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Impact of Team-Teaching on Anxiety and Performance in Energy Concept Among Male and Female Upper Basic Science Slow Learners in Yobe State, Nigeria

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ABSTRACT
This study investigated Impact of Team-Teaching Strategy on Anxiety and Performance in Energy Concept among Male and Female Upper Basic Science Slow Learners in Yobe State, Nigeria. The researcher used quasi-experimental control group design involving pretest and posttest for the study. The study has five objectives, five research questions and five null hypotheses. The study involved 19 junior secondary schools running Co-Education Programme with a population of 24,506 students, 15,557 boys 8,949 girls. Simple random sampling using balloting method was used to select 244 students as the sample forming the experimental and control groups. Two instruments were used for data collection. The instruments were validated by senior lecturers in the Department of Biology Education. The reliability of the instruments was determined through the test-retest method. Reliability coefficient and was found to be r = 0.87 and r = 0.77 for BSAPT and BSAQ respectively. The data collected were analyzed and the means and standard deviations were used to answer the research questions. The hypotheses were tested using t-test and Mann=Whitney. The findings of the study revealed that students taught Basic Science using Team-teaching strategy performed significantly better than their counterparts who were taught Basic Science using Single-Teacher Strategy. There is also significant difference in the academic performance between male and female students in the experimental group in favor of female students. Based on the findings, the researcher, among others, recommend that Team Teaching Strategy be used to teach slow learners different concepts in Basic Science at Upper Basic Science level in Yobe State, Nigeria.
Keywords: Team-Teaching, Anxiety, Performance, Energy Concept, Upper Basic Science.

INTRODUCTION

According to the policy, Science education should emphasize the teaching and learning of science process skills and products such as observation, classification, measurement, experimentation and principle slaws, theories and so on. National Policy on Education (FME, 2014) opined that such processes and principles will lead to fundamental and applied research in the sciences at all levels of education. In response to the problem, Harbor-Peters (2005) pointed out that the poor performance of students in Sciences and Mathematics has resulted in great shortage of technical manpower needs for scientists, mathematicians and engineers. To achieve this there should be appropriate strategy for presentation like Team-teaching at Junior Secondary level. Roth (2002) defined team-teaching as two or more individuals coming together in a collaborative relationship to share work in order to achieve the stated objectives. Roth (2002) opined that at the high institution, it is often discussed and recommended in teacher preparation programmes as a way both to utilize the professional understandings of two teachers as well as to meet the needs of diverse students in a classroom. According to Heather (2008) Team teaching involves a group of instructors working purposefully,

regularly and cooperatively to help a group of students of any age to learn. Teachers together set goals for a course, design a scheme of work, teach students and evaluate the results, in doing this the level of anxiety among Upper Basic can be reduced.

The word anxiety is derived from Latin word "angere," meaning to cause distress. Anxiety has also been defined as a vague, uncomfortable feeling exacerbated by prolonged stress and the presence of multiple stressors (Sharma & Sharma, 2015). According to Attwood (2016) Anxiety is simply the body's reaction to stressful, dangerous, or unfamiliar situations. It's the sense of uneasiness, distress, or dread you feel before a significant event. Worrying about a job interview or stressing out over a test. Anxiety is a condition of persistent and uncontrollable nervousness, stress, and worry that is triggered by anticipation of future events, memories of past events, or ruminations over day-to-day events, both trivial and major, with disproportionate fears of catastrophic consequences. Stimulated by real or imagined dangers, anxiety affects people of all ages and social backgrounds. Attwood (2016) opined that when anxiety occurs in unrealistic situations or with unusual intensity, it can disrupt everyday life. Davis (2004) defined anxiety as a conditioned response to a perceived threatening stimulus which could be learned or inherited.

Barlow (2002) viewed that anxiety is a displeasing feeling of uneasiness, nervousness, apprehension, fear, concern or worry. Rohen (2012) observed that anxiety is both a trait which is relatively stable characteristics and a state i.e a temporary characteristics. According to Rohen (2012) anxiety is an emotional state characterized by fear, apprehension, and physiological arousal. It is a state in which an individual worries, feels nervous and becomes uneasy, sometimes of being menaced by unspecified threat to one's personality. Anxiety is a feeling of uneasiness and apprehension about some undefined threats and that the threat is often physical with intimations of bodily harm or death or it is psychological with threats to self-esteem and well-being. Frank-Briggs and Alikor (2010) observed that when anxiety is too high can block learning and teachers with high anxious students may need to concentrate on building relationship that allow the students to feel not threatened in that environment. Frank-Briggs and Alikor (2010) defined anxiety as an unpleasant emotional state for which the cause is either not readily identified or perceived to be uncontrollable and unavoidable; whereas, fear is an emotional and physiological response to a recognized external threat. According to Seligman, Walker, & Rossenhan, (2001) viewed that anxiety can also be described as a state of discomfort which occurs in response to situations involving scientific tasks which are perceived as threatening to self-esteem. Such feelings are shown to lead to panic, tension, helplessness, fear, distress, shame, inability to cope, sweaty palms, nervous stomach, difficulty in breathing, and loss of ability to concentrate.

According to Harris & Coy (2003), Anxiety is a subjective feeling of tension, apprehension, nervousness, and worry associated with arousal of the nervous system. The high level of anxiety causes a person's normal life being difficult such as interfered activities and social life. Harris & Coy (2003) opined that anxiety is a basic human emotion consisting of fear and uncertainty that typically appears when an individual perceives an event as being a threat to the ego or self-esteem. Chid (2009) viewed that Anxiety is one of the wide varieties of emotional and behavior disorders. Students with anxiety disorder exhibit a passive attitude in their studies such as lack of interest in learning, poor performance in exams, and do poorly on assignments. The anxiety's psychological symptoms among students include feeling nervous before a tutorial class, panicking, going blank during a test, feeling helpless while doing assignments, or lack interest in a difficult subject whereas the physiological symptoms include sweaty palms, cold, nervousness, panic, fast pace of breathing, racing heartbeat, or an upset stomach (Ruffins, 2007). According to Huberty (2009) anxiety is a normal reaction to certain situations. He observed that social anxiety can also affect a student's academic performance. If a student has social anxiety, the student might not be able to complete group tasks or might not feel comfortable asking for help in class. Social anxiety can go along with or even lead to academic anxiety (Huberty, 2009).

According to Basavanna (2000) anxiety is a highly unpleasant affective state similar to intense fear which can include feelings of threat, vague objectless fear, a state of uneasiness and tension, and a generalized feeling of apprehension. Basavanna (2000) identifies three types of anxiety; Reality anxiety (an emotional reaction to perception of danger in the external world); Neurotic anxiety (an affective reaction to threat from the internal world; and Moral anxiety (an emotional reaction to perception of danger from the superego. Anxiety thus occurs to the body system after one has experienced a threatening situation. An automatic physiological response is triggered to prepare to

protect oneself, or escape from the source of threat. If the activity is carried out, then the changes are reversed, however, if no activity is done, the body continues to remain in the "charged state" for longer than normal, and the resulting changes become a disturbing source of anxiety. This leads to further activation of the flight or fight response and the whole cycle is continued (Basavanna, 2000).

Generally, anxiety can be either a trait anxiety or a state anxiety. A trait anxiety is a stable characteristic or trait of the person. A state anxiety is one which is aroused by some temporary condition of the environment such as examination, accident, punishment etc. Academic anxiety is a kind of state anxiety which relates to the impending danger from the environments of the academic institutions including teacher, certain subjects like Mathematics, English etc. Anxiety is considered as a block to an activity. A person who suffers from anxiety may not be able to devote his full energy -in the performance of a task. It is, therefore, considered by many that anxiety interferes with the activity and so learning is impeded. Taylor (2014) opined that anxiety is both a physical and mental issue that affects millions of people all over the world. It's crucial that you understand what anxiety you're suffering from and how it affects you.

Impact of Anxiety on Academic Performance

According to Sampa (2005) anxiety affects intellectual functioning and leads to maladaptive behavior. The natural response to anxiety is to defend oneself and this can be done by either attacking the source of anxiety or trying to neutralizing it, or by escaping from it. Some students respond to anxiety by breaking out in violent verbal outburst and simply break into tears and cry while others escape it by dodging from classroom. Kuppuswamy (2003) observed that fearful and frightening situations from the beginning produce in the children the withdrawing attitude and a sense of fear and anxiety. The fearful situation persisting in students' lives for long make students recessive and reserve and they are likely to feel nervous or shaky in presence of superiors or when called upon to participate in group activities they are required to do, they become anxious and withdraw from the work. Donald (2000) viewed that most often emotional conflicts and developmental issues causes more stress and anxiety than the students can cope with this may result in a range of behaviors and difficulties which are the result of their attempts to ward off anxiety. One way of trying to escape anxiety might be to avoid engaging in anxiety arousing situations. The need to cover up or tell lies is often the result of such patterns of avoidance. Anxiety, in most cases, results to frustration, and this is capable of affecting the totality of the individual as well as his/her personality (Omoluabi, 2003).

Sampa (2005) observed that fear of failure leads to anxiety and when the anxiety about the test is so high, it can counteract the motivation of students leading to poor performance. Taking a difficult examination increases both cognitive and somatic anxiety, which hinders performance on the examination and that if a learner gets to the item on a test that he does not know and begins to worry about failure he would not be able to concentrate on the rest of the test. Santos (2004) pointed out that anxiety effects lead to loss of pleasure of learning: when the students concentrate more and worry about the marks or grades they would get, then the process of learning losses its joy. It is also associated with less efficient cognitive functioning: Anxiety reduces student's ability to concentrate. As a mental health problem, it induces physical and psychological stress. Stress overtime can cause ulcers, headaches, high blood pressure, digestive problems and depression that affect cognitive functioning (Santos, 2003). According to Santos (2003) both induced anxiety and neurotic anxiety facilitates rote and less difficult kinds of meaningful reception learning. Anxiety High anxious students score lower than their peers on measures of IQ and achievement tests such as basic skills in basic science. Anxiety leads to poor engagement in class and high anxious students are motivated to avoid engaging in tasks that require communication (Lyneham, 2009).

Anxious children have a narrow focus of attention biased towards possible threat; Unconscious bias for picking up threat and mentally scan environment. According to Afolayan (2013) that Anxiety impact is common in childhood and adolescence and can negatively interfere with general well – being, social life, academic performance and development of social skills among school children.

Gender Issues in Basic Science Education

Okeke (2007) opined that the consequence of gender stereotyping cut across economic, political, social and educational development in the area of Basic science. Some studies observed that there is no significant difference in the achievement of male and female in Basic science subject, but Ezirim (2006) noted that gender has impact on science education. Male supremacy and gender stereotyping are factors among others that were identified to influence occupational choice. Adedeji and Longe

(2003) observed that science and technology is a male dominated subject and that females tend to shy away from science and technology fields. They further noted that boys appear to have a natural positive attitude towards science and technical subjects while girls show negative attitudes. The negative attitudes appear to be due to the acceptance of the myth that boys are better than in science subjects than girls.

Gender and Anxiety in Science

Udo (2004) defined Science anxiety as "a debilitating combination of fearful negative emotion and cognition in the context of science learning". Science anxiety can occur before or during learning science material. He observed that female students were found to experience higher science anxiety than male students in middle and high school. Udo (2004) suggested that males, based on cultural expectations, tend to under-report their level of science anxiety to meet with the stereotypic pressures on them to specialize in science and to deny the need for emotional support, whereas females tend to over-report their science anxiety levels. Griggs (2013) carried out a study and found that there was a positive correlation between gender and science anxiety in fifth graders, indicating that boys had more science anxiety than girls, but there was no gender difference in self-efficacy toward science. In contrast, some studies found no gender difference in science anxiety in primary school pupils and university students; although females had higher science grades in high school than males and According to Brownlow (2000), also said that in science achievement there was higher achievement in girls than in boys.

METHODOLOGY

This study investigated Impact of Team-Teaching on Anxiety and Academic Performance in Basic Science among Male and Female Upper Basic two Science Slow Learners in Yobe State, Nigeria.

Research Design

The study used quasi-experimental control group design involving pretest and posttest. The pretest and posttest were administered to the two groups. The experimental group was exposed to the treatment using team teaching techniques while the control group was exposed to single-teacher teaching techniques.

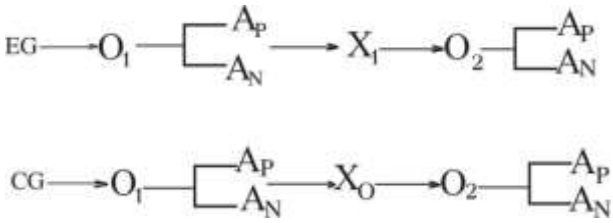

Fig 3.1 Research Design

KEY

EG———--Experimental group
CG———-Control group
X_1————Team-Teaching
X_o————Single-Teacher Teaching
A_P ---------Academic Performance
A_N ---------Anxiety
O_1 ———-Pre-test
O_2 ————Post-test

Population of the Study

The population of the study covers all government day junior secondary two [JS2] students in Yobe State. There are 19 junior secondary schools running Basic Science Programme with the population of 15,557 boys, 8,949 girls, and a total of 24,506 students in the study area. All those schools running co-educational (mixed), but single sex schools were not included. The summary of the population is presented in Table 1.

Table 1: Study Population Upper Basic Science Two Enrolment

S/N.	Name of school	Boys	Girls	Total
1	G.D.J.S.S. Yarimaram	2454	1438	3892
2	G.D.J.S.S.Kara	2146	1632	3778
3	G.D.J.S.S. Arikime	2559	868	3427
4	G.D.J.S.S. Gadaka	1275	1045	2320
5	G.D.J.S.S. Dorawa	1317	1149	2466
6	G.D.J.S. S. Chadi	1355	941	2296
7	G.D.J.S.S. Moimama	680	505	1185
8	G.D.J.S.S. Mamudo	554	392	946
9	G.D.J.S.S. Garbawa	688	153	841
10	G.D.J.S.S. Badejo	576	225	801
11	G.D.J.S.S. Gashaka	474	30	504
12	G.D.J.S.S. Daya	226	169	395
13	G.D.J.S.S. Jumma'a	233	81	344
14	G.D.J.S.S. Bula	190	111	301
15	G.D.J.S.S. Ngalda	207	89	296
16	G.D.J.S.S. Dakasku	180	30	210
17	G.D.J.S.S. Danchuwa	177	30	207
18	G.D.J.S.S. Godowoli	167	38	205
19	G.D.J.S.S. Maluri	99	23	122
	Total	**15,557**	**8,949**	**24,506**

Source: State Universal Basic Education Board (SUBEB, 2020) Yobe State, Nigeria

The target population of the students in the study area is twenty-four thousand five hundred and six (24,506). The average age of the population is twelve (12) years. The tribes from which the subjects were drawn are Bolewa, Kare-Kare, Ngizim, Ngamo, Hausa-Fulani, Kanuri, and Bade. The researcher used JS2 students for the study. This is because JS3 students are preparing for their JS3 final examination and JS1 are fresh just starting junior secondary school from primary school system.

Sample and Sampling Techniques

The researcher used simple random technique in selecting the schools for the study. Two secondary schools were selected out of 19 in the study area by using balloting method, writing 'yes' on only two of the ballots the remaining seventeen (17) ballots were written 'no' on them. The two groups were also selected for team-teaching and single teacher-teaching strategy by using same method. The two intact classes of the two schools were involved as group A and B.

Table 2: Sample for the Study

School	Group	Strategy	Number of Males	Females	Total
A	Experimental	Team Teaching	75	53	128
B	Control	Single Teaching	62	54	116
	Total		**137**	**107**	**244**

Instrumentation

The Instruments for the study were: Basic Science Academic Performance Test (BSAPT) and Basic Science Anxiety Questionnaire (BSAQ).

Table 3: Item Specification Based on Blooms Cognitive Taxonomy

Content/Objec.	Weight	Knowl.	Compr.	Applic.	Anal.	Synth.	Evaluation	Total
	%	20%	20%	20%	20%	10%	10%	100%
Energy	15	1	1	2	1	0	1	6
Forms of energy.	15	2	1	1	1	1	0	6
Sources of energy	17.5	1	2	1	1	1	1	7
Energy conversio	17.5	2	1	2	1	1	0	7
Uses of energy	20	2	1	2	1	1	1	8
Energy classiftn.	15	1	2	1	0	1	1	6
Total	**100**	9	8	9	5	5	4	40

Source: (Researcher, 2022).

Validation of the Instruments

The instruments for the research were validated by the senior lecturers with Ph.D. degree in the School of Science Education. Their validation considered the following in order to: i) verify if the items could test what they were supposed to, ii) determine the clarity of the language used. iii) to suggest how the items can be modified to make them more appropriate, iv) confirm if the items were suitable for use at that level, v) determine if the difficulty level of the items match the ability levels of the subjects. Their criticisms, comments, corrections, suggestions, and recommendations were affected to produce the final version for final data collection.

Reliability of the Instruments

In this study, test retest reliability coefficient method was used and the analysis using Pearson Product Moment Coefficient (PPMC) obtained from the pilot testing of the Basic Science Academic Performance Test (BSAPT).

Administration of the Treatment

The research assistants under the supervision of the researcher conduct the test to the two groups as the pre-test. After the pre-test, the research assistants under the guidance of the researcher administered the treatment for six weeks. In the first group, the first teacher presented and concludes the lesson in the first period. Then, the second teacher took over in the second segment of the period and continues with the presentation but with different sub-topic.

Training of Research Assistants

The researcher trained three (3) research assistants for the study. The researcher used five-days for intensive training for the research assistants to get them acquainted with the method to be used during instruction for six (6) weeks. During the training, the researcher coached the teachers on how to go about the Team-Teaching (lesson planned) and the steps followed. The researcher also taught the teachers on how to handle the instructional materials, that is how and when to use them in the class.

Data Collection Procedure

The researcher sought for the permission from the principals of the selected schools to allow their schools to be used for the study.

Procedure for Data Analysis

After the collection of data for this research, the SPSS package was used in the main statistical tool for analyzing the data. The following null hypotheses were tested at a significant level of $P \leq 0.05$. From Table 14 the p-value ($p = 0.33$) is obtained. Since the p-value (0.33) is greater than alpha- value (0.05), the null hypothesis is rejected. This therefore shows that the null hypothesis that says there is no significant difference in the mean scores of upper Basic Science slow learners exposed to team-teaching and those that were exposed to single-teacher teaching in Basic Science is therefore rejected.

RESULTS

This study investigated the Impact of Team-Teaching on Anxiety and Academic Performance in Energy Concept among Male and Female Upper Basic Science Slow Learners in Yobe State, Nigeria.

Research Question One: *What is the difference in the mean scores of students exposed to Team-Teaching Strategy and those exposed to Single-Teacher Teaching Strategy in Energy Concept?*

To answer this research question descriptive statistics was used. The means and standard deviations of the post test scores of the experimental and control groups were calculated and presented in Table 4.

Table 4: Mean and Standard Deviation of Post Test Scores of Slow Learners in Experimental and Control Groups

Group	N	Mean	SD.	Mean Diff.
Experimental	128	15.54	3.33	3.57
Control	116	11.97	5.10	

Table 4 shows a mean score difference of 3.57 in the academic performance of students taught Basic Science using team-teaching and single teacher-teaching strategy. The students exposed to team-teaching strategy recorded higher academic performance with the mean score of 15.54 than their counterpart with a mean score of 11.97. The standard deviations for the two groups were 5.10 and 3.33 respectively.

Research Question Two: *What is the difference in the mean scores of male and female slow learners exposed to team-teaching and those exposed to single teaching strategy at JS level in Basic Science?*

To answer this research question, the post-test scores of male and female Basic Science students exposed to team-teaching strategy at JS level were subjected to descriptive statistics. Means and standard deviations were computed. The result is presented in Table 5.

T**able 5: Mean Scores of Male and Female Slow Learners Exposed to Team-Teaching and single teaching Strategy at Upper Basic two in Basic Science**

Gender	N	Mean	Standard Deviation	Mean Diff.
Female	53	10.73	4.60	2.51
Male	75	8.22	2.75	

The result in Table 5 indicated the means, standard deviations and mean difference between male and female students taught Basic Science using team-teaching strategy. The mean difference of 2.51 between male and female students exposed to team-teaching strategy at Upper Basic level in Basic Science, shown that female students had a higher means score than their male counterparts, having a higher mean score profile of 10.73 while the mean score of male students is 8.22.

Research Question Three: *What is the impact of team-teaching and single-teacher teaching strategies on anxiety of JS Basic Science students?*

To answer this research question, the data generated via BSAQ were subjected to descriptive statistic. The means and standard deviations of the experimental and control groups were calculated. The result is presented in Table 6.

Table 6: Team-Teaching and Single-Teacher Teaching Strategies on Anxiety of JS Basic Science Slow Learners

Group	N	Mean	SD	Mean Diff.
Experimental	128	11.58	3.00	2.07
Control	116	9.58	4.04	

Source: Field Survey, 2022.

The results in Table 6 show means standard deviations and the mean difference of 2.0739 in the post-test scores of the two groups Team-teaching and Single-teacher teaching. The experimental group taught Basic Science using team teaching recorded a higher mean score of 11.59 when compared to the other counterpart, with a mean of 9.58.

Research Question Four: *What is the difference in anxiety level between male and female students taught Basic Science using Team-Teaching Strategy?*

To answer this research question the data generated via BSAQ were subjected to descriptive statistics. The means and standard deviations of male and female students of the experimental group were calculated and result is presented in Table 7.

Table 7: Anxiety level between Male and Female Slow Learners taught Basic Science Using Team-Teaching Strategy

Sex	N	Mean	SD	Mean Diff.
Male	75	4.12	1.07	0.17
Female	53	3.95	1.17	

Source: Field Survey, 2022

Table 7 showed standard deviation and mean difference of 0.17 between male and female students taught Basic Science using team-teaching strategy. The male students have high anxiety than the female counterparts with a higher mean score of 4.12 while the female students registered the mean of 3.95.

Research Question Five: *What is the difference in the mean scores of slow learners exposed to team-teaching and those exposed to single-teacher teaching in Basic Science?*

To answer this research question the data generated via BSAPT were subjected to descriptive statistics. The means and standard deviations of slow learners taught Basic Science using team-teaching and single-teacher teaching is presented in Table 8.

Table 8: Mean Scores of Slow Learners Exposed to Team-Teaching and Single-Teacher Teaching in Basic Science Strategy

Groups	N	Mean	SD	Mean Diff.
Experimental	128	9.46	8.93	1.28
Control	116	8.18	2.55	

Source: Field Survey, 2022.

Table 8 indicated the mean difference of 1.28 of slow learners who are exposed to Team-teaching and single-teacher teaching. The students exposed to team teaching have higher mean score than the students exposed to single-teacher teaching counterparts with a mean score of 9.46 while the single-teacher teaching registered a mean score of 8.18 respectively.

Null Hypothesis One (Ho_1)

There is no significant difference between the mean performance scores of students taught Basic Science using team-teaching strategy and those taught with single teaching strategy in Energy Concept. To test this hypothesis, post test data of the experimental and control groups generated via BSAPT were subjected to t-test analysis. The summary of the analysis is shown in Table 9.

Table 9: Summary of t-test Analysis of Post Test Data of Slow Learners in the Experimental and Control Groups

Groups	N	Mean	Std. Dev.	Df	P	Remark
Experimental	128	11.10	2.70	242	.000	Sg
Control	116	9.58	4.04			

From Table 9 indicated that there is significant difference at $p \leq 0.05$ since P = .000 is obtained. Now since the p-value (.000) is less than the alpha- value (.05), the null hypothesis is rejected. Therefore, it is established that there is a significant difference between the performance of students taught Basic Science using team-teaching and those taught Basic Science using single-teacher teaching in favor of the experimental group.

Null Hypothesis Two (Ho_2)

There is no significant difference between the mean scores of male and female students taught Basic Science using team-teaching strategy.

This hypothesis was tested using data collected from the Experimental group generated via BSAPT. The data collected were sorted out according to gender and subjected to t-test analysis to determine the impact of team-teaching strategy on the academic performance of male and female students. The summary of the result is shown in Table 10.

Table 10: Summary of t-test Analysis of Post Test Data of Male and Female Slow Learners of Experimental Group

Gender	N	Mean	Std. Dev.	Df	P	Remark
Male	75	10.88	4.83	126	.003	Sg
Female	53	8.22	2.75			

Source: Field Survey, 2020

From Table 10 the P value obtained is (P = .003). Since the p-value (.003) is less than alpha - value (0.05), the null hypothesis is rejected. Therefore it is empirically established that there is significant difference in the academic performance between male and female students in the experimental group in favor of female students.

Null Hypothesis Three (Ho_3)

There is no significant difference in the anxiety of Basic Science students before and after exposure to the Team-teaching strategy.

To test the hypothesis, t-test was used to test hypothesis three in order to find out the difference in the anxiety of Basic Science slow learners exposure to the strategy. This hypothesis was tested with data collected from students' anxiety before and after students exposed to team-teaching strategy. The finding is presented on Table 11.

Table 11: Summary of t-test Analysis on Anxiety of Slow Learners before and after Exposure to the Strategy

Groups	N	Mean	Std. Dev.	Df	P	Remark
Before exposure	128	4.44	.81	126	.000	Sg
After exposure	128	3.52	1.36			

Source: Field Survey, 2020

From Table 11 there is P = .000 is obtained. Since the p-value (0.000) is less than alpha - value (0.05), the null hypothesis is rejected. Therefore the researcher concluded that there is significance difference in the anxiety of Basic Science Slow learners before and after exposure to team-teaching strategy. This therefore the null hypothesis which stated that there is no significant difference in the anxiety of Male and Female Upper Basic Science Slow Learners before and after exposure to Team-teaching strategy is rejected.

Null Hypothesis Four (Ho_4)

There is no significant difference in the anxiety level of male and female students taught Basic Science using Team-Teaching Strategy.

This hypothesis was tested with data collected from male and female students taught Basic Science using team-teaching strategy. Independent Sample t-test was used in comparing the difference in the anxiety level of male and female students taught Basic Science using team-teaching at 0.05 of significance level. The summary of the finding is shown in Table 12.

Table 12: Summary of t-test Analysis on the Anxiety level of Male and Female Slow Learners in Experimental Group

Group	Sex	N	Mean	Std. Dev.	Df	P	Remark
Experimental	Male	75	2.30	2.06	126	.000	Sg
	Female	53	3.50	1.51			

Source: Field Survey, 2020

From Table 12 the p-value (p = 000) is obtained. Since the p-value (0.000) is less than

alpha - value (0.05), the null hypothesis is rejected. Therefore the researcher concludes that there is mean significance difference of 1.2 in the anxiety level between males and females taught Basic Science using co-teaching rotation model of team-teaching strategy.

Table 13: Mann Whitney Test on Anxiety level of Male and Female Slow Learners taught Basic Science using Team Teaching

Ranks

Group	Sex	N	Mean Rank	Sum of Ranks	Mean Rank Diff.
Experimental	Male	75	52.13	2346.00	0.23
	Female	53	51.90	3010.00	
	Total	128			

Table 13 is very useful because it indicates which group can be considered as having the higher academic performance, overall; namely, the group with the highest means rank. In this case, female group had the highest academic performance. From the Table 13, it can be concluded that academic performance of students exposed to experimental group generated from BSAPT who were subjected to Mann Whitney female group was statistically significant different from the male group.

Null Hypothesis Five (Ho_5)

There is no significant difference in the mean scores of slow learners exposed to team-teaching and those that are exposed to single-teacher teaching in Basic Science.

This hypothesis indicates the difference in the mean scores of slow learners exposed to team teaching and those exposed to single teacher teaching strategy. The hypothesis was tested with the data collected from the performance of upper Basic Science slow learners that were exposed to team-teaching and single-teacher teaching strategy. The finding is presented in Table 14.

Table 14: Summary of t-test Analysis on Slow Learners exposed to Team -Teaching and Single Teacher-Teaching Strategy

Strategy	N	Mean	Std. Dev.	Df	P	Remark
Team-teaching	128	8.18	2.55	142	0.33	NS
Single-teaching	116	8.54	2.77			

From Table 14 the p-value (p = 0.33) is obtained. Since the p-value (0.33) is greater than alpha- value (0.05), the null hypothesis is rejected. This therefore shows that the null hypothesis that says there is no significant difference in the mean scores of upper Basic Science slow learners exposed to team-teaching and those that were exposed to single-teacher teaching in Basic Science is therefore rejected.

Null Hypothesis Six (Ho_6)

There is no significant difference in the mean scores of male and female slow learners exposed to team-teaching strategy at JS level in Basic Science.

In this hypothesis, paired sample t-test was used to find the difference in the mean scores of male and female slow learners exposed to team teaching. Therefore this hypothesis was tested with data collected from slow learners exposed to team-teaching strategy.

Summary of Findings

The following are the major findings of this study:

i. Students taught basic science using team-teaching have significantly performed better than those students in the control group taught Basic Science using single-teacher teaching strategy at JS level.

ii. There is significance difference in the academic performance between male and female Upper Basic Science Slow Learners in the experimental group in favour of Male students.

iii. There was significant reduction in anxiety and increase in Students academic performance after exposure to team-teaching strategy among Upper Basic Science Slow Learners.
iv. There was significant difference in the anxiety level between male and female students in the experimental group. Female students have higher academic performance over the male counterparts

DISCUSSION

The data collected from this study were based on the Basic Science Academic Performance test (BSAPT) and responses obtained from the Students' Anxiety Questionnaire (SAQ). The discussions were based on the results obtained from the stated Null Hypothesis. According to the outcome of this study students taught basic science using team-teaching strategy have significantly performed higher than the students taught basic science using single-teacher teaching strategy. The finding is in agreement with Akudolu, Esomonu and Ezenwosu (2015) who carried out a study and examined the effects of Team-Teaching Approach (TTA) on the achievement of students in English language comprehension, their finding showed that students taught English language comprehension using team-teaching approach achieved significantly higher than those of the control group who were taught English language comprehension using single-teacher teaching approach (STA). Similar study conducted by Hooda and Sharma (2014) and Godwin and Hogan (2010) agreed with the finding at hand, their results of the study revealed that there was a significant positive effect of team-teaching on academic achievement of students in Science.

Karin (2000) in the same development observed that the strategy enabling the students to obtain higher achievement. The finding also agreed with Ubah (2005) who worked on the effect of team-teaching on students' achievement in Further Mathematics. The result showed that students taught through Team-teaching Strategy had a higher achievement than students taught through Individualized-teaching Strategy. The finding of Uwameiye and Ojikutu (2008) in the same way agreed with the present finding since their result on Effect of Team-Teaching on the Academic Achievement of Students in Introductory Technology have effect and a positive impact on students' academic achievement compare with the control group taught Introductory Technology using conventional teaching. Mohammed, Halilu and Ali (2017) studied and examined the effects of examination anxiety on university students' academic performance in Northwest University, Kano State, Nigeria. The results obtained revealed that there was no significant difference between male and female students on the causes as well as effects of examination anxiety regarding their academic performance. This is not in agreement with the current finding. Syokwaa, Aloka & Ndunge (2014), investigated the relationship between anxiety levels and academic achievement among students in selected secondary schools in Lang'ata District, Kenya. The study found out that, there was a correlation between anxiety levels and academic achievement, and that high anxiety levels had a negative impact on the quality of academic results recorded by students. The result indicated that girls performed better than boys.

The result indicates that male students in the experimental group taught Basic Science using team-teaching performed higher than their female counterparts of the same group. The result also shows that p-value is less than alpha level of significance ($p \leq 0.05$). Based on these results, the research hypothesis four (4) which states that " There is no significant difference in the anxiety levels of male and female students taught Basic science using team-teaching strategy is therefore rejected. The independent t-test statistic revealed that the calculated p-value is less than the alpha levels of significance ($p \leq 0.05$) while the t-calculated value is greater than the t-critical value. The mean performance scores of male students are higher than the female students in the experimental group. The null hypothesis two which states that "There is no significant difference between the mean performance scores of male and female students taught Basic science using team-teaching strategy" disagreed with the result obtained.

The alpha level of significance ($p \leq 0.05$) is less than the calculated p-value. The mean scores of slow learners exposed to team teaching is less than the mean scores of slow learners exposed to single teacher teaching. This implies that slow learners exposed to single teacher teaching strategy in Basic science have significantly performed higher than those students exposed to team teaching strategy. The null hypothesis five which states that "There is no significant difference in the mean scores of slow learners exposed to team teaching strategy and those exposed to single teacher teaching strategy

in Basic Science" is rejected since the result of the paired sample t-test statistic revealed that there is significant difference in the mean scores of slow learners exposed to team.

CONCLUSIONS

The following conclusions are drawn from the Study:

1. Upper Basic Science Slow Learners performance is impacted by Team-teaching.
2. Team-teaching strategy has more impact on Female Upper Basic Science Slow Learners than the male counterparts in the experimental group.
3. Team-teaching has reduced more level of anxiety among female Upper Basic Science Slow Learners than their male counterparts.
4. When Team Teaching Strategy is used in teaching and learning Basic Science, Upper Basic Science Slow Learners develop high interest, reduce anxiety and gain courage during learning.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made:

1. Government should organize regular in-service training for Basic Science teachers which may be in the form of workshops, seminars, conferences among others.
2. Teachers of Basic science in Yobe State should be encouraged to adopt constructive team discussion to increase their knowledge on team-teaching strategy at JSS two (2) level.
3. Teachers and students should be encouraged to solve class problem in the class so that the spirit of team working would be developed and reduce the level of anxiety among students.
4. Teachers should ensure that female students participate actively during the teaching and learning process.
5. Teachers should ensure that Slow Learners are given enough time and fully participating actively during the teaching and learning process in the class.

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