COMPARATIVE EFFECTIVENESS OF TEACHING ENVIRONMENTAL EDUCATION COURSES THROUGH FIELD TRIP METHOD IN HIGHER INSTITUTIONS.

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Abstract

This study purposed to compare the relative effectiveness of teaching Environmental Education courses through field trip method to higher institution students. The quasi-experimental research design was adopted for the study. Data was obtained from undergraduate students of Environmental Education of the University of Calabar. The census sampling technique was used to obtain data from the entire 107 fourth year students in the Department of Environmental Education. The students were administered a Pre-test on the course "Introduction to Ecology" one week before they were taken on a field trip to three locations within the state (the Agbokim waterfalls, The Drill Ranch at Butatong and Ranch Resort in Obanliku). Upon return, the students sat for a Post-test on the same course. Data obtained were subjected to descriptive statistics and the paired sample t-test statistical technique. It was found out that, students mean performance differed and increased in favour of the post-test scores. It means that student's performance increased when taught Environmental Education courses using Field trip method. It was recommended among others that EE courses should be taught using more of field trip method where students were exposed first hand to environmental phenomena as this increased their interaction with the environment, increased retention of learned phenomena and made the teaching/learning process practical.

Key words: classroom, jungle, field trip method, effectiveness, academic achievements, higher Institutions.

Introduction and Background

Curriculum implementation is the most important aspect of the curriculum process; it is at this stage that the teacher interacts with students through direct or indirect contacts to expose the learners to the content of the curriculum gleaned from the syllabus. Teaching and learning take place at this stage. Ambe and Agbor (2014) noted that "the curriculum implies all desirable and

positive experiences available to a learner while undergoing an instructional programme." A major strategy for achieving the attitudinal change objective of Environmental Education is the dissemination of relevant environmental information to the appropriate people at the appropriate place and time.

It has been observed that most higher institutions no longer accord priority attention to excursion and field trip method in the teaching learning process, and this could account for the performance of the students in field-based subjects like Environmental Education, Geography, Ecology, Botany, zoology amongst others. Motivated by the forgoing, these researchers decided to undertake this study to evaluate students' academic performance before and after a comprehensive field trip method of teaching. This study purposed to compare the relative effectiveness of teaching Environmental Education courses through field trip method to higher institution students. The results of the study may be relevant to teachers of Environmental Education in Higher institutions and at the lower levels.

The research adopted a quasi-experimental design and answered the broad question: will the mean pre-test and post –test scores of Environmental Education Students differ significantly after their participation in a field trip study?

Literature Review

Field Trip method for teaching Environmental Education courses.

Excursion or the field trip method is a direct instructional strategy geared towards experiential learning. This method of teaching takes places out of the classroom. Most nations classify Environmental Education as "Outdoor Education" or "Experiential Education" and before now "Nature Study". This nomenclature best describes EE through this method of teaching. The field trip method of teaching models after the constructivist approach in which the teacher according to Izuagba, Afurobi and Ifegbo (2016), Ambe, (2018), Emmanue and Ambe, (2014) "is no longer the fount of knowledge from which the learners draw from". In the constructivist strategy, the students are encouraged to be actively involved in their own learning with the teacher assuming the role of a facilitator.

Ofoegbu (2009) regards field trip as an outdoor laboratory; and defines it as "learning experience carried out by teachers and students to places where knowledge can be acquired from community resources". The Authors stressed further that, in order to learn from natural environments especially in nature-based subjects like Biology, Environmental Education, Geography and Ecology, students' can be taken to ponds, streams, grasslands, forests, mountains among other naturally occurring places. Other outdoor laboratories are museums, factories, technical workshops, mines, quarries, mills etc.

It can be combined with a variety of other teaching methods like virtual instruction (Ephraim, Ambe, Udumo, Onnoghen, Egbonyi, Omoogun, ... & Okon, (2022) for maximum effect. It can be both an instructional material and method. Behrendt and Franklin (2014) argued that "Experiential learning at formal and informal field trip venues increases student interest, knowledge, and motivation."

Mahgoub and Alawad (2014) studied the Impact of Field Trips on Students' Creative Thinking and Practices in Arts Education. They sampled 60 students in two classes of 30 each. The researcher took the experimental group, the first 30 students to a field trip (experimental group) and left out the second group (control group). Both cases were given Art works and supplementary materials. The students were individually given a task that was marked over 10 marks. A comparison of students' marks achieved with experimental and control group test revealed that the experimental group performed significantly higher than the control group on the task's criteria.

In another study, Nwankwo (2020) studied the effects of physical and virtual field trip methods of instruction on students' social studies performance using a 4x3 pre-test, a post test and a quasi-experimental design with a sample of 130 junior secondary school students. Data collected were analyzed using the mean and standard deviation for the research questions. Hypotheses were tested using Analysis of Covariance (ANCOVA) and Analysis of Variance (ANOVA) at 0.05 level of significance. The findings revealed that virtual field trip as well as physical field trip had significant effects on the academic achievement of the students in social studies. There was a significant difference in the post-test mean scores of students taught with lecture method and those taught with virtual field trip in favour of those taught using virtual field trip. It was recommended that teachers of social studies should make use of the field trip method in teaching to improve assimilation.

Kipkoech (2021) investigated use of Field Trip method in History and Government instruction in Secondary Schools in Kenya. A sample of 15 schools and 300 form three History and Government students were selected for the study. Data was obtained using a questionnaire and analyzed using descriptive statistics. The study revealed that most teachers and students did not use the field trip method, though their views were that the use of the field trip method had more benefits than the teacher-centred methods which they always use.

Benefits of field trip to the EE lesson

Field trip, excursion, or outdoor laboratories provide the most realistic opportunities to study natural phenomena. Ofoegbu (2009) posited that, field trip enables the learners to gain firsthand information and to see, touch and feel what they have heard, it affords valuable opportunities for learners to develop interest in some careers especially Environmental Education.

Johnston, Dawson, Childs and Maher (2014) in their study of how participants report being affected by a trip to the Antarctic Peninsula, in terms of later decisions regarding learning,

professional lives, and environmental behavior found out that "influences noted by respondents include effects on choices made in relation to academic pursuits and career paths, as well as development of their environmental values through increased awareness of tourism impacts, Antarctic region sustainability issues, and global issues such as climate change".

Field trip also arouse student's interests and has effect on their motivation to learn new concepts. The Ofoegbu (2009) further notes that field trip makes students much more imaginative and inquisitive observers as well as creates opportunities for students-experts interaction which concretizes learning. This method of teaching gives learners the opportunity to interact with the environment directly, it presents a different view to schooling since it takes both the teacher and the learners away from the normal classroom routine.

Farmer, Knapp and Benton (2010) examined the long-term effects of an environmental education school field trip on fourth grade elementary students who visited Great Smoky Mountains National Park. The result shows "that one year after the experience, many students remembered what they had seen and heard and had developed a perceived pro-environmental attitude". Behrendt and Franklin (2014) averred that "for students who are academically challenged or described as 'at risk' due to low performance on high-stakes tests or performance in the classroom' the field trip method is the best to provide a potential impact to students' cognitive skills, knowledge, interests, and future career.

Planning and executing a successful field trip in EE

The best strategy for this method is to brief the learners of the kind of environment they are about to take a field trip to and guide them on what to look out for; approvals from the institution and destinations should be sought. The teacher does his advance work on the topic and the proposed environment. Ofogbu (2009) posits that in planning for the field trip, the teacher should: set objectives for the trip, explain to the students where there are going, the objective of the trip and pay a pre-visit to the site to analyze the location and obtain copies of descriptive materials.

The Teacher needs to seek his school's management approval, take the learners to the chosen environment and allows them the opportunity to study the environment based on the guide provided by the teacher, they make notes and ask questions where necessary. It is important to brief the learners on expected outcomes at the place of the field trip. The teacher must plan for transportation, time schedule, finances, accommodation, feeding and unexpected illness, emergencies etc. He needs to share out other responsibilities like photography, sketching, tape recording among others.

In some well-organized tourist attractions or even in local communities, tour guides or even locals with indigenous knowledge of the environment in question are contacted to guide the learners in the field. On the post field trip activities, upon return, students are expected to write

and present a report of their field trip or excursion to the Teacher or the Supervisor of the field trip. There is room for class discussion and evaluation of the field trip by both the students and the teachers based on the stated objectives.

Field trip Report could make use of the following checklist:

1. Field trip destination: **2. Date of trip:** **3. Duration:** **4. Course/subject:** 5. **Nature of location:** Urban, Rural, Nature Reserve, Natural Ecosystem, Factory etc. Ecosystem types: Grassland, Desert, Forest, Aquatic Ecosystems, Wetlands, Mountain. **6. Weather Conditions:** 7. **Topography**:	8. **Land Use**: Agricultural, Reserved, Grazing, Forest Reserve, Residential, mixed use. 9. **Threats to Ecosystems Observed**: Records of wildlife spotted: name, description, mode of feeding, mode of breeding, habitat etc. 10. **IUCN status**: extinct, endangered, critically endangered, Threatened, Rare, Peripheral, and Abundant. 11. **Other Remarks**: **12. Pictures:**

Limitations of field trips in EE lessons

The field trip/excursion method is not just costly and expensive, but it is also time consuming and requires a lot of bureaucracies to execute. There is also the on-the-road risk factors as most field trips have resulted to untold disasters and hardships. The students may become engrossed with the trip and loss sight of the instructional objectives of the trip. Field trip might be cumbersome and difficult to control if the student population is high.

Research Hypothesis

The mean pre-test and post –test scores of Environmental Education Students will not differ significantly after their participation in a field trip study.

Methodology

The quasi-experimental research design is adopted for this study. The study area is the University of Calabar, Nigeria. The 2021/2022 fourth year students of the Department of Environmental Education, University of Calabar were purposively sampled for the study. The sample frame was 107 students. The students were administered a Pre-test on the course "Introduction to Ecology" one week before they were taken on a field trip to three locations within the state (the Agbokim waterfalls, The Drill Ranch at Butatong and Ranch Resort in Obanliku). The trip lasted for four days. Upon return, the students sat for a Post-test on the same course.

The pre-test was an aptitude test on Introduction to Ecology which was administered to the entire class of 107 students in the fourth-year class a week before the field trip. Upon return

from field trip, an achievement test (post-test) was administered to the same set of students. Twenty Aptitude test questions and twenty Environmental Education Achievement test questions were the instrument used for data analysis. Each of the tests was a mixture of subjective and multiple choice objective items test with 4 response options (a-b). Each item was scored 1, the maximum score each student could possibly score was 20.

Results and discussions

The research hypothesis which states that the mean pre-test and post –test scores of Environmental Education Students will not differ significantly after their participation in a field trip study. This hypothesis was tested using the statistical package for social sciences (SPSS). Data obtained were analyzed to obtain the mean, standard deviation and the oaired sample t-test. The results are as presented below:

Table 1: Paired Samples Statistics

	Variables	Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pretest	3.3271	107	.89838	.08685
	post-test	12.7664	107	2.28853	.22124

As shown on table 1, the average Pretest score before the field trip (treatment) was 3.3271(M = 3.3271; SD = .89838), and the average Achievement Test score after the field trip (treatment) was 12.7664 (M = 12.7664; SD = 2.28853).

This indicates that the mean of the post test scores is higher than that of the pre-test scores. This shows clearly that the students achieved higher after the field trip than before the field trip. Even the raw scores of the individual student's shows that the students score were higher in the post test than in the pre-test.

Table 2: Paired samples test of the difference in mean scores of students between the pre-test and post-test (N=107).

Variables	**Mean**	**SD**	**T**	**df**	**Sign.**
Pretest- post-test	-9.43925	2.46553	-39.602	106	.000

The result on Table 2 is a paired sample test that was conducted to determine the effect of field trip on the student's achievement on the course "introduction to Ecology". The results indicate a significant negative difference between the pretest scores and post test scores on the course after the field trip. Mean = -9.43925; SD = 2.46553; [t (106) = -39.602, p = .000].

The .05 level of significance of the difference between the means range from -9.91181 to -8.96670 which indicated a negative difference between the means of the two set of scores. We therefore reject the null hypothesis which states that "The mean pre-test and post –test scores of Environmental Education Students will not differ significantly after their participation in a field trip study" while we conclude that The mean pre-test and post –test scores of Environmental Education Students will differ significantly after their participation in a field trip study.

This finding agrees with that of Mahgoub and Alawad (2014) who studied the Impact of Field Trips on Students' Creative Thinking and Practices in Arts Education. After a comparison of students' marks achieved with experimental and control group test revealed that the experimental group performed significantly higher than the control group on the task's criteria. The findings also corroborate Kipkoech (2021) who investigated use of Field Trip method in History and Government instruction in Secondary Schools in Kenya and found out that most teachers and students did not use the field trip method, though their views were that the use of the field trip method had more benefits than the teacher-centred methods which they always use.

Conclusion

It is concluded that teaching students using the field trip method helps in their overall academic achievements. This is evident from this study where the mean pre-test and post –test scores of Environmental Education Students differ significantly after their participation in a field trip study in favour of the post-test score.

Recommendation

It is recommended that Environmental Education courses should be taught using more of field trip method where students will be exposed first hand to environmental phenomena as this will ncrease their interaction with the environment, increase retention of learned phenomena and make the teaching/learning process practical.

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