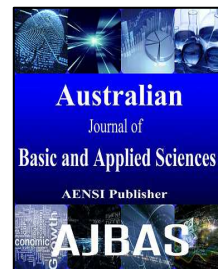




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### The Influence of Field Trips on Students' Performance in Biology: Educational and Counselling Implications in Nigeria.

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#### ABSTRACT

**Background:** The decline in academic performance of students in biology over the years had been a source of concern to teachers, parents, educators and the general public. Thus, there is need for studies to investigate variables that could be responsible for the academic performance of students in Biology.

**Objective:** To investigate the influence of field trips on students' performance in biology.

**Methodology:** The population for the study is comprised of all senior secondary school 11 biology students from six mixed schools and biology teachers out of which 400 respondents were randomly selected comprising 390 students and 10 teachers from six selected schools that was used as sample for the study. The instrument for data collection was 21 items questionnaire. Simple random sampling technique was used for the study. The data collected were analyzed using mean and standard deviation for answering the research questions while t-test was employed to test the null hypothesis at 0.05 levels of significance.

**Results:** The major findings of the study were that in most cases, some schools do not go for field trips throughout a session; that to a high extent, field trips help students to carry out practical works in biology. It also revealed that to a high extent field trip helps students to develop the ability of obligation and this significantly enhances their academic performance in biology. Also, poor planning and organization, financial constraints, lack of adequate communication, lack of time and problem of accident were factors identified as militating against effective use of field trips.

**Conclusion:** Based on the findings, the researchers recommended among others, that the schools should compulsorily adopt field trip as one of the integral programmes of activities by incorporating the field trip in the timetable of academic programme, and that school counsellors should ensure that students are giving adequate preparation before embarking on field trips.

#### INTRODUCTION

The decline in academic performance of students in biology over the years had been a source of concern to teachers, parents, educators and the general public. There have also been debates among researchers over which variables influence student's academic performance. In spite of the efforts made in teaching to enhance

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student's academic performance in Biology, it appears that this condition gets deteriorating as their academic performance continues to dwindle. The available records of the result from WAEC 2010-2015 showed a drastic decline in student overall performance in Nigeria.

In view of the rate at which students' performance in biology continue to decline in Nsukka education zone, one may ask what is likely the factors precipitating it, or could it be due to teachers' persistent use of lecture methods, and other conventional methods which does not enhance students' academic performance especially the problem-solving skills. Justifying the above assumption, Aghenti (1982), and Ndinze(1984) stated that most secondary school biology teachers still hold unto the old lecture method of teaching, and do not buttress this with the visual aids, field trips and improvisation of materials- from students' environment. Hence, poor performance of students has remained persistently high especially in biology and science related courses.

The word science has been defined in several perspectives and dimensions by several scholars. According to Emovon (1983), science is defined as a body of knowledge, which is acquired through observation and systematic experimentation. Thus, science is the study, which examines, using experimentations, the nature of the environment, with the purpose of exploring its potentials for the benefits of man with regards to biology.

Biology is the science of life or living matter in all its forms and phenomena, especially with reference to origin, growth, reproduction, structure, and behaviour (Onyeka, 2005). The author reiterated that biological sciences, as the name implies, is a group of sciences, rather than a single science. According to Decker (2011), Biology is a natural science that is concerned with the study of life and living organism, including their structure, function, growth, evolution, distribution, and taxonomy. Modern biology is a vast and eclectic field, composed of many branches and sub disciplines.

In corroboration with the above assertion, Offsted, (2008) postulated that when planned and implemented well, learning outside the classroom contributed significantly to raising standards and improving student's personnel, social and emotional development. In fact, Fry (2009) admitted that taking students outside the comfort of the classroom can be a daunting step for some teachers, but reiterated strongly that field trips provide unique opportunities to apply learning to the real world. Contextually, Field trip in biology is all about teaching and learning biology outside the classroom. Field trip in biology can also be called "outdoor biology. It is also viewed as fieldwork. Therefore, field trips involve the learner travelling out or moving out of classroom situation, to see things in their nature (real forms) which is very important. Highlighting the importance of field trip, Aggarwal (2008) opined that field trips help in enriching, vitalizing and complementing content areas of the curriculum by means of first hand observation and direct experience outside the classroom. Justifying the above assertion, Aanila (2011) stated that educational field trips give students the opportunity to have first-hand experiences and to explore their world. It helps students to interact with what they are learning. It also allows for practical experiences, students are able to see things, manipulate it or participate in it physically.

In view of the above, academic performance or achievement manifests itself in what one can do after a given academic programme thus; effective teachers' attribute could enhance academic performance which represents a bench mark test for the capabilities, efficiency and accuracy of the degree of attainment of student in academic task hence the need to investigate the effects of field trips on students' performance in biology. To this end, the purpose of the present study is to investigate the influence of field trips on students' performance in biology. Specially, the study sought to: find out the extent to which teachers use field trips in the teaching of biology; determine the factors that militate against the use of field trips in the teaching and learning of biology and determine how field trip can improve students' academic performance in Biology.

### ***1. Methodology:***

#### ***Design of the study:***

The study adopted a descriptive survey research design. According to Nworgu (2006), it is a study which aims at collecting data and describing in a systematic manner the characteristic futures or facts about a given population. The rationale for using this design is informed by the fact that it would enable the researchers to identify the characteristics of the population. It is therefore considered appropriate for the study.

#### ***1.1 Area of the Study:***

The study was carried out in Nsukka Education Zone. This zone comprises of three LGAs namely Uzo-Uwani, Igbo-Etiti and Nsukka, six mixed secondary schools in Nsukka Local Government area was used for the study. Nsukka Educaton Zone is bounded in the North by Igbo-Eze south LGA, in the south by Udi LGA, in the West by Udenu LGA and in the East by Kogi State.

#### ***1.2 Sample and Sampling Techniques:***

A sample size of 400 SSII biology students in mixed schools in Nsukka Local Government Area representing 20% of the target population was drawn comprising students using simple random sampling technique. 43 students were drawn from the first school, 38 students from the second school, 38 students from the third school, 43 students from the fourth school, 40 students from the fifth school and 40 students from the

sixth school and 10 teachers 1-2 from each school making a total of 400 respondents. The rationale for using simple random sampling technique was to give all schools equal chance of being selected. This sample size was appropriate for the study as recommended by Ali, (2006) for a population of few hundreds.

### 1.3 Instrument:

Researchers' developed instrument was used for data collection titled Effect of Field Trip on Student's performance in Biology Questionnaire (EFTSPBQ). It was constructed on four points rating scale by the researchers and the data collected was analyzed using mean scores and standard deviation to answer research the questions. A mean of 2.50 was accepted while any mean less than 2.50 were rejected.

## 2. Results:

### Research question 1:

#### *The extent to which teachers make use of field trip in teaching biology:*

Table 1: Mean ratings of the students on extent to which teachers make use of field trip in teaching biology.

S/N		$\bar{X}$ Mean	SD	Dec
1	The schools always undertake field trip every term.	2.15	.87	LE
2	The schools usually undertake field trip once in a session.	3.32	.77	HE
3	The schools in most cases do not go to field trip throughout a session.	2.23	.67	LE
4	The schools do not undertake field trip at all.	2.13	.59	LE
		1.00	.20	VLE
		2.46	.73	A

VHE= Very High Extent, HE= High Extent, LE=Low Extent, VLE=Very Low Extent, X=Mean, SD=Standard Deviation.

The data in table 1 above indicated that the respondents to low extent responded to items 1,3,4 and which rated as 2.15, 2.23 and 2.13 with standard deviations of .87, .67, .59 indicating that to a low extent teachers make used of field trip in teaching biology. Also the respondents to a high extent agreed to item 2 which rated as 3.32 with standard deviation of .77 indicating to a high extent the schools usually undertake field trip once in a session.

The results from the above table are indicative of the fact that the respondents are of the opinion that all the statements in the above analyzed table except item 2 are to low extent to which teachers make use of field trip in teaching biology with an overall mean value of ( $x = 2.46$ ,  $SD = .73$ ).

There is no significant difference between the mean rating of students taught with lecture method and those taught with field trip method.

Table 2: Summary of t-test analysis on the mean rating of the respondents on the students taught with lecture method and those taught with field trip method.

X	Std	T	Df	Sig. (tallied)	Decision
3.15	.49	.475	347	.50	NS

Table 2: above indicated that at 0.05 level of significance that there is no significant difference in the mean ratings of the students taught with lecture method and those taught with field trip method ( $x = 3.15$ ,  $SD = .49$ ),  $t(347) = .48$ ,  $p = .50$ . Therefore, the hypothesis which stated that there is no significant difference between the mean rating of students taught with lecture method and those taught with field trip method is upheld.

### Research question 2: What are the factors that militate against the effective use of field trips in teaching biology?:

Table 3: Mean ratings of the students on the factors that militate against the effective use of field trips in teaching biology.

S/N		$\bar{X}$ Mean	SD	DEC
5	Financial constraints mostly prevents some students from participating in field trip	4.08	.69	SA
6	There is no time allocated to excursion in the school programs of activities	3.42	.86	A
7	Lack of a school bus often prevents students from having effective field trip	2.50	.78	A
8	Poor Planning and organization always prevent us from having effective field trip	2.67	.45	A
9	The parents do not allow their children to go on field trip.	2.58	.57	A
10	Large number of students prevents the effectiveness of field trip	2.83	.92	A
11	Teachers' carried progression does not include field work	2.42	.63	D
12	Communication problems always hinder effective field trip	2.33	.28	D
13	The uncooperative attitudes of the authorities of sites to visit make field trip	2.92	.78	A

	ineffective.			
14	We are afraid of accident during field trips.	2.75	.57	A
15	Our school location do not offer us opportunity to go on field trip	2.17	.47	D
Grand Mean		2.73	.64	A

SA= Strongly Agree, A= Agree, D=Disagree, SD=strongly Disagree, X=Mean, SD=Standard Deviation.

The data in table 2 above indicated that the respondents agreed to items 5, 6, 7, 9, 10, 13 and 14 which rated as 4.08, 3.42, 2.50, 2.58, 2.83, 2.92 and 2.75 with standard deviations of .69, .86, .78, .57, .92, .78 and .57 as the factors that militate against the effective use of field trips in teaching biology. Of significance are item 5 ( $x=4.08$ ,  $SD=.69$ ) and item 6 ( $x=3.42$ ,  $SD=.86$ ) indicating that financial constraints mostly prevents some students from participating in field trip and there is no time allocated to exuconstituted the factors that militate against the effective use of field trips in teaching biology.

The results from the above table are indicative of the fact that the respondents are of the rsion in the school programs of activities and these mostly opinion that the statements in the items 5, 6, 7, 9, 10, 13 and 14 were the factors that militate against the effective use of field trips in teaching biology while items 8, 11 and 13, 12 and 15 were not with an overall mean value of ( $x= 2.73$ ,  $SD=.64$ ).

### Research question 3: To what extent does field trip improve students' academic performance in Biology?:

**Table 4:** The mean response of students on the extent to which field trip improve their academic performance in biology.

S/N		X	Mean	SD	Dec
16	During field trip, I learnt how to explore independently and this increases my academic performance in biology.	3.95		.78	HE
17	Field trip helps me to carry out practical works in biology.	3.65		.79	HE
18	I learn at ease while n field trip activities.	3.19		.55	HE
19	Field trip gives me the opportunity to have first-hand experiences and to explore my world.	3.81		.73	HE
20	Field trip helps me to develop the ability of obligation and this enhances my academic performance in biology	3.50		.92	HE
21	Field trip in biology studies enables me to observe the natural phenomenon in the subject.	3.72		.82	HE
Grand Mean		3.64		.77	HE

VHE= Very High Extent, HE= High Extent, LE=Low Extent, VLE=Very Low Extent, X=Mean, SD=Standard Deviation.

The data in table 3 above indicated that the respondents to a high extent responded to all the items 16, 17, 18, 19, 20 and 21 which rated as 3.95, 3.65, 3.19, 3.81, 3.50 and 3.72 with standard deviations of .78, .79, .19, .73, .92 and .82 as the extent to which field trip improve students' academic performance in Biology. Of significance are items 16, 19 and 21 which rated as ( $x=3.95$ ,  $SD=.78$ ), ( $x=3.81$ ,  $SD=.73$ ), and ( $x=3.72$ ,  $SD=.82$ ) indicating that during field trip, I learnt how to explore independently and this increases my academic performance, field trip gives me the opportunity to have first-hand experiences and to explore my world and field trip in biology studies enables me to observe the natural phenomenon in the subject are to a high extent improve students' academic performance in Biology. The results from the above table shows that the respondents are of the opinion that all the statements in the above analyzed table are the extent to which field trip improve students' academic performance in Biology with an overall mean value of ( $x= 3.64$ ,  $SD=.77$ ).

### Discussion:

The findings showed that out of the 4 items presented to determine the extent to which teachers make use of field trip in teaching biology, 3 showed that to low extent teachers make use of field trip in teaching biology among which one of the items was that the schools do not undertake field trip at all. The above findings are inconsonance with the assertion of teaching Aghenti (1982) and Ndinze (1984)) who stated that most secondary school biology teachers still hold the old lecture method and do not buttress this with the visual aids, field trips and improvisation of material, from students' environment. It also agreed with the findings of Nnadozie (1995) who reported that the most commonly used methods in the teaching of biology in most of the schools are: the lecture method, homework, demonstration, and sometimes laboratory method. The findings is also in concert with the view of fisher (2001) who demonstrated that was 63% decline in the application of field trips methods in the teaching and learning of biology as a result of much focus on conventional methods of teaching.

The findings also indicated that out of the 11 items presented as the factors that militate against the effective use of field trips in teaching biology, 7 were the factors that militate against the effective use of field trips in teaching biology. The findings are in consonance with the assertion of Nwankwo (2006) who stated that the

factors militating against effective use of field trip in teaching include time; fear of road accident and lack of proper preparation among others. It also agreed with the postulation of Darko, Ansah, Yuan & Liu (2015) who stated that the major challenges facing the use of field trip in teaching and learning of biology and other practical subjects such as agricultural science, chemistry and physics among others include frequent use of lecture method in teaching, large class size and poor remuneration of teachers. Others include inadequate teaching and learning materials and their availability, difficulty in planning field trips as well as laziness and truancy on the part of teachers.

The 6 items presented to determine the extent field trip improves students' academic performance in Biology, all were to a high extent improve students' academic performance in Biology. These findings are in conjunction with the postulation of Aggarwal (2008) who opined that field trips help in enriching, vitalizing and complementing content areas of the curriculum by means of first hand observation and direct experience outside the classroom. The findings were also in line with assertion of Aanila (2011) who stated that educational field trips give students the opportunity to have first-hand experiences and to explore their world. It helps students to interact with what they are learning.

### **Conclusion:**

Based on the research findings, the following conclusions were drawn:

The findings showed that to low extent teachers make use of field trip in teaching biology among which one of the items was that the schools do not undertake field trip at all. Financial, constraints mostly prevent some students from participating in field trip lack of a school bus often prevents students from having effective field trip. The findings of this study also indicated that to high extent field trips help students to carry out practical works in biology. It revealed that to a high extent field trip helps students to develop the ability of obligation and this significantly enhances their academic performance in biology. Lecture or conventional methods cannot be used to motivate students to explore independently to have first hand information on a certain phenomenon therefore the need to encompass field trip method to enhance student academic performance in Biology.

### **5. Educational and Counselling Implications:**

The following recommendations were made based on the findings:

- Educational curriculum planners should incorporate field trip in biology scheme work. This will enable the schools and especially the teachers to organize and execute field trip teaching method in order to help the students learn and observe the natural phenomenon of certain biological principles.
- Government and Nongovernmental organizations should assist in providing training in field work to acquaint teachers with the required requisite skills for efficiency, in organizing and executing of field trip particularly biology specialist.
- Schools counsellors and teachers should always ensure adequate security and safety of the students when planning and before embarking on a field trip. This could be done to prevent accident.
- The school should always maintain cordial relationship with the community to ensure the support and acceptance of the schools during their visit; they can do this by allowing the community to make use of facilities in the school, like halls chairs, pipe borne water, etc.
- The field trip planning should be made a joint effort project between the teachers and the school authorities, together with other interested bodies. It should be left for the biology teacher alone.
- To meet with financial problem, it is recommended that the government and parents' teachers association (PTA) should provide the school with buses and money for undertaking field trips.
- Counsellors should prepare the students for field trips to ensure maximum results.

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