



UNDERGRADUATE STUDENTS' PERCEPTION OF THE INFLUENCE OF TEAM TEACHING ON THEIR INTEREST IN BIOLOGY COURSES IN ANAMBRA STATE

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Abstract

The study analyzed undergraduate students' perception of the influence of team teaching on their interest in biology courses in Anambra State utilizing survey research design. The population of the study was made up of 4, 176 second year regular undergraduate students in Physical Sciences and Science Education that offered Biology courses in the two public universities for the 2023/24 academic session. The participants of the study consisted of 420 (220 males and 200 females) second year regular undergraduate students drawn through simple random sampling technique and accidental sampling technique. 12-item validated questionnaire was used to collect data for the study. Cronbach Alpha method was used to ascertain the reliability of the questionnaire to obtain reliability co-efficient value of 0.81. Data were analyzed using mean, standard deviation and t-test. The findings of the study revealed that undergraduate students perceive that team teaching positively influenced their interest in Biology courses. Furthermore, a significant difference existed in male and female undergraduate students' interest in Biology on exposure to team teaching as perceived by them in favour of males. Based on the findings of the study, it was recommended that university authorities should ensure that Biology lecturers sustain their use of team teaching technique so as to sustain their students' interest in Biology courses.

Keywords: Undergraduate students, Perception, Biology, Team teaching and Interest.

Introduction

Background to the Study

University education plays a critical role in the economic and social development of any nation. For university education in Nigeria to play the above role, especially in this 21st century, attention must be paid to the effective implementation of university education programmes and policies. Obviously, the outcome of any educational programme is usually a reflection of what goes on in the classroom in form of teaching and learning. In the course of university education, certain courses are taught; biology inclusive.

Biology is a science subject that focuses on the study of living organisms, their structures, functions and their development. It is quite pivotal for national development because it is the root subject for many careers in science and technology such as medicine, engineering, forestry, agriculture, biotechnology, nursing among others; and has application nearly in every field of life. Consequent upon this, there is a demand for suitable biology instruction in schools, so that, learners will be actively interested in acquisition and exercise.

Biology will continue to hold a distinctive place in the school curriculum in the future, particularly because basic understanding of Biology is required for study in a variety of disciplines such as Medicine, Agriculture, Pharmacy, Micro-Biology, Biochemistry, and Psychology, among others (Njoku, *et al.* 2020). It can be deduced here that any undergraduate student in the afore-mentioned courses will perceive Biology as a matter of priority. It

is the recognition of the relevance of Biology to undergraduate students of physical sciences that their interest is considered a matter of necessity.

Interest entails an individual's feeling for something on which they spend time and energy. According to (Danjuma, 2015), interest refers to someone's development of passion for something and their consequent commitment of time in undertaking it. In other words, the interest of an undergraduate student in Biology courses is expected to be seen in their passion for the course and by extension, their unwavering commitment in the learning of it. Interest can be situational when it is triggered temporarily by features of the immediate situation (Amadi, 2016). Furthermore, Amadi stated that unusual sights, sounds, or words are capable of stimulating situational interest. An undergraduate student's interest can be triggered when a teacher makes a surprising remark; displays a visually stimulating image on the overhead projector, or makes a brief bit of sonorous sound. A student's interest is key to the inculcation of the relevant knowledge, skills as well as values which the curriculum seeks to achieve. Thus, interest is an integral part of the learning process to the extent that it sustains concentration, commitment and by extension, co-operation with the lecturer in the process of learning.

It is curious to note that despite the relevance of Biology to several disciplines in physical sciences and even in science education, the interest of some undergraduate students in the course has been unsatisfactory based on the researchers' observation as a postgraduate student. This poor interest of undergraduate students in Biology is seen in their poor attendance of Biology lectures, addiction to their mobile technologies in the course of instruction, failure to keep to assignment deadlines as keenly observed by the researcher. This has raised questions as to the factors responsible for poor undergraduate students' interest in Biology courses. Could it be that the instructional technique employed by lecturers is at the core of students' poor interest in Biology? It could be that students seek blend of lecturers in the course of instructional delivery to arouse their interest. Thus, the use of team teaching could come in handy.

Team teaching is an instructional technique that involves use of two or more lecturers to teach a course with a view to enhancing instructional effectiveness. Team teaching in Biology is a process in which a group of teachers with separate but inter-linked knowledge and skills implement instructional decision before, during and after instruction with a view to increasing the probability of covering the scheme of work in time while promoting effective learning for students (Yashim *et al.*, 2019). This points to the fact that in team-teaching, more than one lecturer is involved in instructional delivery. Similarly, (Liebel *et al.* 2017), defined team teaching as a communal term that captures numerous variations of a technique to deliver instruction with more than one trainer. In other words, this technique ensures that teaching is done by more than one lecturer to make for effectiveness and possibly address issues of victimization that may arise from having just a lecturer making instructional decision on a course. Team teaching is targeted at making constant adjustment in the educational system so as to change students' needs and teachers' abilities (Zubkova & Burak, 2016).

Team teaching is of vital importance for students and teachers development as it ensures proper planning and delivery of lectures to Biology students in a concise and intellectual manner. Team teaching provides opportunities for students to not only learn from different teachers, but allows them to share ideas on a given subject with many teachers (Okechukwu & Opara, 2021). The importance of team teaching as a method of instructional delivery in tertiary education has been stressed because of many advantages both on the part of the students and the lecturers. Through team teaching, lecturers can develop their approaches to teaching and acquire a greater depth of understanding of the subject matter of the unit or module (Osuala *et al.*, 2015). The presence of co-lecturers promote continuous interactions between course lecturers and their students.

In some public universities in Anambra State, the use of team teaching was seriously enforced by the university management nine years ago in many faculty courses. This practice has become necessary with a view to giving the students an opportunity of experiencing many lecturers' styles of teaching. This is because a student who is

not favourably disposed towards a particular lecturer's style of teaching will have an opportunity of experiencing another lecturer's style. Additionally, this practice is geared towards reducing the workload of lecturers and by extension ensuring that a lecturer does not take a unilateral instructional decision in a course.

As noble as the afore-mentioned objectives are, team teaching appears to give room for lecturers to victimize some students who are not in their good books. Again, some students who are not satisfied with the teaching method of the lecturer will likely show unfavourable disposition to the course and worse still, perform woefully in their examinations. Expectedly, the perceptions of students come to fore. Team teaching can be confusing for students when they are confronted with several lecturers in the classroom. For instance, multiple lecturers telling students what to do and giving different responses to the same question may confuse them. In addition, students may be confused about whom to go to with questions. Team teaching implementation borders on management issues such as who will lead the team, who will be in the team, what will be expected and in what time frame, how will meetings be conducted, how will teaching activities and events be actually planned and so on. It is interesting to know that students' perception of the influence of team teaching on their interest in Biology could be influenced by myriad of factors; gender inclusive.

Gender is a psychological term need in describing behaviour and attributes expected of individuals on the basis of being born of either male or female. As gender is an issue with important pedagogical implications in students' interest in Biology, it is worthy of consideration. More so, it will make for research-worthiness to find out undergraduate students' perception of the influence of team teaching on their interest in Biology courses in Anambra State.

The main purpose of the study is to investigate undergraduate students' perception of the influence of team teaching on their interest in Biology courses in Anambra State. Specifically, the study sought to determine:

1. undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses in Anambra State.
2. Male undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses in Anambra State.
3. Female undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses in Anambra State.

The following research questions were raised to guide the study:

1. What are undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses in Anambra State?
2. What are male undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses in Anambra State?
3. What are female undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses in Anambra State?

The following hypothesis were tested at 0.05 level of significance:

1. There is no significant difference between male and female undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses in Anambra State.

Literature Review

Biology delineates the structure, function, development as well as existence of living things, while further offering justifications for their reactions to the environment in which they exist (Ahmed *et al.* 2022). The study of Biology offers a perfect preparation for careers ranging from basic science to engineering (Gross & Sohl, 2021; Šorgo & Špernjak, 2020). It is a branch of science and a key contributor to a nation's scientific cum technological growth. (Ahmad, *et al.* 2018), noted that studying Biology across all educational levels is capable of equipping learners

with concepts, principles as well as theories that are beneficial to them. Given the role of Biology in scientific and technological growth of any nation, undergraduate students' interest is a matter of paramount importance.

Factoring students' interest in sciences such as Biology works well with instructional planning and techniques; such as team teaching among undergraduate students is key. Okechukwu & Opara found that a significant difference existed in interest scores of students exposed to Basic Science and Technology using team teaching strategy. In similar vein, Darma (2018), investigated impact of team-teaching strategy on interest in Basic Science concepts among junior secondary school Students in Potiskum, Yobe State Nigeria and found that students developed high interest in learning of Basic Science Concepts on exposure to team teaching strategy. The deduction here is that the more students are exposed to team teaching in Basic Science and Technology, the better they perform in the subject. This speaks to the effectiveness of team teaching as an instructional technique. Thus, (Yashim et al. 2019) found that senior secondary school students learn Biology concepts better on exposure to team teaching. Team teaching may even offer educational benefits such as promoting students' level of comprehension and retention (Darma, 2018). More so, team teaching influences undergraduate students' interest in Biology positively or negatively. Going further, undergraduate students' interest in Biology or other science courses differ along gender lines.

(Oluyemo, *et al.* 2020), assessed the influence of gender differences in Mathematics interest of Junior Secondary School Students (JSS) in Niger State, Nigeria. The findings of the study revealed that male students have higher interest in Mathematics than their female counterparts. Similarly, (Allahnana *et al.* 2018), assessed gender and interest in Mathematics achievement in Keffi Local Government Area of Nasarawa State, Nigeria. The findings of the study revealed male students have interest in mathematics than female students that is to say; there is significance relationship between male and female and interest in mathematics.

Apparently, there are contradictory findings of some researchers on the influence of gender on students' interest in sciences which give impetus to the current study. For instance, while Danjuma (2015), found that gender had no significant influence on students' interest, (Okechukwu & Opara 2021), found that male students are more interested in Basic Science than their female counterparts. Okechukwu & Opara added that the reason for this disparity could be attributed to the fact that male students are more science-inclined than their female counterparts. However, (Kans & Claesson (2022); Palmer *et al.* (2017); Slavik *et al.* (2016), found that females were more interested in biology than their male counterparts. The foregoing trend could be traceable to the fact that while female students associated practical subjects with a sense of creativity and relaxation (from more theoretical and demanding subjects), male students associated practical subjects principally with usability. A cursory look at the studies revealed that much as team teaching, gender and interest of students have been matters of intensive and extensive research, none of the studies gave prominence to undergraduate students. Again, none of the studies captured team teaching and interest of Biology students in Anambra State. These glaring gaps in literature made the current study necessary.

Methods

Research Design. Survey research design was employed for the study. According to (Nworgu, 2015), survey research design focuses on studying a group of items or people by collecting and analyzing data from only a few people or items considered to be representative of the entire group.

Population and Sample Size. The population of the study was made up of 4, 176 second year regular undergraduate students in Physical Sciences and Science Education that offered Biology courses in the two public universities for the 2023/24 academic session. The sample size for the study comprised 420 (220 males and 200 females) second year regular undergraduate students. The sample size for the study was composed using simple random sampling and accidental sampling technique. Simple random sampling technique was used to obtain

Nnamdi Azikiwe University, Awka out of the two public universities in Anambra State. Thereafter, accidental sampling technique was employed to obtain students who were present in class at the point of data collection.

Procedure. Semi-structured questionnaire was used as an instrument for data collection. It was entitled 'Students' Perception of the Influence of Team Teaching on their Interest in Biology Courses Questionnaire (SPITTIBCQ). SPITTIBCQ was developed by the researcher from literature. SPITTIBCQ is a 12-item questionnaire that was structured in such a manner that the respondents would respond using a four-point response scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with numerical indices of 4, 3, 2 and 1 for positively worded items while negatively worded items are reversely scored. Content and face validation of SPITTIBCQ was done by three lecturers in faculty of Education, Nnamdi Azikiwe University, Awka. The reliability of SPITTIBCQ was ascertained using Cronbach Alpha statistics. The internal consistency of the items in SPITTIBCQ was determined and reliability index of 0.81 was found for SPITTIBCQ. This was enough to certify the SPITTIBCQ as reliable given that it falls within the stipulated threshold value of >0.70 by (Shrestha, 2021) for Cronbach alpha. The researcher familiarized herself with biology lecturers in physical sciences who ensured that the SPITTIBCQ was administered to the students during biology lectures.

Data Analysis. Research questions were answered with mean scores and standard deviations while the hypotheses were tested using t-test at 0.05 level of significance. The decision on the questionnaire items were based on item and cluster means relative to real limits of numbers as shown below: SA (3.50 – 4.00), A (2.50-3.49), D (1.50-2.49) and SD (1.00-1.49) with numerical indices of 4, 3, 2 and 1 respectively. For the hypotheses, p-value interpretation was used with the decision rule that if the p-value is less than <0.05, the null hypothesis was rejected but when the p-value is higher than 0.05, the null hypothesis was not rejected.

RESULTS

Table 1

Undergraduate Students' Perceptions of the Influence of Team Teaching on their Interest in Biology Courses

I perceive that team teaching:	Mean	SD	Remark
1. Makes me shelve any other engagement any day I have a Biology courses.	3.27	.96	A
2. Makes me look forward to doing assignments in Biology courses.	3.02	.82	A
3. Increases my love for doing experiments in Biology courses.	3.05	.83	A
4. Encourages me to carry out activities in Biology.	3.13	.86	A
5. Makes me unwilling to spend a whole day learning Biology.	2.21	.53	D
6. Encourages my participation in Biology test.	3.14	.83	A
7. Discourages my participation in Biology classwork.	2.19	.52	D
8. Makes me dislike doing Biology practical.	1.98	.46	D
9. Discourages me from discovering more information in Biology.	2.05	.45	D
10. Makes me want to surf the internet for latest developments in Biology.	2.97	.77	A
11. Encourages me to watch Biology lecturers demonstrate some activities in Biology.	2.67	.75	A
12. Discourages me from carrying out some of the Biology activities on my own.	2.42	.54	A
Grand Mean	2.68	.69	A

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Data in Table 1 show the item by item analysis of undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses. From the analysis, undergraduate students agree on items 1, 2, 3, 4, 6, 10, 11 and 12. The grand mean of 2.68 indicate undergraduate students agree that team teaching positively influence their interest in Biology courses. The standard deviation score ranging from 0.45 – 0.96 means that undergraduate students do not vary much in their ratings on their perceptions of the influence of team teaching on their interest in Biology courses.

Table 2

Male Undergraduate Students' Perceptions of the Influence of Team Teaching on their Interest in Biology Courses

I perceive that team teaching:	Mean	SD	Remark
1. Makes me shelve any other engagement any day I have a Biology courses.	3.71	1.06	SA
2. Makes me look forward to doing assignments in Biology courses.	3.55	.97	SA
3. Increases my love for doing experiments in Biology courses.	2.98	.70	A
4. Encourages me to carry out activities in Biology.	3.60	1.01	SA
5. Makes me unwilling to spend a whole day learning Biology.	2.03	.49	D
6. Encourages my participation in Biology test.	3.42	.93	A
7. Discourages my participation in Biology classwork.	2.18	.54	D
8. Makes me dislike doing Biology practical.	1.89	.42	D
9. Discourages me from discovering more information in Biology.	1.91	.44	D
10. Makes me want to surf the internet for latest developments in Biology.	3.35	.86	A
11. Encourages me to watch Biology lecturers demonstrate some activities in Biology.	3.20	.82	A
12. Discourages me from carrying out some of the Biology activities on my own.	2.37	.51	A
Grand Mean	2.85	.73	A

Data in Table 2 show the item by item analysis of male undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses. From the analysis, male undergraduate students strongly agree on items 1, 2 and 4 while agreeing on item 3, 6, 10, 11 and 12. The grand mean of 2.85 indicate male undergraduate students agree that team teaching positively influence their interest in Biology courses. The standard deviation score ranging from 0.42 – 1.06 means that male undergraduate students do not vary much in their ratings on their perceptions of the influence of team teaching on their interest in Biology courses.

Table 3

Female Undergraduate Students' Perceptions of the Influence of Team Teaching on their Interest in Biology Courses

I perceive that team teaching:	Mean	SD	Remark
1. Makes me shelve any other engagement any day I have a Biology courses.	3.49	1.01	A
2. Makes me look forward to doing assignments in Biology courses.	3.29	.90	A
3. Increases my love for doing experiments in Biology courses.	3.02	.77	A
4. Encourages me to carry out activities in Biology.	3.37	.94	A
5. Makes me unwilling to spend a whole day learning Biology.	2.12	.51	D
6. Encourages my participation in Biology test.	3.28	.88	A
7. Discourages my participation in Biology classwork.	2.19	.53	D
8. Makes me dislike doing Biology practical.	1.94	.44	D
9. Discourages me from discovering more information in Biology.	1.98	.45	D
10. Makes me want to surf the internet for latest developments in Biology.	3.16	.82	A
11. Encourages me to watch Biology lecturers demonstrate some activities in Biology.	2.94	.79	A
12. Discourages me from carrying out some of the Biology activities on my own.	2.40	.53	A
Grand Mean	2.77	.71	A

Data in Table 3 show the item by item analysis of female undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses. From the analysis, female undergraduate students agree on items 1, 2, 3, 4, 6, 10, 11 and 12. The grand mean of 2.77 indicate female undergraduate students agree that team teaching positively influence their interest in Biology courses. The standard deviation score ranging from 0.44 – 1.01 means that female undergraduate students do not vary much in their ratings on their perceptions of the influence of team teaching on their interest in Biology courses.

Table 4

Test of Significance of Male and Female Undergraduate Students' Perceptions of the Influence of Team Teaching on their Interest in Biology Courses.

Sources of variation	N	Mean	SD	df	α-level	p-value	Remark
Male Students	220	2.85	0.73	418	0.05	0.03	Significant
Female Students	200	2.77	0.71				

Result analysis in Table 4 show p-value of 0.03 with 418 degree of freedom and alpha level of 0.05. Since the p-value of 0.03 is less than alpha level of 0.05, the null hypothesis is rejected. This means that there is a significant difference between male and female undergraduate students' perceptions of the influence of team teaching on their interest in Biology courses in favour of the males.

Discussion

The finding of the study revealed that undergraduate students perceived that team teaching positively influenced their interest in Biology courses. This is understandably so given that team teaching offers undergraduate students the opportunity of acquiring knowledge from different lecturers. More so, it reduces the incidence of victimization of students by sole lecturers in charge of a course. Additionally, the positive influence of students could be linked to the fact that they have opportunity of making up for any poor performance on exposure to assessment by one lecturer. The finding of the current study is in collaboration with that of (Darma, 2018), who found that students developed high interest in learning of Basic Science Concepts on exposure to team teaching strategy. In other words, team teaching elicit students' interest in a subject or course. The finding of the study is further consistent with that of Okechukwu & Opara who found that a significant difference existed in interest scores of students exposed to Basic Science and Technology using team teaching strategy. This speaks to the effectiveness of team teaching in enhancing students' interest.

Furthermore, the finding of the study showed that team teaching influenced male undergraduate students' interest in Biology courses more than their female counterparts as perceived by them. In other words, interest of male students is higher in biology courses than their female counterparts on exposure to tem teaching. This is however contradicted by (Kans & Claesson (2022); Palmer *et al.* (2017); Slavit *et al.* (2016), who found that females were more interested in biology than their male counterparts. The afore-mentioned trend could be attributed to the fact that while female students linked practical subjects with a sense of creativity and relaxation, male students linked practical subjects principally with usability. The foregoing contradiction could be traceable to sample characteristics of the subjects in the disparate areas of study.

Consequent upon the findings of the study, it was concluded that team teaching has a positive influence on undergraduate students' interest in Biology courses as perceived by them. It was further concluded that undergraduate students' interest in Biology courses as perceived by them on exposure to team teaching is moderated by gender.

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

1. University authorities should ensure that Biology lecturers sustain their use of team teaching technique so as to sustain their students' interest in Biology courses.
2. Guidance and counsellors should schedule counselling sessions for female undergraduate students on the need to shore up their interest in Biology on exposure to team teaching. This is with a view to bridging the interest gap between the male and female undergraduate students in Biology courses when exposed to team teaching.

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