# EFFECTS OF MATHEMATICS PEER TUTORING STRATEGY ON GEOMETRY ACHIEVEMENT OF SLOW LEARNERS AMONG JUNIOR SECONDARY SCHOOL STUDENTS IN NIGER STATE
**by**
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## Abstract

*The study aims at investigating the Effect of Peer-Tutoring on Geometry Performance of Slow Learners among Junior Secondary School Students in Niger state. 'Quasi Experimental design was used for the study. The sample consisted of 77 students; 36 students were assigned to the experimental group and 41 students to the control group. The experimental group was taught using Peer-Tutoring and the Control Group was taught using Conventional (Lecture) method. The data collected was analyzed using mean and t-test statistics. The study revealed that Peer-Tutoring is more effective than the conventional approach in enhancing slow learners' achievement in geometry. There was no significant difference in gender performance of the slow learners taught Geometry using Peer-Tutoring. Based on the findings it was recommended among others that secondary school teachers should be trained on the effective use of Peer-Tutoring in order to enhance the students' performance in JSS Geometry.*
*Key words: Peer-Tutoring, Achievement in Geometry, and Slow-Learners.*

## Introduction

Mathematics is taught as one of the compulsory subject at primary and secondary levels in Nigeria. This is in recognition of its importance to science, technology and overall national development. However, most secondary school students in Nigeria view mathematics as problematic and abstract probably because students have great difficulty in understanding, assimilating and retaining the mathematics taught to them in the classroom (Emaikwu, 2012) Report from the WAEC examiners (2006) revealed some of the problems encountered by learners in mathematics are as a result of their inability to retain mathematical processes which are associated with ways it is being taught in the classroom.

The fall in the standard of education in Nigeria is traceable to many factors which are rooted in psychological or environmental factors (Emaikwu, 2012). Students perceived as naturally difficult and develop phobia to if anytime they come into contact with the subject. The fall in performance to many can be attributed to: poor condition of service for teachers; lack of qualified teachers; inadequate supply of facilities and equipment; lack of motivation; lack of instructional materials; and wrong method of teaching (Emaikwu&Nworgu, 2005; Onah, 2012). On the same issue, Gambari (2010) stressed that most teachers of mathematics at secondary levels do not use teaching aids. The author added that in most cases of mathematics teachers stick to only lecture method by doing most talk and leave the students as passive listeners.

Etukudo (2006) and Salau (2009) maintained that students 'poor performance in mathematics at post primary level is without doubt attributed to pedagogical approaches adopted by teachers in Nigeria schools. It has been reported that learning and understanding

of school subjects have been frustrated by clumsy methods, teaching techniques and instructional materials. The National Mathematical Centre, Abuja (NMC, 2009) in an attempt to revamp mathematics teaching and learning at secondary school level has successfully researched into the causes for mass failure in mathematics and reveal among other factors teachers' method of teaching.

Kurumeh (2007) observed that the mathematics taught in schools is foreign, Eurocentric in origin and built on western cultural background, making students to learn by rote memorization in which the attendant result is consistent mass failure of students. The resultant effect is the poor achievement in students' outcome both in internal and external examinations. Sequel to this, there is wide spread concern among all stake holders in the business of education in Nigeria about the methods used in teaching at secondary school level especially in mathematics.

A cursory look at the way mathematics is taught in the Nigeria secondary schools today shows that slow-learners are most time neglected due to their peculiar problem. The near total negligence of slow-loaners has been considered responsible for poor academic performance of students in mathematics (Aliyu, 2002). Also, most mathematics teachers do not use suitable method in teaching, their aims is to cover the syllabus on time. Their focuses mostly are on fast learners who can give them quick answer immediately they asked a question (Sule, 1997 in Iliyasu, 2011).

Slow-learners are students who learn more slowly than their pairs, yet do not have disability requiring special education (Shaw, Grimes & Bulman, 2005). A number of factors may account for slow-leaners such as lacks of emotional growth, a secure environment, limited opportunities for learning, absenteeism from school, untrained teachers and large class size (Khan, 2008). Teaching methods can also be a contributing factor (Illiyasu, 2011). Illiyasu (2011) further stressed that, personnel and environmental factors have often limited their progress academically and that if such students are given proper attention through provision of special method of teaching, their academic achievement could be enhanced.

The slow-learners are not encouraged to participate actively in teaching – learning process. The most commonly used method of teaching is lecture method (Adamu & Ahmed, 1999). Similarly, experiments in science subjects are often demonstrated to students for observations and to copy the notes and diagrams into their note books which compounds slow-learners problem as they are not given adequate attention (Usman, 2000). The evidence from the above shows that most mathematics teachers do not care to use suitable or appropriate methods in teaching that will take cognizance of slow-learners.

There exist a number of teaching methods and approaches available for teachers to use and they include lecture method, discussion method, discovery or inquiry method, laboratory based and peer tutoring approaches to teaching (Gambari, 2010). This study focused on Peer-Tutoring and Conventional method with view of determining their effects on attitudes and geometry achievement of Slow-learners among Junior Secondary Schools in Niger State, Nigeria.

**Conventional method:** is a teacher- controlled and information centered approach in which the teacher works as a sole-resource in classroom instruction (Surajudeen, 2013) he teacher presents subject matter contents orally and the students react by listening and silently taking notes. This method is good for a large class since much work can be covered in a shorter time; however learners' perception and assimilation of subject matter is low

(Emaikwu, 2012). Lecture method often inhibits active participation of students in the classroom and teacher dependence on the part of students (Ransdem, 2009) in (Emaikwu, 2012). More than 80% of scientific information, ideas, concepts, generalization and facts are verbally presented to students by the teacher (Surajudeen, 2013). Conventional method is most commonly used in colleges and in schools in big classes. This method is not quite suitable to realise the real aim of teaching science.

**Peer tutoring**: is a face to face, one to one relationship system of teaching. It could also be used for small group of 4-5 students. Usually teacher acts as a tutor but students can also tutor under the instruction of the teacher. Ejezie (2007) defines peer tutoring as a system of instruction in which learners help each other and learn themselves by teaching. According to the researcher, the strategy aimed at blending the classroom to mix high and low achievers together to yield better result. David, Larnine and Margarida 1976 and Muhammad & Ibrahim (2014) all worked on peer tutoring Strategies. Their results revealed that the method played a significant role in improving the academic performance of students.

Peer tutoring may have influence of the academic achievement of slow-leaners and could be tested for Geometry achievement of slow learners in junior secondary schools. Performance and attitude form aspect of this study so as to establish the influence of peer tutoring teaching strategy on geometry achievement and attitude of slow-leaners towards the geometry. Performance according to Mensah, Okyere & Kuranchi, (2013) is about competency gain in the study of mathematics while attitude is an affective response to a situation as a result of experience. It refers to an expression of favour or disfavor towards a person, place, thing or event

The influence of gender in students' academic achievement has been a major concern to educational researchers for long, yet no consistent result has emerged. Udofia (2009) reported that gender had no significant influence on achievement, while Ugonabo (2009) and Muhammad & Ibrahim (2014) reported otherwise. The situation therefore sustains the curiosity of researchers and thus makes it necessary to continue investigating the influence of gender Peer Tutoring to teaching on students' mean achievement in geometry. The focal point of the problem for this investigation has been necessitated by the limited or absence of research evidence to indicate the influence of Peer Tutoring, among other related variables, on students' achievement in geometry.

## Statement of the Problem

The general performance of students in mathematics has been a great concern to the society. Evidence from research works has showed that the performance of students in mathematics in Nigeria has been fluctuating (Meduabu & Odili, 2006; WEAC, 2016 & 2017 and NECO 2016). The results of students in mathematics as reported by Okigbe & Ugwu (2012) also showed that in a mixed classroom, high achievers excel far more than the low achievers in mathematics and slow loaners are mostly affected in this dreadful situation of students' poor performance in mathematics especially geometry. Teaching techniques and methods used by mathematics teachers is instrumental to learners' inability to understand and retain the basic mathematical principles, computations or logical facts involved (Kurumeh, 2007). Since slow learners learn at slow rate compared to their colleagues, there is need to employ teaching strategy such as peer tutoring which is actively based and allow active participation of the learners. There is therefore needs for mathematics teachers to be

resourceful that demands for focus on methods and approaches to teachings that will stimulate learner's zeal, interest and higher mathematics performance; particularly the slow learners as opined by Yara (2010). Based on this, study examined Effects of Peer tutoring on slow learners' Achievement in Geometry among Secondary School Students in Niger State, Nigeria. Since geometry is vital branch of mathematics which forms the building block of engineering and technical graphics. It has been observed that students have not been demonstrating strong conceptual knowledge of the course. Many students in the secondary schools were not prepared for geometry courses.

**Objective of the Study**

The main objective of this study is to find out the Effects of Peer Tutoring on Slow-Learners' Achievement in Geometry among Secondary School Students in Niger State, Nigeria. In specific terms, the study will examine:

1. the effects of Peer Tutoring and conventional methods on geometry achievement of slow learners among junior secondary schools in Niger state.
2. the effect of Peer Tutoring on male and female slow-learners' achievement in geometry at Junior secondary school.

**Research Questions**

Based on the stated objectives, the following questions were formulated.

1. What is the effect of Peer Tutoring and conventional method on achievement of slow learner in geometry?
2. What is the effect of Peer Tutoring on achievement of male and female slow-learners in geometry?

**Null Hypotheses**

The following hypotheses were formulated and tested at 0.05 levels of significance.

$Ho_1$ There is no significant difference between the mean achievement scores of the slow learners taught geometry using Peer Tutoring and those taught with conventional method.

$Ho_2$ There is no significant difference between the mean achievement scores of male and female slow learners taught geometry using Peer Tutoring Strategy

**Research Methodology**

A quasi-experimental design involving pre-test and post- tests was used in the study consisting one experimental group and one control group. The target population for this study was all the 59,680 J.S.S II students in 406 public junior secondary schools in seven (7) educational zones of Niger state. Seven junior secondary schools were randomly selected based on the educational zone out which two schools were selected through balloting and used for the study. In the second stage of the randomization process in each of the schools selected, one intact class was selected out of the total number of JSS II classes in each school. The intact classes were selected to avoid disrupting the school programme. The sample for the study was made up of 77 students. This is in line with Central Limit Theorem that considered a minimum of 30 sample size viable for experimental research (Franklin & Wallen (2000). The experimental group consists of 24 male students and 12 female students while control group consists of 31 male students and 10 female students.

Table 1: *Sample Selected for the study*

| Group | Male | Female | Total |
|---|---|---|---|
| Experimental (Peer Tutoring) | 24 | 12 | 36 |
| Control (Conventional ) | 31 | 10 | 41 |
| Total | 55 | 22 | 77 |

*Source: Niger State Annual School Census Report (2013)*

In the administration of the treatments, the experimental group was taught using peer tutoring teaching strategy. This was indoor activity; the students remained in the mathematics laboratory and follow highly structured tutoring procedure in which tutors present material previously covered by the teacher, and provide feedback to the tutee. The control group was taught using conventional method. At the end of the treatments, the two groups were post tested to compare their performances in geometry and to ensure the effects of the treatments. Slow learners were identified using the following screening methods:

    **a.** Intelligent quotient test (Ravans' Progressive Matrix Test)
    **b.** Achievement test

Ravans' Progressive Matrix Test (Ravans & Court, 2004) was adopted and administered to the sampled schools to identify the slow learners. Students within the intelligence interval score of 70 - 90 are considered slow learners in line with (Yusha'u, 2012 & IQ Test, 2014)

Instrumentation

The research instruments used for this study were Intelligent Quotient Test (IQT) and Geometry Achievement Test (GAT). The researcher developed the instrument (GAT), which consist 40 multiple items based on the topics covered (Quadrilaterals, Angles in a Polygon, Pythagoras' rule, Cylinder and Cone) in JSS II mathematics syllabus. JSSII students were selected because it is foundation class for geometry course has spelled out by the syllabus.

**Validity and Reliability of the Instruments**

The instrument used for this research (GAT) was validated by two Senior lecturers, one from the Department of Science Education of Ahmadu Bello University, Zaria and other one from Department of Mathematics, Niger State College of Education, Minna. Kuder-Richardson (KR20) formula for estimating reliability was used to test reliability of the instrument. Kuder- Richardson Reliability is one of the methods used for estimating internal consistency. It involves a single administration of the test. It is one way to avoid the problem of splitting the test. The correlation represent the average correlation from all possible Split half reliability estimates (Anon, 2014) cited monograph on Test and item Analysis of the AIU (1977). Reliability of the test was determined to be 0.92.

**Data Collection and Procedures for Data Analysis**

The respondent that gave the correct response to an item was awarded 1 mark and zero mark for an incorrect answer or blank space. After the scripts were marked by the researcher, the mean achievement scores of GAT of all the students were obtained; also male and female scores for each group were analyzed. The research questions were answered using means and standard deviations, while hypotheses testing were done using Independent t test.

**Results of the Findings**

**Research Question 1:** What is the effect of Peer tutoring Strategy and conventional method on achievement of slow learner in geometry?

Table 2: *Means and Standard Deviations of Experimental Group and the Control Group*

*on achievement scores in geometry among slow learners*

| Group | N | Pre-test | | Post-test | | |
|---|---|---|---|---|---|---|
| | | Mean | Std. Dev. | Mean | Std. Dev. | MD |
| Control | 41 | 24.05 | 7.67 | 31.42 | 9.66 | 7.37 |
| Experimental | 36 | 23.22 | 6.63 | 55.42 | 10.83 | 18.06 |

MD = Mean difference

The result of Table 1 showed pre-test mean ($\pm SD$) scores of 24.05±7.67 and 23.58±6.63 and 31.42±9.66 and 55.42±10.83 post-test mean scores for experimental group and the control group respectively. Mean difference of 7.37 and 18.06 were showed for control and experimental group respectively. To find out if the difference in means was statistically significant, the corresponding hypothesis was therefore tested (Table 3).

Table 3: *t-test Analysis showing the mean difference in the Achievement scores of slow learners taught geometry using Peer tutoring Strategy and conventional method*

| Group | N | Mean | Std. Dev. | Df | t-test | P-value | Decision |
|---|---|---|---|---|---|---|---|
| Exp. I | 36 | 41.28 | 11.14 | 75 | 4.163 | 0.001* | Reject |
| Control | 41 | 31.42 | 9.66 | | | | |

The result of table 3 showed that the calculated P – value 0.001, was lower than the 0.05 level of significance. This implies that there was significant difference in the mean achievement scores of the slow-learners taught using laboratory- based activity and conventional method. The null hypothesis which states that there is no significant difference in the academic performances of slow-learners taught using Peer tutoring Strategy and those taught using conventional method is thus rejected.

**Research Question 2**: What is the effect of Peer tutoring Strategy on achievement of male and female slow-learners in geometry?

Table 3**: *Means and Standard Deviations of Male and Female Slow Learners Exposed to Peer Tutoring Strategy*

| | | Mean | Std. Deviation | MD |
|---|---|---|---|---|
| Male | 24 | 41.67 | 11.58 | 1.17 |
| Female | 12 | 40.50 | 10.84 | |
| Total | 36 | 55.42 | 10.83 | |

The result of table 3 shows post-test mean scores of 41.67 and 40.50 for Male and for Female slow learners taught using Peer tutoring Strategy respectively. Mean difference of 1.17 was recorded. To find out if the difference in means was statistically significant, the corresponding hypothesis was therefore tested (Table 4).

Table 4*: t-test Analysis of Male and Female Slow learners taught using Peer Tutoring Strategy.*

| Group | Sex | N | Mean | Std. Dev. | Df | t-test | P-value | Decision |
|-------|-----|---|------|-----------|-----|--------|---------|----------|
| Peer-tutoring Strategy | Male | 24 | 41,67 | 11.58 | 34 | 0.292 | 0.772 | Retain |
| | Female | 12 | 40.50 | 10.84 | | | | |

From table 4 the calculated p-value 0.772 > 0.05 level of significance. This showed that no significant difference exist between the mean performance of male and female slow-learners when taught using Peer tutoring Strategy; Therefore, the null hypothesis which stated that there is no significant difference between mean performance of male and female slow-learners taught using Peer tutoring Strategy was retained.

**Discussion of the Findings**

Result of research question one showed that slow-learners taught geometry using Peer tutoring Strategy achieved more than those taught using conventional method. This was tested in hypothesis two which revealed that there was significant difference between geometry performance of slow-learners taught using Peer tutoring Strategy and conventional method. The difference is in favour of Peer tutoring Strategy. High achievement was recorded when Peer tutoring Strategy was used in instructional delivery because each role in tutoring provided the students the opportunity to work together and either instructing. Also, the fear and tension of learning under a superior teacher is removed as the students worked and discussed as a colleague in peer tutoring. Earlier research conducted by Adekoya & Olatoye (2011) revealed that peer-tutoring is potent in raising achievement and produces superior result over conventional teaching method. Furthermore, in a study on the efficacy of peer-tutoring and gender on students' achievement in Biology by Ezenwosu & Loretta (2013), the finding of the study showed that students taught Biology using peer-tutoring performed significantly better those taught using the conventional teaching method. These supports the findings of this study that slow learners taught using peer-tutoring strategy had higher achievement scores than those taught using the conventional teaching method.

The results in tables 4 showed that there is no significant difference in the academic performance of male and female slow using the peer-tutoring strategy. This is evidence that the Strategy is not gender bias and could be used to improve the academic performance of both sexes. The persistent research reports that male students perform better than females could therefore be attributable to the persistent use of the conventional method often used by mathematics teachers. Similar to this finding, is the work of Ezenwosu & Loretta (2013) who reported no gender difference in students' achievement in Biology when they were taught using the peer-tutoring strategy.

**Conclusion**

The result of this study has provided pragmatic evidence that Peer tutoring Strategy method is an appropriate teaching strategy capable of improving the present ill performance in geometry than conventional teaching method. The study equally shows that, there was no significant statistical difference in gender performance of slow learners when taught using Peer tutoring Strategy. The approach is therefore recommended to be employed in teaching slow learners in junior secondary schools for better academic improvement.

**Recommendations**

The following recommendations are made on the basis of the results of the study:

1.  Mathematics teachers' should be trained in effective use of Laboratory-based approach through series of workshops to improve slow learners performance in the subject.
2.  State and NGOs as well as parents should assist in the procurement of necessary mathematical laboratory materials that will lead to effective use of laboratory-based activity in mathematics.

### References

Abah, C. O. (2006). Universal Basic Education for National Survival: The Place of Primary and Integrated Science. *Benue State University Journal of Education 4(1), 161-170*

Adekoya, Y.M. & Olatoye, R.A. (2011). Effects of Demustration, Peer Tutoring Teaching Strategies on Senior Secondary School Students' achievement in an aspect of Agricultural science. *The Pacific Journal of Science and Technology. 12(1), 320-332.*

Akem, I.A. (2007). *Practices and Teaching Methods*. An unpublished Lecture Notes of College of Education, Katsina-Ala, BenueState.

Ale S.O. &Adetula (2005). Mathematics Improvement Project (MPI): A way to Enhance Students Performance in Mathematics. *Journal of Professional Teachers, 1(1), 7-21*

Aliyu, Z. (2003*). Effect of Metacognitive Teaching Strategies on the Achievement of Students with Low Ability Groups in Mathematics*, Unpublished M.Ed Thesis Department of Education ABU, Zaria

Aremu, A. (2001).Effect of Games on Mathematics Achievement of Low Ability Pupils in Nigerian Primary Schools.*Ibadan Journal of Education Studies 1(1), 96-105*

David, F. Larnine, D. & Margarida, F. (1976). Improvement in Science Performance as Consequence of Self Assessment in Portuguese Primary School Pupils. *British Journal of Educational Psychology 64, 407-417.*

Ebele, C. & Abigail, M.O. (2008).Effects of Using Mathematics Laboratory in Teaching Mathematics on the Achievement of Mathematics Students. *Journal of Educational Research and Reviews, 3(8), 257-261*

Ejezie, V. (2007). Effectiveness of Peer Tutoring on Academic Achievement of Secondary School Chemistry Students. Unpublished PhD Doctoral Dissertation, Nnamdi Azikiwe University, Awka, Nigeria.

Emaikkwu, S.O. &Nworgu, B.G. (2005).Evaluation of the Context Presage Variables in the Implementation of Further Mathematics Curriculum in Benue State. *Journal of Education Innovators 1(1), 7-16.*

Emaikwu S. O. (2012).Assessing the Effect of Prompt Feedback as a Motivational Strategy on Students Achievement in Secondary Schools Mathematics: J*ournal of Educational Research, 3(4), 371-379.*

Etukudo, U.E. (2006). The Effect of Computer Assisted Instruction on Gender and Performance of Junior Secondary School in Mathematics. *Abacus Journal of Mathematical Association of Nigeria 27(1), 1-8*

Franklin, J.R & Wallen, N.E. (2000). *How to Design and Evaluate Research in Education,* New York, NY: Mc Grawhill Companies Inc.

Gambari, A. I. (2010). Effect of instructional models on the performance of junior secondary school students in geometry in Minna, Nigeria *Delsu Journal of Educational Research and Development, 9(1), 54-65*

Horvath, K. (2011). Effects of Peer Tutoring on Student Achievement. Unpublished M.Ed Thesis of College of Education and Human Services, Ohio University

Khan, S. (2005). Slow Learners Need A lot of Support. The HINDU. Retrieved From http://www.thehindu/edu/2005/01/31/stotries/2005013100100200.html

Kurumeh, M.S. (2007). Effects of Ethnomathematics Approach on Students' interest in Geometry and Mensuration.*Abacus: The Journal of mathematical Association of Nigeria (MAN), 32(1), 103-112*

Maduabum, M.A. &Odili, G.A. (2006).General Mathematics at SSCE Level in Nigeria 1992- 2002 *Journal of Research and Curriculum Teaching. 1(1), 64-68.*

Mensah, J.K.; Okyere, M. & Kuranchi, A. (2013). Student Attitude towards Mathematics and Performance: Does the Teacher Attitude Matter? *Journal of Education and Practice, 4(3), 132-139.*

Ministry of Education M.O.E. (2013).Niger State School Census. Record and Statistics Department, Niger State Ministry of Education, Minna.

Mtsem, A. A. (2011). *Effects of Diagnostic and Contextual Instructional Strategy on Students' Interest and Achievement in Secondary School Algebra*. A PhD Thesis of the Faculty of Education, Benue state University, Makurdi.

Muhammad, S.A & Ibrahim, M .G. (2014). Influence of Laboratory Activities and Peer-tutoring on Slow Learners Achievement and Retention in Senior Secondary School trigonometry, Kebbi State Nigeria. *International Journal of Advance Research, IJOAR .org 2(12) Online: ISSN 2320-9143*

National Mathematical Centre, Abuja (2009).Mathematics Improvement Programme www.nmcabuja.org/mathematicsimprovementprogrammehtml.Retrieved on 26th July, 2010.

Ogunkunle, R. A. (2000). Teaching of Mathematics in Schools: The Laboratory Approach. *The Nigeria Teacher Today, 8(1,2), 180-184.*

Ojo, O.A. (2011). Comparing Laboratory Approach (LABA) and Conventional Approach (CONA) of Teaching Area of Plane Shapes in Junior Secondary Schools in Ekiti state, Nigeria. *Journal of Research in Education and Society, 2(2), 32-39.*

Okigbo, E. C., &Ugwu, H.I. (2012).Effects of Peer Tutoring Techniques in Enchacing Achievement of Junior Secondary Mathematics Learners. *Journal of Research in Curriculum and Teaching, 6(1), 509-517.*

Onwu, G.O.M. (1981) "Learning Difficulties in Chemistry: Capacity Limitation or Strategies Deficit" *African journal of Educational research 4(1&2), 125.*

Raven, J., Raven, J.C., & Court, J.H. (2004) *Manual for Raven's Progressive Matrices and Vocabulary Scales.* San Antonio, TX: Harcourt Assessment. Retrieved form https://en.wikipedia.org/wiki/Raven%27s_Progressive_Matrices#References on 25th January, 2018.

Salau, M. O. (2009). The Effect of Class size on Achievement of Different Ability Groups in Mathematics, *Journal of Science Teachers' A*ssociation *of Nigeria, 31(1), 27-33.*

Shaw, S.R; Grimes, D. &Bulman, J. (2005). Educating Slow –learners: Are Charter Schools the Last, Best Hope for Their Educational Success? *American Journal of Mental Retardation. (5), 463-469.*

Shiyanbade, F. O. (2011).Effect of Selected Methods of Teaching in Enhancing Academic Achievement of Slow-Learners in Mathematics at Junior Secondary School Level.*Nigeirian Journal of Science and Educational Research, 7(2), 158-162.*

Surajudeen, S. (2013). *Effects of Guided Inquiry Strategy on Learning Outcome of Low Achieving Secondary School Physics Students in Kaduna Metropolis, Nigeria.* Unpublished PhD Thesis, Department of Education ABU, Zaria

Udofia, A. E. (2009). Effects of e-learning and project methods on students psychomotor skill acquisition in Electrical Installation works in technical colleges in Akwa Ibom State. Unpublished Ph. D. thesis, University of Uyo, Uyo.

Uloko, E.S. &Usman, K.O, (2008). Effect of Ethno Mathematics Teaching Approach and Interest on Student's Achievement in Locus *Benue Journal of Educational Research and Science Education 1(1), 81-91*

Uloko, E.S. (2006). *Effects of Ethno Mathematics Teaching Approach on Student's Achievement in Locus at Senior Secondary School Level.* Unpublished M.Ed. Thesis, University of Nigeria.Nsukka.

Usman, I. A. (2000).*The Relationship between Students' Performance in Practical Activities and Their Academic Performance in Basic Science Using NISTEP Mode of Teaching.* Unpublished PhD Thesis, Department of Education ABU, Zaria

West African Examination Council (WAEC) (2003, 2006, 2006, 2008, &2011). West African senior secondary school certificate examination May/June Chief examiner's report, WAEC: Lagos.

Yusha'u, M.A. (2012). Teaching Slow Learners in Mathematics: Yugal Remediation Model as Alternative Method *SER,13(2),108-123* Retrieved from https://www.academia.edu/3483304/Teaching_slow_learners-in_Mathematics_on_28/06/2013,12:52 PM.

Zephaniah,N.I. (2006). *Effect of Using Discovery Method in Teaching Senior Secondary School Mathematics.* An Unpublished Project, Benue state university, Makurdi. Anbul:Cem Publishing