

Differential Effects of Two Teaching Methods on Students' Achievement in Geography Curriculum in Plateau State, Nigeria

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Abstract - *The study set out to determine the differential effects of using two teaching methods on senior secondary school students' achievement in geography curriculum in Plateau State, Nigeria. Specifically, the study used Discussion and field trip methods to teach "Types and Characteristics of rocks" in geography. Three research questions were posed and answered while one hypothesis was formulated and tested at 0.05 level of significance. It was an experimental study. The findings show that students taught using discussion method had higher means (23.4, 49.16) in their ability to recognize and describe the characteristics of the three types of rocks than the students who were taught using field trip method who had lower means (13.9, 47.6) in their ability to recognize and describe the characteristics of the three types of rocks they were exposed to in the field. Also in determining the extent to which SSI students achievement in geography differ when taught using discussion and field trip methods showed that the mean score of those taught using discussion is higher ($X = 72.6$) than those taught using field trip ($X = 61.2$). Similarly, the hypothesis tested at 0.05 level of significance was rejected in favour of discussion method (t -calculated = 3.37 while t -critical = 1.7).*

Keywords: *Two Teaching Methods, Students' Achievement And Geography Curriculum*

INTRODUCTION

There is no common definition to teaching because different educationists have defined it differently to suit the purpose to which they are using it. However, it can be seen as an art or medium through which ideas, values, concepts are transferred into the learner in order to bring about a positive change in his/her behavior. Mang and Mankilik [1]

define teaching as a process that facilitates learning. On the other hand, Damar [2] views teaching as an organization of curricular and relevant resources, the direction of experience and relevant resource to facilitate learning. The art of teaching lies in creating good learning situations and responding creatively to new situations as they arise. It is however, clear that to successfully relay the experiences effectively, there are mediums to be used, which are the techniques or strategies and sometimes referred to as the methods to be employed for effective teaching and learning processes. Teaching strategies, techniques or methods may be seen as plans formulated to bring about behavioral change in the students. By virtue of teaching it is expected that every experience to be taught requires the use of two or more techniques to appropriately deal with it. Damar [2] describes the different teaching methods among which are discussion, lecture, guided observation, drama, exercise, experiment, demonstration and field trip methods. It is expected that teachers get acquainted with these techniques and use them effectively.

The scope of Geography curriculum as presented in the Nigerian National Curriculum is wide that hardly would teachers cover their syllabus before the students write their final and external examinations. This is seen in the division of Geography into physical, map – reading, regional, and human geography which entail that geography teachers need to employ different teaching methods for effective learning out-come. In respect to this study, discussion and field trip methods are seen to be effective and peculiar to the teaching of Geography in the senior secondary school. This is as a result of the supposed effectiveness of these methods in promoting effective interaction between the teacher and students. Discussion method permits a close interaction

between the teacher and learners such that the learners voice their views, ask questions and are very involved and excited in the interaction. The field trip method brings into focus all the five senses in an experience which promotes meaningful learning. Indeed, learning theories spell out clearly that mere verbal presentation of ideas; concepts as seen in some methods such as the discussion and lecture method may not promote meaningful learning as this only appeal to the sense of hearing. However, effective and meaningful learning is that which brings the five senses into focus. The quality of any teaching strategy is estimated from the total pupils learning outcome with the achievement in tests given as paramount.

In teaching geography at the senior secondary school level in Nigeria as suggested in the national curriculum not all the methods can be suitable or effective in teaching some aspects of Geography lessons. These methods include; demonstration, field trip, experiment, guided observation and discussion methods are effective in the teaching and learning of geography. The geography curriculum has been planned in such a way that the methods of teaching for every subject matter and content listed in the curriculum have been suggested. These methods are deemed to be the most appropriate for the contents that have been drawn. It is expected that teachers adhere to the suggested methods except otherwise established that the developmental changes and differences of the learners, environmental challenges and ability difference do not permit for total adherence. However, teachers do not seem to understand the relevance of using the methods that are most appropriate for selected contents and may not want to deliberately explore on different methods of teaching to discover the most appropriate and suitable for the selected contents and students in question. Rather, they go for methods they are most used to which may seemingly be cheaper in terms of cost and time.

The application of wrong teaching strategies has direct negative bearing on academic achievement and particularly in geography; this has formed part of the problem in the teaching of geographical concepts effectively. It is one thing to have head knowledge of a subject matter and quite another to impart same to another person. This all important socio-academic engineering cannot be effectively done without the appropriate selection and application of teaching methods. It will only imply that a round peg is placed in a rectangular hole which may not yield anything good. All teaching methods are good. However not all

methods apply to all subject matter. For geography which looks at relationships between man and his environment, it requires that apart from classroom discussion, there is the need to look at the physical environment to establish the kind of relationships that exist. Looking at the geography curriculum in use in Nigeria, discussion and field trips tend to take the centre place among the suggested methods of teaching for the contents listed. Although these two methods (Discussion and Field trip) seem to dominate, the researcher went out to find out which among the two most appeal to the students and which among them yields the best result in terms of achievement. The problem of the study therefore was to determine what the differential effects of using these two teaching methods are.

PURPOSE OF THE STUDY

The purpose of the study was to determine the differential effects of using two teaching methods (Discussion versus field trip) in senior secondary school one (SS1) in geography curriculum. Specifically, the research pursued the following objectives:

1. The effects of using discussion method of teaching on SS1 students' achievement in geography.
2. The effects of using field trip method of teaching on SS1 students' achievement in geography.
3. The extent to which SS1 students' achievement in geography differs when taught using Discussion and Field trip methods of teaching.
- 4.

Research Questions

The following research questions were posed and answered:

1. What is the effect of using discussion method of teaching on SS1 students' achievement in geography?
2. What is the effect of using field trip teaching method on SS1 students' achievement in geography?
3. To what extent do SS1 students achievements in geography differ when taught using discussion and field trip methods of teaching?

Hypotheses

Null hypothesis was formulated to guide the study and was tested at 0.05 level of significance:

1. There is no significant difference in SS1 students' achievement in geography between those taught using discussion and field trip methods.

METHODS AND PROCEDURES

The research employed the use of experimental design. Specifically, it was the post – test equivalent group design where equivalence was seen in terms of school owned by the same organization, same number in class, same level of study, same curriculum, similar learning environment, same working condition, same class size and same sex. It involved a face to face contact with the students where the researcher established familiarity and acquaintance with the students through an informal interaction before actual teaching took place personally by the researchers. Two schools were involved and each stood as a treatment.

All senior secondary school one (SS1) students offering Geography in the two schools formed the population for the study. One class in each of the two schools was used for the study. In all two schools and two classes were used. Each class had a total number of 32 students offering Geography as a subject. Purposive sampling technique was used to select the two schools. This was deliberately done because those two schools were discovered to have the same characteristics in terms of level of study, age range, same class size, curriculum, sex, ownership and so same condition of service, and similar learning environments.

The instruments for data collection were the student achievement test (SAT) and observation schedule. The student achievement test sought to find out students ability to recognize the three types of rocks both in the classroom and in the field, and describe the characteristics of the three types of rocks in terms of their texture, structure and colour. The observation schedule was used to determine behavior patterns in a classroom setting and in the field in terms of attention span, excitement, ability to point out their views in discussing and asking and answering questions

These instruments were validated by experts in the field of measurement and evaluation and were further subjected to a reliability test using Cronbach Alpha method which yielded a coefficient of 0.8. Data were collected through the scores obtained from the tests administered to the students after the lesson presentation using discussion in school ‘A’ and the field trip which students in school ‘B’ were exposed to. Criterion levels were set to help in taking decisions on whether to accept or reject an issue. In this study, because of the difference in scoring of the evaluation questions, three criterion means of 18.8, 46.0 and 64.5 were established for ability to recognize types of rock,

describing the characteristics of the types of rocks and finding the extent of difference between the two teaching methods respectively. Mean was therefore used to answer the research questions while student t – test was used to test the hypothesis.

RESULTS

Table 1: Mean score of students taught using Discussion method

Group A	Score	Mean
Ability to recognize	750	23.4
Ability to describe	1573	49.2

Table 1 Show that students taught using discussion method has the following: ability to recognize the three types of rocks has a mean(x) of 23.4; and ability to describe the characteristics of the three types of rocks has a mean (x) of 49.2. The results show that the students taught using discussion method performed above the criterion means. This is an indication that the method has an effect on them since this is reflected in their achievements score

Table 2: Mean score of students taught using field trip

Group B	Score	Mean
Ability to recognize	455	13.9
Ability to describe	1522	47.6

Table 2 Show that students taught using field trip method had the following: ability to recognize the three types of Rocks has mean of 13.9; and Ability to describe the characteristics of the three types of rocks has mean of 47.6. From the results, it shows that the students taught using field trip method performed below the criterion mean in their ability to recognize the three types of rocks while these same students performed slightly above the criterion mean in their ability to describe the characteristics of the three types of rocks.

Table 3: Differential effects of using two teaching method (n=32)

Group	Score	Mean	t-value	t-critical
School A	2324	72.6	3.37*	1.700
School B	1959	61.2		

*df=31; *significant at 0.05*

Table 3 shows that the mean scores of the students ‘A’ and ‘B’ are 72.6 and 61.2 respectively. This implies that with the criterion mean of 64.5, school ‘A’ performed higher than school ‘B’. This is an

indication that the discussion method used on school 'A' has a greater effect than the field trip method used on school 'B'.

Results show that the calculated t-test value of 3.37 and the t-critical of 1.70 at 0.05 level of significance implies that the t-calculated was more than the t-critical, therefore the null hypothesis is rejected and the alternative is accepted. This is an indication that there is a significant difference in SS1 students' achievement in Geography between those taught using discussion and field trip methods respectively.

DISCUSSION

This study set out to find out if the teaching methods selected for use in teaching the selected subjects matter in the Geography curriculum have any effect(s) on the achievement of Senior Secondary School one (SS1) students. To get answers to the questions posed, 2 schools with similar characteristics were used and taught using a different method of teaching each. School 'A' was taught using discussion method while School 'B' was taught using field trip method. In finding out the effect of using discussion method on students' achievement, it was discovered through the test administered to them at the end of the lesson that their performance was good with mean scores of 23.4 and 49.2 (inability to recognize rocks and to describe the characteristics) above the criterion means of 18.4 and 46.0. This shows that the discussion method of teaching is effective. However, students' ability to recognize rocks while in the field was not impressive. Their performance in the test administered to them at the end of the field trip was low with a mean of 13.9 below the criterion mean of 18.4. This is contrary to the researchers' expectation that where all senses are involved in learning, it gives rise to a better understanding of the issue being discussed. The outcome from this field trip may not be far from the fact that the aspect of fun and excitement in the students' experiences at the field was taken above the academic aspect. On the other hand, their ability to describe the types of rocks they observed was better with an average of 47.6 slightly above the criterion mean of 46.0.

In order to find out the extent of difference between the achievements of the two sets of students in using the two methods of teaching, their mean scores were correlated and the difference calculated using the student t-test. The result obtained further confirmed that there is a difference in the achievement

of students in the different methods that teachers use to teach the curricular content of the school subjects.

The national curriculum operational in Nigerian Secondary schools is planned in such a way that it gives room for the use of more than one method of teaching in a given subject matter. Different methods are suggested bearing in mind the individual differences that are found in learners. Consequent to this, teachers have been trained on the use of different methods and they are expected to give trial test on these methods to discover the most appropriate for the given contents. Unfortunately, it is discovered that some teachers do not adhere to the methods suggested by the national curriculum. They rather go for methods that appeal to them without taking into consideration the nature of the learner. For instance, in a study carried out by Nuwana [4] on teaching methods used by teachers in geography, it was discovered that out of the total of 100 teachers sampled for the study, 70% were found not to be adhering to the teaching methods suggested in the national curriculum. This implies that teachers show nonchalant attitudes towards meeting learners' needs. Moreover it is the interest and the needs of the learners that should cause a teacher to want to put in an effort in discovering the individual differences of the learners' so as to use the methods of teaching that best meet such needs.

This study has further revealed that to teach this topic "Types and characteristics of rocks" in the Nigerian national curriculum, the discussion method may give the best result than the field trip [5]. However, such discussions should always be accompanied with relevant teaching materials like rock samples and charts of the processes of the formation of the rocks, as were used in this study. However, it is not to suggest that field trip is not a good method of teaching. Contrary to that, the researchers wish to categorically reiterate that field trip method from human point of view is suppose to be the most appropriate for teaching particularly the physical aspect of geography because it appeals to all senses. To confirm the researchers feelings and expectations, Dagwan [3] had undertaken a research on the comparison of 2 teaching methods (lecture vs field trip) and discovered that field trip works best for teaching geography. Dagwan [3] however went further to note that the fun of going for field trips makes students excited, making them to forget the academic aspect. This same assertion is what the present research has observed and noted, and may be the likely reason for the students taught and examined

using the field trip method getting a lower score average compared to those taught using discussion method. Also, Damar [2] had emphasized the need for geography teachers to use the field trip method of teaching because according to her, what the students see physically can hardly be forgotten and particularly when the field trip is properly organized, it reduces the boredom of sitting every day in class and on the same seat to receive lessons.

CONCLUSION AND RECOMMENDATION

The study was undertaken to determine the differential effects of using two teaching methods on secondary school one (SS1) students' achievement in geography. The results obtained show that the discussion method of teaching had a greater effect on students' achievement on the topic "Types and characteristics of rocks" in geography than the field trip method of teaching on the same topic. The hypothesis that was tested also confirms this assertion that there is a difference between the achievement of students taught with discussion method and those taught with field trip method in favour of those taught with discussion method. The observation schedule also shows that students taught using discussion method have a higher attention span, are excited, more involved in discussing the subject matter and asked and answered a lot of questions on the characteristics of the three types of rocks [6]. On the other hand, students taught using field trip had less attention span, were captivated and excited in features other than the specific ones they went out for and most of the questions they asked were not relevant to the topic under consideration, though geographically important. From the foregoing, it is recommended that discussion method is good for teaching "Types of rocks and characteristics of rocks" and particularly when the rock samples are presented in the classroom to draw their attention, increase their excitement and get them engaged in the discussion, answering and asking questions. However, if it becomes necessary that field trip is used, there should be more than one teacher to sustain the students' attention span, interest, excitement, ability to discuss, ask and answer questions.

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