1 (2.11), 2 (2.12) and 5 (2.22). From the table, it can be concluded that there is a mean difference between the lecture and demonstration methods of teaching agricultural science since 4 out of the 7 were below the mean cut off 2.50 and 3 out of the 7 items are above the mean cut off of 2.50.

Testing of hypothesis

There is no significant relationship between lecture method and demonstration method ($P < 0.05$).

Table 2: There is no significant relationship between lecture method and demonstration method

Variable	\bar{x}	SD	r	df
Variable A				
Lecture method	2.15	0.872	- .144	1(241)
Variable B				
Demonstration method	3.31	0.630		

Significant at 0.05, N=243.

Data on table 2 shows the relationship between lecture method and demonstration method on students' performance in agricultural science. The relation is negative and significant at ($r = -.144$; $P < 0.05$). This means that as lecture method is not improving performance, demonstration method is improving performance of students. Hence, the hypothesis is rejected. This is because it can be seen from the table above that the mean responses of students on lecture method is below 2.50 (2.15) which shows that lecture method does not improve performance of students in agricultural science while demonstration method improves students' performance in agricultural science, since the mean response of student is 3.31 and it is above 2.50.

Summary of findings

1. There is a difference between lecture and demonstration methods of teaching agricultural science because from table (1), it was seen that students that agreed with demonstration method are greater than students that disagreed with demonstration method.

2. There was no existing relationship between lecture method and demonstration method. This is because as lecture method is (2.15) which is below 2.50, demonstration method is (3.31) which is above 2.50.

Discussion of findings

Analysis of research question which is: “what is the difference between lecture and demonstration methods of teaching agricultural science? The result from the table 1 shows that there is a difference because as demonstration method is favouring the teaching of agricultural science, lecture method is seen not to be favouring the teaching of agricultural science. This is because demonstration method is very effective in developing , understanding and stimulate thinking and has the ability to improve the psychomotor skills of students in agricultural science . This is in agreement with (Nwachukwu, 2011) were he said that demonstration method involves the use of materials and provides visual experience, which is usually increased in value by verbal explanation. it is characterized by certain level of skills and practical, introducing new skills, developing understand, showing the appropriate ways of doing things, enlist the various senses of a human being and get students convinced of the teachers command of the subject and gives a real life situation of source of study as students acquire skills in real life situation using tools and material. Demonstration method is one of the effective methods applied by teachers in achieving learning in real life situations in which agricultural science is deeply into and this is because it is practically oriented and therefore requires practical interactions and applications with the use of demonstration method.

Finally, the result of findings proved that demonstration being more practical than lecture method is an ideal technique for teaching agricultural science because according to Herwit (2007) leaner’s (students) do best in agricultural science when exposed to practical rather than sitting ,discussing and listening to classroom teachings which lecture method encourages.

The analysis of hypothesis one (1) which is “There is no significant relationship between lecture method and demonstration method on the academic performance of students in agricultural science” proved that lecture method does not improve students’ performance in agricultural science since lecture method according to Kanno (2004) involves the act of giving a long talk to a group of people or students on a particular subject matter or topic within a specific time. This means that Lecture method can be referred to as the technique that involves the teacher in complete verbal instruction or exposition. This is in contrary with the work of Akintola (1990) where he said that agricultural science like other science subjects ought to be followed with effective method of teaching to facilitate learning and acquisition of creative knowledge. Agricultural science being a more practical subject than theory because of its farm dealings need some skills like raking, cutting, cultivating and weeding which mere discussion in the class cannot provide.

According to Kanno (2004), demonstration method involves displays, exhibitions and use of examples during instructional practices. This method emphasized practical, tangible and concrete illustrations during lessons. This is because demonstration method has the qualities of allowing students to practice some activities in the field and be able to make use of simple farm equipments. Demonstration methods from findings have been proved to be effective in improving students’ academic performance in agricultural science. This is because; it is effective in achieving objective learning. Demonstration is equally an instructional method that is very effective in developing, understanding and stimulates thinking and has the ability to sustain the interest of students throughout the lesson and thus, helps in improving student’s academic performance in agricultural science.

Finally, this study shows that lecture method does not improve students’ academic performance in agricultural science when compared with demonstration method while demonstration method does. This is in line with Abah (2006), who opined that skills are best learnt through demonstration/practices than mere sitting and listening

hence; there is a significant difference between lecture method and demonstration method.

Conclusion

Teaching methods deal with teachers' skills and manipulations of the subject matter and the desired responses from the learner. Therefore, whenever a teacher teaches and the learners have not comprehended, then there is a malfunction in the teaching –learning process. Teachers at all levels in education should endeavour to employ effective and efficient teaching methods in the teaching of different subjects or topics. Agricultural science as a more practical subject than theory should always be taught with demonstration method as can be seen from the findings of this study. This is to increase students' interest and participation in agriculture. This is because when students' interest are increased by making the teaching of agricultural science as interesting as it should be, students, when out from school will be seen picking agriculture as a career and even furthering their studies in agriculture. This, in the end, will help save the ugly situation of the agricultural sector in Nigeria today and in turn will increase food availability.

Recommendations

Based on the findings of the study, the following recommendations are made:

- 1) Government should ensure that all the practical facilities, machineries and tools needed for the teaching of agricultural science are provided in schools.
- 2) Ministry of education and curriculum developers/ planners should approve the attachment of more “MARKS” to practicals in the assessment of agricultural science.
- 3) Enough time should be allocated to the teaching of agricultural science in order to accommodate the practical that goes with it.

- 4) Qualified teachers that studied education whom must have had the knowledge of teaching methods should be employed in schools.

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