"**Effects** of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria"

# Effects of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria

## Abiodun Emmanuel OKEYA (Ph.D)

Department of Science Education, Bamidele Olumilua University of Education, Science and Technology, Ikere – Ekiti,  Ekiti State, Nigeria.

**Abstract**

*The study examined the effects of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria. Specifically, the study was designed to investigate the difference in the attitude of students exposed to team teaching strategy and conventional method before and after the treatment. This study adopted a pre-test and post-test two group quasi experimental design (one experimental group and one control group). The population of the study comprised 21,677 junior secondary three students in 205 public secondary schools in Ekiti State. The sample consisted of 163 students in intact classes drawn from four public secondary schools in one senatorial district from the three senatorial districts in Ekiti State. The sample was selected using multistage sampling procedure. Two research instruments namely Performance Test in Basic Science (PTBS), and Basic Science Attitudinal Scale (BSAS) were used to collect relevant data for this study. The instruments were subjected to validity and reliability mechanism. The reliability of the instruments were established using Cronbach Alpha which yielded reliability co-efficient value of 0.73 and 0.79 for PTBS and BSAS respectively. The data collected for this study were analysed using descriptive and inferential statistics. The research questions were answered using means, standard deviation and bar chart. All Hypotheses were tested using t-test, Analysis of Variance (ANOVA) and Analysis of Covariance (ANCOVA). All hypotheses were tested at 0.05 level of significance. The findings of the study showed that the two groups (Team Teaching and Conventional) were homogenous at the commencement of the experiment. The use of Team Teaching Strategy enhanced attitude of students in Basic Science than the conventional method. Based on the findings of the study, conclusion and appropriate recommendations were made.*

**Keywords:** Team Teaching, Strategy, Junior Secondary School, Attitude, Basic Science.

**Introduction**

Science education is a field of study that requires a teacher  as  an important  figure in teaching  and  learning  process, because he/she follows  the  curriculum  so  that throughout the year all the important knowledge is provided to the students. The main purpose of teaching at any level of education is to bring out a significant change in the behaviour of learners (Tebabal & Kahssay, 2011).

Basic Science describes the most basic objects, forces, relationship between them and laws governing them, such that all other phenomena may be derived from them following the logic of scientific reductionism. The study of Basic Science leads to technological advancement and economic benefits that offer unique opportunities to meet the basic human needs, reduce poverty, protect the environment and improve the quality of life. Basic Science is the platform for knowledge base development (Okeya & Owolabi, 2020). Basic Science concepts are generally geared towards technological development and appropriate strategy for the acquisition of relevant skills needed for meaningful learning of science concepts. Basic Science enables students to develop an understanding of application of scientific knowledge to everyday activities. To achieve

**"Effects** of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria**"**

the goal of promoting technological advancement `through effective teaching of Basic Science at the secondary school level, it requires adequate use of appropriate teaching strategies that could enhance positive students attitude towards the learning of Basic Science.

Recently, there was a trend from Integrated Science to Basic science following the Nigeria Educational Research and Development Council's (2007) decision to re-structure the Basic Education Programme to the 9-year Basic Education Programme in order to attain the Millennium Development Goals (MDGs). Basic Science is one of the core subjects offered at the primary and junior secondary schools in Nigeria. It is an important subject that has positive impact on human life and nation's economy. Rudraiah (2015) states that Basic Science is the backbone of applied science or foundation on which all ancient and modern technology depends. Awechie (2011) states that Basic Science is a pure or fundamental science. It can be defined as man's systematic effort to understand natural phenomenon. It comprises five disciplines which are Physics, Chemistry, Mathematics, Biology and Basic Medical Science.

There has been dwindling performance of students and ill attitude towards Basic Science. Basic Science has always been the major building block of science at all levels of life. This is also considered as an important or integral part of the society. Hence, being successful in Basic Science is one of the prerequisites for placement in Science class at the senior secondary school level. Basic Science serves mostly all other branches of science like Physics, Chemistry and Biology. The society needs Basic Science to deal with scientific processes. In fact, it is the main subject that everybody needs. This made it a serious concern for everyone to ensure that every examinee achieves success in Basic Science at the junior secondary school level. Despite all benefits of Basic Science, some students see it as their least favourite subject which made it difficult for most students to succeed in school.

Attitude is defined as a person's feeling, thought and predicts position to behave or responds in some particular manner (Lakpini, 2006). Attitude seems to be an integral part in learning, it promotes or hinders teaching and learning of science. Attitude is a vial aspect of teaching and learning process that cannot be overlooked. In this regard, the student's development of positive attitude is part of the teachers' responsibilities. Attitude is an expression of like and dislikes or person's disposition towards a particular area, a discipline or an object. Such disposition is generally based on one's feelings, mood, opinion and beliefs about the idea, discipline and object (Gadzama, 2010). Attitude is indispensable in personality formation and manifestation and it is a core aspect in the study of human behavior. It has components which are related to beliefs, feelings and the tendencies to behave in a particular way. Students who are active in the instructional process, manipulating, measuring, observing, and recording data have been found to have more positive attitudes towards science than their peers who are asked to complete a worksheet following a traditional teacher led lecture (Holstermann, Grube, & Bögeholz, 2010). Attitude is a function of affective and cognitive components.

According to Onyeachu (2018), attitudes are the evaluations and associated beliefs and behaviours towards some objects. They are not stable, and because of the communication and behaviour of other people, are subject to change by social influences, as well as an individual's motivation to maintain cognitive consistency when cognitive dissonance occurs. The students' attitude towards an academic subject is a crucial factor in learning and achievement in a particular subject. Whether a student views herself or himself as a strong or weak person in a specific subject may be an important factor in her or his academic achievement. Pokhrel (2018) observes that students generally had positive attitudes towards Basic Science and science, and that instruction in school settings provides one important and regularly experienced context in which ideas and perceptions about subject matters as well as other cognitive and affective outcomes can be shaped.

**"Effects** of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria"

The use of innovative teaching strategy like team teaching during the teaching and learning process of Basic Science may affect students' attitude towards the subject. Jegede & Daramola (2013) opines that appropriate learning strategies employed by the teacher must depend on learners' interest and attitude which can invariably increase and enhance enrolment in science at the upper basic class. For the teacher, it is most important to make use of instructional strategies that help students reach their learning goals. Teachers can positively impact students' attitude toward science learning through teaching strategies that encourages students to be active in their learning through activities that include manipulating objects, observing and measuring effects, and tracking data (Gadzama, 2010). In the same vein, Singh (2012) asserted that students exposed to team teaching strategy showed a positive change in attitude towards science after exposure to teachers collaborative instructions and activities.

Team teaching is generally considered to be an instruction delivered by two or more qualified instructors who, together, make presentations to an audience. Brandenburg (2011) defines team teaching as a process in which all team members are equally involved and responsible for student instruction, assessment and the setting and meeting of learning objectives. Other authors suggest that team teaching is a model that involves two or more instructors collaborating in the planning and delivery of a course. Team teaching exposes students to a variety of teaching styles and approaches, which increases the potential for the team to meet the various learning styles of students.

Hughes & Murwaski (2011) affirms that collaboration, cooperation and interaction distinguish team teaching from single teacher teaching. Beyond the advantages of creating, additional time for other academic activities and supportive environment, it equally augments the opportunity for intellectual growth, increases students' teacher interaction, overcome isolation that is the norm in the conventional single teaching approach (Iheagwam, 2016). For the students, team teaching can open a student's eyes to accepting more than one opinion and to acting more cooperatively with others. It may even provide educational benefits such as increasing the student's level of understanding and retention, in addition to enabling the student to obtain higher academic achievement. Team teaching is generally considered to be an instruction delivered by two or more qualified instructors who, together, make presentations to an audience. Brandenburg, (2011) defines team teaching as a process in which all team members are equally involved and responsible for student instruction, assessment and the setting and meeting of learning objectives.

It appears that Basic Science is not being taught the way it should in secondary schools. Though, lecture method makes coverage of syllabus easy and lesson planning for a wide audience easier, it is however viewed by majority of science educators as inadequate in promoting meaningful learning among all categories of learners. Basic Science needs to be viewed and practiced in a practical way, instead teachers seem to teach students to memorize facts and give them no room to do science. This appears to have affected the performance of students in the subject. They do not only perform below expectation, but have very low interest for it. The suspicion is that the inadequacies of using the single teacher teaching approach may have been partly responsible for students' ill attitude towards the subject.

The researcher observed that among the teaching strategies being used to teach Basic Science in secondary schools, team teaching has not been used, whereas, it is one of the modern and innovative teaching strategies which could improve the performance and the attitude of students in learning Basic Science in secondary schools. Evidences abound that team teaching strategy could be used to effectively facilitate better performance and attitude in Basic Science. It appears that the conventional method does not give attention to individual differences. This study, therefore, is a response to this challenge, and it is aimed at investigating the effects of team

**"Effects of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria"**

teaching strategy on junior secondary school students' toward Basic Science in Ekiti State, Nigeria.

The study examined the effects of team teaching strategy on junior secondary school students' attitude towards Basic Science in Ekiti State, Nigeria. The study specifically examined:

1. the difference in the attitude of students exposed to team teaching strategy and conventional method before treatment;
2. the difference in the attitude of students exposed to team teaching strategy and conventional method after treatment;

**Research Question**

The following research question was raised to guide the study:

1. What is the attitude of students towards Basic Science before and after treatment?

**Research Hypotheses**

The following null hypotheses were postulated for this study.

1. There is no significant difference in the attitude of students exposed to team teaching strategy and conventional method before treatment.
2. There is no significant difference in the attitude of students exposed to team teaching strategy after treatment.

**Methodology**

This study adopted a pre-test and post-test two group quasi experimental design (one experimental group and one control group). Pretest was used to establish the knowledge baseline of the students as well as the homogeneity of the two groups while post-test was used after the treatment to measure attitude of students.

The population of the study comprised 21,677 junior secondary three (JS III) students in 205 public secondary schools in Ekiti State. The choice of J.S. III students was considered more appropriate because they had been exposed to some Basic Science concepts in J.S. I and J.S. II. In addition, majority of the students would be able to work independently with little supervision.

The sample consisted of 163 students in intact classes drawn from four public secondary schools in Ekiti State, Nigeria. The sample was selected using multistage sampling procedure. The first stage involved the selection of one senatorial district from the three senatorial districts in Ekiti State through simple random sampling technique. In stage two, two Local Government Areas (LGAs) were selected from the senatorial district using simple random sampling technique. In stage three, two public secondary schools were selected from each of the LGA through simple random sampling technique. In stage four, the J.S. III intact class size of each of the four schools were used for the study. Stratified sampling technique was used to group the schools into different experimental and control groups so that the two schools that were selected from each of the Local Government Areas would take care of one experimental group and a control group. A day workshop was organized for each of the research assistants who handled the team teaching strategy.

Two instruments were used for collecting data for the study. The instruments are:
1. Performance Test in Basic Science (PTBS), and
2. Basic Science Attitudinal Scale (BSAS).

PTBS was used to measure performance of the students in Basic Science. It consisted of sections A and B, section A sought the bio-data of the respondents which included the name of school, local government area, class, group, identification number, sex, age. Section B of PTBS consisted of 40 multiple choice test items of five options (A – E) which made of twelve questions

IJO JOURNALS

**IJO - INTERNATIONAL JOURNAL OF EDUCATIONAL RESEARCH**

(E.ISSN: 2805-413X) (P.ISSN: 2536-6696)          **Abiodun Emmanuel OKEYA (Ph.D)\***

https://ijojournals.com/          *Volume 08 || Issue 02 || February, 2025 ||*

**"Effects** of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria**"**

on knowledge, eight questions on comprehension, eight questions on application, four questions on analysis, four questions on synthesis and four questions on Evaluation which covered Magnetism, Drug and substance Abuse, Environmental Hazards and Resources from Living and Non-Living Things. The items covered all the topics to be taught for the eight weeks. The PTBS was used for both pre-test and post-test for data collection. The pre-test was designed to test the homogeneity of the two groups. The options of contents of PTBS used for pre-test was reshuffled for the post-test in order to prevent carry-over effect. Correct answer to each of the question items was assigned '1' mark while wrong choice was assigned '0' mark.

BSAS consisted of sections A and B. Section A sought for bio-data of the respondents such as: name of school, local government area, class, group, identification number, sex, age while section B consisted of 20 items which sought for students' attitude towards Basic Science. This was structured on a 4-point Likert-type scale of Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. Each respondent was made to tick the appropriate option. The responses were collated and scored for data collection.

The face and content validity of the instruments were ensured using the judgment by experts of Test and Measurement and Science Education.. The validity determination was to assess the wordings and ambiguity of the test items and attitudinal scale as well as their coverage. For the face validity, experts indicated that the items and the build-up of the instruments had facial relevance and acceptability to what it claims to measure. Furthermore, experts determined the items in terms of simplicity and clarity to ensure that all the words that could confuse respondents were discarded. The experts agreed that the instruments were capable of eliciting valid responses from the respondents. In ensuring the content validity, the experts ensured that the items in the instruments contained and represented adequately the traits being measured. The experts also indicated that the items in the instruments adequately measured the trait and the subject matter it was designed to measure, thereby confirming its content validity. Sixty items which were originally presented to the experts were reduced to 40 based on their suggestions and recommendations.

The reliability of the instruments PTBS and BSAS were determined by finding the internal consistency of the instruments. In doing this, a pilot study was carried out outside the sampled schools. The instruments were administered on 20 respondents. The responses collected were analysed using Cronbach Alpha. A co-efficient value of 0.73 was obtained for PTBS while 0.79 was obtained for BSAS. Both co-efficient values obtained were considered statistically high to make the instruments reliable.

Pre-test and the attitudinal scale were administered on the experimental group and the control group before the commencement of the treatment. The post-test and the same attitudinal scale were administered immediately after being exposed to treatment. The post-test and attitudinal scale was also administered to the control group which was not exposed to treatment but the conventional classroom teaching.

The data collected through the instruments were analyzed using descriptive and inferential statistics. The research question was answered using means, standard deviation and bar chart. Hypotheses 1 and 2were tested using t-test. All the hypotheses were tested at 0.05 level of significance.

IJO JOURNALS

**IJO - INTERNATIONAL JOURNAL OF EDUCATIONAL RESEARCH**

(E.ISSN: 2805-413X) (P.ISSN: 2536-6696)          Abiodun Emmanuel OKEYA (Ph.D)*

https://ijojournals.com/          *Volume 08 || Issue 02 || February, 2025 ||*

"**Effects** of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria"

## Results

### *Descriptive Analysis of Research Question*

**Research Question 1:** What is the attitude of students towards Basic Science before and after treatment?

**Table 3: Mean and standard deviation of attitude of students towards Basic Science before and after treatment exposed to team teaching strategy and conventional method**

| Strategies | Test | N | Mean | S.D | Mean Diff. |
|---|---|---|---|---|---|
| Team Teaching | Before Treatment | 79 | 38.09 | 2.62 | **28.45** |
|  | After Treatment |  | 66.54 | 1.57 |  |
| Conventional | Before Treatment | 84 | 38.14 | 2.54 | **8.57** |
|  | After Treatment |  | 46.71 | 4.57 |  |
| **Total** |  | **163** |  |  |  |

Table 3 shows the mean difference in students' attitude towards Basic Science before and after treatment for team teaching strategy is 28.45 and conventional method is 8.57. The use of team teaching strategy and conventional method influences students' attitude towards Basic Science with team teaching strategy being the more effective method in the teaching of Basic Science. The graphical representation below further shows the more effective method in the teaching of Basic Science.
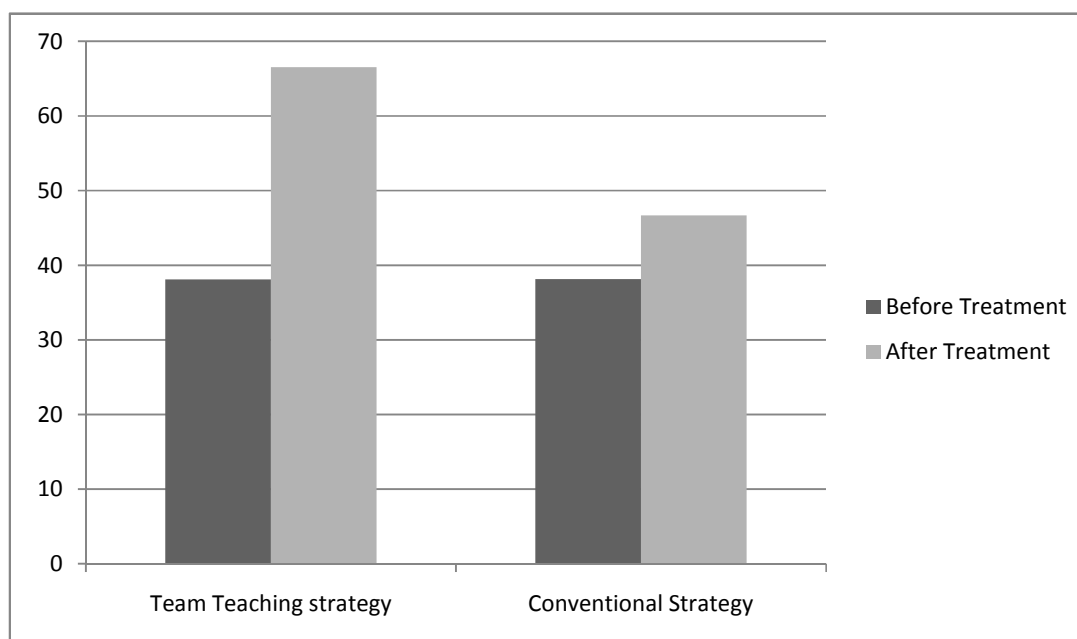


**Figure i:** Students' attitude towards Basic Science exposed to team teaching strategy and conventional method before and after treatment

**"Effects of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria"**

*Testing of Hypotheses*

**Hypothesis 1:** There is no significant difference in the attitude of students exposed to team teaching strategy before treatment

**Table 2: t-test analysis for attitude of students in Experimental and Control Groups before treatment**

| Variations | N | Mean | SD | df | t-$_{value}$ | P |
|---|---|---|---|---|---|---|
| Team teaching Strategy | 79 | 38.09 | 2.62 | 161 | 0.134 | 0.893 |
| Conventional | 84 | 38.14 | 2.54 | | | |

**P>0.05**

Table 2 shows that the t-value is 0.134 as the difference in the attitude before treatment between the two groups is not significant because the P value (0.893) > 0.05 at 0.05 level of significance. This implies that null hypothesis is not rejected. Hence, there is no significant difference in the attitude of students exposed to team teaching strategy before treatment.

**Hypothesis 2:** There is no significant difference in the attitude of students exposed to team teaching strategy after treatment.

**Table 3: t-test analysis for attitude of students in Experimental and Control Groups after treatment**

| Variations | N | Mean | SD | df | t-$_{value}$ | P |
|---|---|---|---|---|---|---|
| Team teaching Strategy | 79 | 66.54 | 1.57 | 161 | 36.613 | 0.000* |
| Conventional | 84 | 46.71 | 4.57 | | | |

*P<0.05

Table 3 shows that the t-value is 36.613 as the difference in the attitude after treatment between the two groups is significant because the P value (0.000) <0.05 at 0.05 level of significance. This implies that null hypothesis is rejected. Hence, there is significant difference in the attitude of students exposed to team teaching strategy after treatment. The mean score showed a significant difference of 19.83 in favour of students exposed to team teaching strategy.

**Discussion**

The findings revealed that there was significant difference in the attitude of students exposed to team teaching strategy after treatment. The mean score showed a significant difference of 19.83 in favour of students exposed to team teaching strategy. The finding that there was a significant difference in the attitudes of students exposed to a team teaching strategy, with a mean score difference of 19.83 in favor of those students, highlights the potential impact of teaching methods on students' attitudes and perceptions in the educational context. This result suggests that

**"Effects** of Team Teaching Strategy on Junior Secondary School Students' Attitude towards Basic Science in Ekiti State, Nigeria**"**

the team teaching strategy had a more positive effect on shaping students' attitudes compared to the conventional method, as indicated by the substantial difference in mean scores.

This finding aligns with Malik, et al. (2010) and Singh et al. (2012) that underscores the importance of considering students' attitudes and affective factors in the learning process. Attitudes, including motivation, interest, and engagement, can significantly influence students' learning experiences and outcomes. Findings of these researchers have shown that collaborative and interactive teaching methods, such as team teaching, can contribute to more positive attitudes among students. The group dynamics, diverse perspectives, and active learning opportunities associated with team teaching often result in increased student engagement and motivation. This, in turn, can lead to more favorable attitudes toward the subject matter and the learning process itself.

Furthermore, the significant difference in attitudes after treatment highlights the potential for teaching methods to not only impact cognitive outcomes, such as knowledge acquisition and academic performance, but also to shape students' overall disposition and enthusiasm for learning. Educational literature often discusses the interconnectedness of cognitive and affective domains in education, emphasizing that changes in one area can influence the other. The magnitude of the difference in mean scores (19.83) further underscores the robustness of this finding. Such a substantial difference suggests a clear and meaningful effect of the team teaching strategy on students' attitudes. This effect can have important implications for long-term learning, as positive attitudes and motivation are often associated with increased persistence, better retention of knowledge, and a more positive overall learning experience. Erdemir (2019) found that one way to improve student attitude toward science is through team teaching method.

## Recommendations

Based on the findings of this study, the following recommendations were made:
1. The curriculum planners should ensure that Team teaching strategy is included in Basic Science curriculum, as it will help to promote students' attitude towards the subject.
2. In view of the fact that Team Teaching is more effective in enhancing students' attitude towards Basic Science than conventional method of teaching. Ministry of Education should ensure that textbook authors should incorporate team teaching in the instructional methods for secondary schools Basic Science teaching and learning activity.

## Contributions to Knowledge

1. The study provided insight on attitude of students exposed to team teaching before treatment.
2. The study provided insight on attitude of students exposed to team teaching after treatment.

## References

Awechie, M.N. (2011). Science technology and innovations. In Ezekwesilli, N.O., Nwagbo, C.R. and Ubachukwu, P.O (Eds) Introduction to Natural Science 2, Newcrest Publishers, Onitsha, Nigeria

Brandenburg, R. (2011). Team wise school of knowledge: An online resource about team teaching (on-line). Retrieved January 11, 2022 from http//www.uwf.edu/coehelp/teachingapproaches/team/.

Erdemir, N. (2019). Determining students' attitude towards physics through problem-solving strategy. *Asia-Pacific Forum on Science Learning and Teaching,* 10(2), 1-19.

Holstermann, N., Grube, D., & Bogeholz, S. (2010). Hands-on activities and their influence on students' interests. *Research in Science Education*. 40(5), 743–757. https://link.springer.com/article/10.1007/s11165-009-9142-0

Iheagwam, A.W. (2016). Teacher collaboration: A new direction for quality education in Nigerian schools. Paper Presented at the Annual National Association for The Advancement of Knowledge (NAFAK) at Rivers State College of Education, Port Harcourt 12th -16th, 1-12.

Jegede, S.A., & Daramola, M. A. (2013). Instructional resources availability and utilization in public and private Junior Secondary Schools in Ekiti State. *Educational Focus (EDUFOC)*.Ekiti State University, Ado-Ekiti. (4), 1, 79-85.

Malik, M. A., Shah, Z. A., Iqbal, Z., & Rauf, M. (2010). Effect of problem solving teaching strategy on 8th grade student's attitude towards science. *Journal of education and practice*, 1  (3), 16-27.

Murawaski, W.W. (2011). A meta- analysis of team teaching research: *Remedial and special Education, 22(5), 258-267.*

Lakpini, M. A. (2006) Effect of PIPS and conceptual change instructional strategy on the achievement, retention and attitude of senior secondary school (SSiii) biology students with varied ability levels. PhD Thesis Ahmadu Bello University, Zaria.

Okeya, A.E., & Owolabi, O.T. (2020). Availability, Adequacy and Utilization of Basic Science Equipment in Rural and Urban Secondary Schools in Ekiti State, Nigeria. *Euro Afro Studies International Journal,* 2(3), 1-12.

Rudraiah, A.M. (2015). Reflection in Education: From research to practice. In Penny, A.J., Harvey, K.L. and Jessop, T.S.

Singh, K., Granville, M., & Dika, S. (2012). Mathematics and science achievement:  Effects of motivation, interest, and academic engagement. *The journal of  educational research  , 95 (6), 323-332.*

Tebabal, J., & Kahssay, E. (2011).The role of teacher's initiation in online pedagogy. *Education Training* 54(6), 456-471.