The Journal of Social Sciences Studies and Research
Online ISSN: 2583-0457
Available Online at http://tjsssr.com Volume 4|Issue 01 (January-February)|2024|Page:15-23
Original Research Paper

Influence of Field Trip on Students' Motivation in Learning Chemistry in Secondary Schools in Anambra East Local Government Area of Anambra State

Corresponding Author:
Dozie John Okongwu
Department of Chemistry, Nwafor Orizu college of education, Nsugbe Email- dozieokongwu@yahoo.com

Article Received: 16-January-2024, Revised: 06-February-2024, Accepted: 26-February-2024

ABSTRACT:
The research looked into how field trips affected the motivation of secondary school students in Anambra State's Anambra East Local Government Area to learn chemistry. A descriptive survey research approach was used in the study. Four inquiries served as the study's compass. 237 chemistry students from all of the public secondary schools in the Anambra East Education Zone made up the study's population. For the study, a purposeful sampling strategy was employed. The researchers' structured questionnaire served as the data gathering tool. The dependability of the instrument was determined using Cronbach alpha reliability, yielding a reliability index of 0.81. The instrument was confirmed by three specialists. In order to address the study issues, the acquired data were analyzed using the mean and standard deviation. The study's results indicated that engaging in field trips has a positive impact on students' motivation to learn chemistry. The utilization of field trips for motivating students offers various advantages, but it was observed that chemistry teachers seldom incorporate this approach. The study identified challenges such as cost, time constraints, and inadequate support as obstacles hindering the effective use of field trips for motivating students in chemistry education. In light of these findings, recommendations include urging the government to alleviate the challenges associated with implementing field trips by providing reliable and heavily subsidized transportation options for chemistry students during fieldwork.

INTRODUCTION:

Since science serves as the cornerstone for all subsequent scientific and technical growth, its significance in Nigeria cannot be overstated. Osokoya (2013) asserts that research is crucial to the generation of new knowledge, prosperity, and economic growth. By eliminating poverty and delivering improved healthcare, this ensures social welfare and raises the standard of living for people in several ways. Nigeria recognizes the use of research in its efforts to modernize its economy. A large, robust, diversified, sustainable, and competitive economy that will ensure a high standard of living and a high quality of life for all citizens can be built by a country that develops and uses science, technology, and innovation, as stated in the mission statement of the new national policy on science, technology, and innovation (FRN, 2014). It will be exceedingly difficult for humans to survive and adapt in a world where science is expanding quickly without the application of science. Nigeria adopted science disciplines to be taught in schools as discrete science subjects, such as physics, biology, and chemistry, in an effort to extract program value from all the relevance of science.

One area of research that helps us better comprehend the workings of nature and improve our quality of life is chemistry. The following fields demonstrate the significance of chemistry, according to the American Chemical Society (2019): All that is in our food is a concoction of different substances. Chemistry is crucial to every step of the process, from manufacture to cooking. Chemicals created in the pharmaceutical industry are used to make medications in medicine. Chemistry expertise is essential for physicians and pharmacists. The raw materials used in the textile industry include polyester, acrylic, nylon, glass fiber, jute, cotton, flax, wool, and silk. These raw materials are made into completed goods that may be used, such as furniture, towels, flags, nets, bags, clothing, and balloons. Chemists engage in the creation of novel materials or strive to enhance the quality of existing products. Batteries are used in many different power-storage devices, including watches, torches, computers, mobile phones, and autos, according to the battery industry. The electrochemistry concept underlies the operation of batteries. A battery stores its energy as chemical energy, which an electrochemical process transforms into electric energy. Police officers now have

© Dozie John Okongwu et al. (2024)

much simpler jobs because to forensic chemistry. By identifying chemical evidence left at crime sites, forensics assists in the identification of culprits. Forensic investigators employ several chemical methods such as spectroscopy, chromatography, x-ray diffractometry, color testing, and melting point studies. Any country's development depends on its ability to educate its citizens in chemistry, which is why Nigeria's Federal Government was established. Therefore, it is imperative to employ efficacious pedagogical approaches like field trips.

A field trip is a research excursion conducted outside of the classroom to get firsthand knowledge of a natural environment. It is set up to increase students' enthusiasm in learning, gather information, resources, or artifacts for lessons in the classroom, and watch things or occurrences that aren't feasible to bring into the classroom. A field trip is an organized activity that happens outside the classroom's four walls. It gives opportunities for learners to gain firsthand information on people, places and things for the permanence of learning experiences (Instructional Strategies Online, 2013). A field trip is a guided tour that a teacher arranges to help students learn. The purpose of the tour is to allow students to put theory into practice.

Cirfat (2014) defines a field trip as an outing conducted outside of the classroom with the aim of gathering particular information and pertinent observations. Chemistry teachers use field trips as a teaching approach, which involves bringing students outside to see things directly in their natural surroundings (Zumyil, 2016; Amosa, Ogunlade, and Atobalete, 2015). According to Amosa, Ogunlade, and Atobatele (2015), using field trips for teaching and learning promotes effective and efficient learning. According to Zumyil (2016), well-organized field trips provide students the chance to actively participate in observing, gathering, classifying, analyzing relationships, and manipulating things in addition to improving their comprehension of certain ideas and phenomena. For students studying science, particularly chemistry, it is one of the most thrilling and delightful experiences (Zumyil, 2016). Prem (2012) argues that the goal of a field trip is to supplement the curriculum by providing students with real-world experiences, tangible skills like taking notes, and an opportunity to engage in activities that will make their learning more remembered and relevant. According to Prem (2012), field visits can assist students understand the significance and relevance of what they study in the classroom and provide variation to the normal curriculum. Fun and activity-based learning is beneficial for students' learning. Students benefit from field excursions by learning while having fun and realizing what they already know from their books. Students go on field visits to investigate how they might assess what they have learned and how it has been used in practical settings. As they go on group outings, educational field trips also help kids learn how to work as a team, collaborate, and live in a community. Students investigate novel locations and an educational setting. This approach requires a lot of hard effort and opens students' eyes to new chemistry-related possibilities, which may increase their enthusiasm to master the subject.

Human behavior and achievement are significantly influenced by motivation (Kian, 2014; Turan, 2015). Especially educational experts and practitioners stress that motivation is one of the most significant variables in students’ accomplishment and in assuring ongoing achievement (Alkış, 2015; Aluçdibi and Ekici 2017; Guay, 2019; Pintrich, 2018; Pintrich and Schunk 2002). According to Lin (2012), motivation is defined as an individual's inherent wants that are either innate or manifest as they learn and take in new knowledge. Nonetheless, different definitions of motivation may be found in the literature; the term "motivation" itself was derived from the Latin word "movere," which meaning "moving" (Seiler, 2012). In this sense, motivation is defined by Ertem (2016) as an internal state that reveals an individual's behavior and guides them toward exhibiting these behaviors; on the other hand, motivation is defined by Baumeister and Vohs (2017) as a state in which an individual freely exhibits a variety of attitudes in order to accomplish a particular goal. This happens as a consequence of an outside factor igniting an internal drive to act in a particular way. Techniques and tactics are tools used in teaching and learning that measure how motivated students are in the classroom or in any other type of learning environment. Therefore, field trips have a bigger effect on students' motivation when used as a tactic.

The main goal of any teaching and learning process is to ensure that the student can complete tasks and, if at all feasible, use what they have learned to solve issues in new contexts. Encouraging an understanding of chemical ideas with the goal of utilizing such knowledge to solve real-life situations is one of the goals of teaching and learning chemistry in secondary schools. Over the years, this goal has scarcely been accomplished. It is concerning that students have recently performed poorly on both internal and external chemistry tests; many have speculated that this negative trend may have resulted from their inadequate chemistry education. This could also have something to do with the teaching strategy employed by chemistry instructors, as effective instruction produces effective learning.

Students in senior secondary school chemistry classes have been shown to struggle with the chemistry curriculum, as seen by their low performance on

questions pertaining to chemistry principles. (Reports of the WAEC Chief Examiner, 2014, 2016, 2017, and 2018). There is no question regarding the inefficiency of the teaching strategy employed by chemistry professors to teach these topics given the students' consistent low performance in these and other topics. It's possible that students thought chemistry was an esoteric and unimportant subject. Both the fundamental ideas and the underlying mechanism that gave rise to the chemical concepts are beyond the comprehension of the students. This might be as a result of the chemistry teacher's teacher-centered, non-participatory teaching strategies, which force students to develop concepts poorly and lower their motivation to study the subject. students that are taught chemistry by memory end up performing poorly because of the prevalent methods used in the classroom, which place a strong focus on the teacher and textbooks imparting knowledge to the students. In light of this, the purpose of this study is to determine how field trips affect secondary school students' enthusiasm to learn chemistry in the Anambra East local government region of Anambra State.

Research Questions:

The following research questions guided the study:

- What are the influence of field trip on students' motivation in learning of chemistry?
- What are the benefits of field trip in motivating students in learning of chemistry?
- To what extent do the chemistry teachers utilize field trip in motivating students in learning of chemistry?
- What are the problems hindering the use of field trip in motivating students in learning of chemistry?

METHODOLOGY:

A descriptive survey research approach was used in the study. 237 SS11 chemistry students from each of the nine (9) public secondary schools in the Otuocha education zone's Anambra East Local Government Area make up the study's population. There are 129 female and 108 male chemistry students in this group. All 237 SS11 chemistry students from the sampled schools made up the study's sample. To sample every chemistry student in the schools, purposeful sampling was employed. The researchers created a structured questionnaire that was used as the data gathering tool. The responders get the surveys from the researchers. The respondents were given an explanation of the questionnaire by the researchers, who also provided clarification where needed. The surveys were delivered to teachers at the several schools during the school day, and prompt return of the forms was guaranteed. Three specialists from Nwafor Orizu College of Education Nsugbe—two from the chemistry education section and one from measurement and evaluation—validated the instrument. The experts were given copies of the study's tools and research questions. The instrument was subjected to face validation with respect to its clarity, item phrasing, and appropriateness in addressing the study's objectives and issues.

Thirty (thirty) Onitsha educational zone chemistry students who were not included in the study but had characteristics in common with the study region were used to trial test the instrument. The internal consistency of the instrument was calculated using the data obtained and the Cronbach Alpha reliability estimate; the result was 0.81, indicating that the instrument is reliable. The mean and standard deviation were the data analysis techniques used to address the study issues. A mean of 3.50 - 4.50 indicates Very Often (OV), 2.50 - 3.49 implies Often Used (OU), 1.50 - 2.49 shows Rarely Used (RU), and 0.50 -1.49 implies Not Used (NU). Interpretation is based on the true limit of numbers.

RESULTS:

Research Question One:

What is the influence of field trip on students' motivation in learning chemistry?

Table 1: Mean score and standard deviation of respondents on influence of field trip on students' motivation in learning chemistry.

S/N	Item Statement	Mean	Standard Deviation	Decision

1	Use of field trips motivates students through developing enthusiasm for industrial applications of chemistry	3.16	0.79	Agreed
2	Direct interactions with learning materials enhances students' enthusiasm towards learning	3.35	0.57	Agreed
3	field trips serve as a powerful motivation and are considered exciting	3.22	0.60	Agreed
4	Develop enthusiasm that provide opportunity to work together cooperatively with others.	3.21	0.68	Agreed
5	Enhanced intrinsic motivation in learning chemistry	3.01	0.68	Agreed
	Cluster Mean	3.19	0.40	Agreed

The mean and standard deviation of respondents' responses about the impact of field trips on students' motivation to learn chemistry are displayed in Table 1. Items 1 through 5 have mean rating scores that are higher than the 2.50 standard. This indicates that the respondents were in agreement that field trips serve as a powerful motivator and are thought to be exciting. They also enable students to interact directly with learning materials, which increases their enthusiasm for learning. Finally, field trips develop students' enthusiasm for the industrial applications of chemistry, which in turn gives them the opportunity to work cooperatively with others and enhances their intrinsic motivation to learn chemistry. The results showed a cluster mean of 3.19 with a standard deviation of 0.40, indicating that respondents generally agreed that field excursions have an impact on students' willingness to learn chemistry.

Research Question Two:

What are the benefits of field trip in motivating students in learning chemistry?

Table 2: Mean score and standard deviation of respondents on the benefits of field trip in motivating students in learning chemistry.

S/N	Item Statement	Mean	Standard Deviation	Decision
1	Allow students to touch and manipulate the material about which they are learning	3.14	0.59	Agreed
2	Provide real life context for the material being learned	3.08	0.57	Agreed
3	Field trips develop the thinking capacity of students and help students with easy identification of concepts to construct knowledge	3.13	0.64	Agreed
4	Field trips strengthen observation and perception skills, and also promote personal (social) development.	2.92	0.63	Agreed
5	Field trips enable students to interact and make effective connections to their	2.96	0.67	Agreed

	prior knowledge in the class			
	Cluster Mean	**3.10**	**0.31**	**Agreed**

The mean and standard deviation regarding the advantages of field trips in inspiring students to learn chemistry are displayed in Table 2's analysis of the results. The average ratings for items 1 through 5 are higher than the 2.50 benchmark, suggesting that respondents agreed that field trips help students think more critically, make connections between what they have learned and what they have seen and experienced in real life, enhance their ability to identify concepts and build knowledge, hone their observation and perception skills, foster social and personal growth, and allow them to interact with one another and the material being taught. The derived cluster mean of 3.10, together with a standard deviation of 0.31, suggests that the respondent was in agreement with the item statement on the advantages of field trips in inspiring kids to learn chemistry.

Research Question Three:

To what extent do the chemistry teachers utilize field trip in motivating students in learning chemistry?

Table 3: Mean score and standard deviation on the extent to which chemistry teachers utilize field trip in motivating students in learning chemistry.

S/N	Item Statement	Mean	Standard Deviation	Decision
1	To what extent do the teacher utilize excursion to places of chemical industries, site and company motivate students in learning chemistry.	2.81	0.63	OU
2	The chemistry teacher refers to chemistry as the bases of industrial processes and has been taken us to any such industries to motivate us	1.64	0.52	RU
3	Have the chemistry teacher motivated us by telling us the importance of field trip during his lessons	3.04	0.66	OU
4	The chemistry teacher has organized field trip so as to motivate us about chemical processes	2.03	0.57	RU
5	The teacher provides first-hand opportunities to interact with learning materials and facilities so as to motivate us	1.64	0.73	RU
	Cluster Mean	**2.23**	**0.21**	**RU**

The results of the analysis are displayed in Table 3, where the mean and standard deviation relate to the degree to which chemistry professors use field trips to inspire students to learn the subject. According to the results, items 1 and 3 meet the criteria for frequently used, with a mean score of 2.50 and above; items 2, 4, and 5 meet the criteria for seldom used, with a mean score of 2.49 and lower. On the other hand, the cluster mean of 2.23 with a standard deviation of 0.21 suggests that field trips are not frequently used by chemistry professors to inspire students to learn chemistry.

Research Question Four:
What are the problems hindering the use of field trip for motivating students in learning chemistry?

Table 4: Mean score and standard deviation on the problems hindering the use of field trip for motivating students in learning chemistry.

S/N	Item Statement	Mean	Standard Deviation	Decision
1	Organizing field trip for motivating students is tedious and may be a failure at the end.	3.10	0.65	Agreed
2	Transport cost and risk could hamper field trip exercise	3.97	0.58	Agreed
3	Field trip for motivating students consumes time and encroaches into the periods of other subjects	3.50	0.72	Agreed
4	Lack of chemistry and chemical process-based industries that will be used to motivate students affect going on	2.95	0.83	Agreed
5	There is no adequate support from the school head in motivating students	3.42	0.66	Agreed
	Cluster Mean	**3.19**	**0.41**	**Agreed**

The mean and standard deviation of the respondents' responses about the issues impeding the use of field trips to inspire children to learn chemistry are displayed in Table 4. Items 1 through 5 have mean rating scores that are higher than the 2.50 standard. This signifies that the participants acknowledged the challenges associated with organizing field trips to motivate students, recognizing that it can be arduous and may not yield successful outcomes. Issues such as transportation costs and associated risks pose potential obstacles to the execution of field trips. Additionally, the time-consuming nature of field trips for motivating students can encroach upon time allocated for other subjects. The absence of chemistry-related industries and processes that could be used to inspire students, along with a lack of adequate support from the school administration, are identified as hindrances to the effective use of field trips for motivating students in learning chemistry. The obtained cluster mean of 3.19, with a standard deviation of 0.41, indicates a consensus among respondents regarding the challenges outlined in the statements related to hindrances in using field trips for motivating students in learning chemistry.

Discussions of the Findings:

The study's results indicate that field trips serve as a motivational tool by fostering enthusiasm for the practical applications of chemistry in industry. Direct engagement with learning materials during these trips enhances students' excitement about the learning process. Field trips are perceived as potent motivators, bringing an element of excitement and providing opportunities for collaborative learning experiences that boost intrinsic motivation in the study of chemistry. This effectiveness may stem from the fact that field trips offer students a more immersive and enriching learning experience compared to traditional lecture methods. The increased interaction with learning materials during these trips imbues students with a sense of responsibility for their own learning. Students' participation in field trips is crucial to their understanding of ideas because it lowers the degree of abstraction and enables them to stay focused, participate actively, acquire real-world experience and knowledge, and solve issues in the real world.

The results of this study are consistent with those of Eryılmaz, Yıldız, and Akın (2011), who found that students who were taught chemistry using a field trip learning technique were more motivated to learn the subject than those who were taught using a traditional

manner. Similarly, Silas (2021) found that the field trip teaching technique raises students' motivation to learn chemistry and improves their academic proficiency in the subject.

Field trips help students develop their thinking skills and make it easier for them to identify concepts to construct knowledge. They also strengthen their observation and perception skills, foster personal (social) development, and allow them to interact with one another and make connections to their prior knowledge in the classroom. These are just a few of the benefits that come with taking students on field trips. According to Gormez (2014), because field excursions engage all of the senses, they aid in the development of students' observation and perception abilities. By extension, field visits help students think more broadly and analyze problems in groups from many angles, which increases their confidence both inside and outside of the classroom. According to Meiranti (2012), field excursions are extracurricular activities that let students experience what is taught in the classroom and support teaching and learning. It has the ability to affect students' perceptions of the ideas presented in the classroom. The current findings—that the students may do very well because they have practical experience—were corroborated by a prior study (Anderson, Kisiel, and Storksdieck, 2019). This means that, if teachers plan and organize field trips effectively, they can have a positive impact on students and help to make social studies lessons easier to teach and learn. Consequently, this can greatly aid in the achievement of the subject's goals and objectives.

The results of this study are consistent with those of (Abdul, Oyeronke, and Adunni, 2015), who noted that using field trips that take use of the environment might accomplish a lot and help students understand things in their true context. A field trip is a teaching approach that gives students the chance to see something first hand in a natural environment.

The results of the study showed that chemistry professors seldom ever use field trips to inspire their students to learn chemistry. It's possible that this is because teachers are unaware of the use of the field trip learning strategy; therefore, chemistry teachers should be aware of how to incorporate this strategy into their lessons to inspire students to learn chemistry. The incapacity of the chemistry instructor to effectively use these field trip teaching tactics in the classroom is another factor that may contribute to the inadequate application of these strategies. Chemistry instructors must receive sufficient training and direction on how to use field trips to inspire students to understand chemistry.

However, Eze (2015) discovered that while the use of many other tactics is minimal, science instructors frequently employ several of the teaching techniques suggested by scholars. It's possible that some of these tactics instructors use are insufficient to encourage students' enthusiasm. Therefore, in order to implement further cutting-edge teaching techniques and increase students' willingness to learn chemistry, chemistry teachers must have the appropriate training and be knowledgeable about a variety of teaching pedagogies. The study's findings indicated that there are several issues preventing the use of field trips to inspire students to learn chemistry. These include the fact that they are time-consuming and interfere with other subjects' classes; they are risky and expensive to transport; they are dependent on the absence of chemistry and chemical process-based industries, which could inhibit the use of field trips to inspire students; and there is insufficient support from the school principal.

According to Egwu and Okigbo (2021), while field trips may be enjoyable for both instructors and students, if the biology professors and their students don't manage the problems well, they could turn the trip into an unpleasant experience that ruins the learning opportunity. According to Alon and Tal (2017), when on a field trip, instructors often participate in one of three ways. They could participate entirely, in part, or inactively. All planning and field trip activities are open to teachers' full participation. If the field trip has been held on a regular basis over the years, school tradition could require instructors to participate in part because they must adhere to a set schedule, which might or might not involve any participation at all. During the encounter, teachers that are passive do not engage with the students. For instance, if a teacher is concerned about his safety, he might not speak with the venue beforehand or during the field trip and instead rely entirely on the school administration to organize it. If field excursions are going to be used as a successful means of inspiring students, then the level of teacher engagement matters a lot. To inspire students, teachers themselves need to be very involved. They should also go on field excursions to help students grasp what they are learning in class and to help with lesson assessment.

CONCLUSION:

The study's findings led to the following conclusions being made:

A field trip can serve as a powerful motivator for students by fostering an enthusiasm for the industrial applications of chemistry, allowing them to interact directly with learning materials and feel more excited about learning, creating an opportunity to work cooperatively with others and enhancing their intrinsic motivation to learn chemistry. Field trips give students the opportunity to interact with and manipulate the material they are learning, provide a real-world context for the material being learned, strengthen their

observation and perception skills, help them think critically, and help them identify concepts easily so they can construct knowledge. They also encourage the development of students' personal and social skills. Teachers of chemistry seldom use field trips to inspire their students to study about chemistry. The use of field trips to motivate students in learning chemistry is hampered by a number of issues, including the fact that they are time-consuming and interfere with other subjects' classes; they are risky and expensive to plan; they take up time and interfere with other subjects' classes; they are dependent on chemistry and chemical process-based industries for their effectiveness; and they lack sufficient support from the school principal.

REFERENCES:

1. Abdul A. A., Oyeronke O. O., Adunni, S. A. (2014) Effect of field trip on students' academic performance in basic technology in Ilorin Metropolis, Nigeria. Malaysian Online *Journal of Educational Technology*, 3(2), 1-6
2. Alkis, B. T. (2015). Field trip as a strategy for teaching functional chemistry educational. *Nigeria Journal of Science and Educational Research*. 10(2), 24-34.
3. Alucdibi, B. & EkiciT. (2017). Gender location and type of school as predators of teacher's knowledge of fresh entrants in junior secondary schools in Nigeria. *Journal of Research in Education*. 2(2) 44 - 51
4. America chemical society (2019). *Importance of chemistry*. https:// www.acs.org
5. Amosa, A. G.; Ogunlade, O. & Atobatele, A. S. (2015). Effect of field trip on students' academic performance in Basic Technology in Ilorin metropolis, Nigeria. *Malaysian Online Journal of Educational Technology*, 3(2), 1-6.
6. Baumeister, U. & Vohs, J. (2017). Review of the methodologies for effective practical chemistry instruction in secondary schools in Nigeria. *Journal Education Research and Development*, 11(5), 52-70.
7. Cirfat, A. B. (2014). Effects of experimental learning strategy on secondary school students' self-esteem and achievement in practical skills. An unpublished Ph.D thesis in the department of Curriculum and Teaching, Faculty of Education, Benue State University Makurdi.
8. Egwu and Okigbo (2021). Effect of field trip on secondary school students' academic achievement in ecology in Anambra state. *South Eastern Journal of Research and Sustainable Development* (SEJRSD), 4(1), 140-156
9. Ertem, A. O. (2016). Chemistry teacher's perception of the causes of problems of the poor performance of students in practical Chemistry. *Journal Education Research and Development*, 2(3(, 11-26.
10. Federal Republic of Nigeria (2014). National policy on education. NERDC Press Lagos.
11. Gormez, I. (2014). The Effect of Field Trip Oriented Instruction on Ninth Grade Students' Achievement in Animal Diversity Unit, Continuing and Academic Motivation. Retrieved from http://www.informalscience.org/news-views/field-trips-are-valuable-learning-experiences.
12. Guay, J. O. (2019). *History and philosophy of science: an outline, magnet business enterprise*. Enugu: Publishing Division.
13. Kian, D. L. (2014). *Effect of field trip exercise on teacher's professionalism*. Pennsylvania: University Press.
14. Osokoya, M.M. (2013). Teaching science methodology in basic science and technology classes in southwest Nigeria. *Asian Journal of Education*, 1 (4), 206-214
15. Prem, L. (2012). Field trip strategy. Retrieved from 202/06/fieldtripstrategy.htm/?m=/eprogressive portfolio.b Press Paris.
16. Pintrich, P.R & Schunk, D. H (2012). Motivation in Education: Theory, Research

and Application. New Jersey: Pearson Education, Inc

17. Printrich; S. A (2018). Development and validation of some projects and instrument for evaluating students learning outcome in SSS. Geography. Unpublished PhD. Thesis Nsukka. Department of Education, University of Nigeria.
18. Silas (2021) Effects of field-trip and project methods on motivation, performance and retention of Nigeria certificate in education social studies students in north-west, Nigeria. A Thesis Submitted to The School of Postgraduate Studies, Ahmadu Bello University, Zaria Nigeria In Partial Fulfillment of The Requirements for The Award of The Doctor of Philosophy Degree of Curriculum and Instruction.
19. Turan, G. (2015). Outdoor experience have the potential to impact students in both the cognitive and effective domains. *Research in Science Education* 36(1-2)111-139
20. Zumyil, C. F. (2019). Effects of computer simulation and field trip instructional strategies on students' achievement and interest in ecology in Plateau Central Education Zone, Nigeria. A thesis submitted to the postgraduate school, Benue State University, Makurdi, Benue State