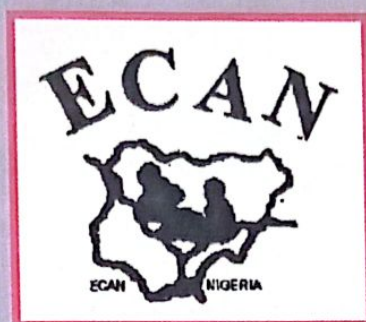


JOURNAL OF



ISSN: 2756 - 4800

EARLY CHILDHOOD

ASSOCIATION OF NIGERIA

VOLUME 10 & 11

JUNE, 2022

JECAN

JOURNAL

OF

EARLY CHILDHOOD
ASSOCIATION OF
NIGERIA

VOLUME 10 & 11

ISSN: 2756 - 4800

JUNE, 2021 - 2022

**JOURNAL OF EARLY CHILDHOOD
ASSOCIATION OF NIGERIA (JECAN)
VOLUME 10 (2)
ISSN**

EDITORIAL BOARD

Editor-in-Chief:

Prof. Hannah Ajayi
Institute of Education,
Obafemi Awolowo University
Ile Ife, Osun State
lordofhost2013@gmail.com
hajayib@oauife.edu.ng

Editor:

Dr Adefunke Ekine
(Associate Professor of Childhood Education)
Deputy Director Research and External Relations
Tai Solarin University of Education
Ijagun, Ogun State
ekineao@tasued.edu.ng

Member:

Dr Anna Vitalievna Awopetu
Ag. HOD, Counseling Psychology,
School of Social Science Education,
Bamidele Olumilua University of Education
and Technology, Ikere Ekiti
awopetuanna@bouesti.edu.ng

Member:

Dr Olufunke Chenube
Senior Lecturer,
Ag Dean of Education
University of Delta, Agbor Delta State
olufunke.chenube@unidel.edu.ng
funkechenube@gmail.com

Member:

Mr. Adegoke Oladipo Olaniyan
Department of Early Childhood and Primary
Education
Kwara State University, Malete
adegoke_olanivan@kwasu.edu.ng

EDITORIAL COMMENTS

JECAN, the official journal of Early Childhood Association of Nigeria (ECAN), presents its Volume 10, Number 1 (2020) and Number 2 (2021). All the articles that feature in this volume are those presented at the 11th and 12th National Conferences of the Association held virtually due to COVID-19 pandemic in 2020 at the University of Ibadan, Ibadan, Oyo State and at Ignatius Ajuru University of Education, Port Harcourt, Rivers State in 2021 which adopted blended system. In Volume 10, Number 1, there are eight articles that revolved around the theme, 'Quality, Equitable and Context-Based Early Child Care and Pre-Primary Education: The Journey to 2030'. The articles are reviewed as follows:

Article 1: Quality, Equitable and Context-Based Early Childhood Care and Pre-Primary Education: The Journey to 2030

The author enunciated the improvement of the delivery in early childhood education as the sure means of attaining 2030 sustainable development goals agenda. The aims of ECE, and the benefits that accrue to any society by investing in ECE were discussed. The author also emphasized quality delivery of ECE as it existed in some developed nations, the synergy between quality ECE and Agenda 2030 as well as ways of attaining the quality were discussed. The part of professionalism of teachers and licensing through Teacher Registration body in Nigeria is emphasized in the paper.

Article 2: Teachers' Perception of Some Requirements for Job Effectiveness in Odeda Local Government Area of Ogun State, Nigeria

In this article, the author empirically examined the perception of teachers on the skills that can determine teachers' effectiveness in schools especially with the teachers in Ogun State. The findings showed that some skills that are important to child development were not seen as important for teachers' effectiveness. The author reiterated the employment of qualified teachers at the nursery level as this may influence their perception.

Article 3: Parental Involvement for Children Holistic Development in Ibadan Metropolis.

The authors investigated into the involvement of parents in the process of

developing children holistically, using descriptive survey design. The results showed that though parental involvement was high in the study area, there were challenges militating against involvement of some parents and recommendations were proffered.

Article 4: Effect of Think-Pair-Share as Dynamic Teaching Strategy on Pupils' Achievement in Mathematics in Ilorin, Kwara State

The authors determined the effect of the learning strategy on pupils' achievement in Mathematics using quasi-experimental research design. Data gathered through pretest-posttest were analysed using ANCOVA. The result established the potency of the strategy in enhancing achievement in Mathematics and it was recommended for use in the Mathematics lesson.

Article 5: Effect of Letters and Sounds as a Phonics Method on Preschool Children's Reading Abilities in Ilorin Metropolis of Kwara State

The authors identified through literature perusal, the use of phonics method in enhancing reading ability of pupils. This is then tested on pupils in Ilorin Metropolis to confirm its effect empirically. The result established the positive effect of the strategy in enhancing reading ability of pupils and recommended its use in schools.

Article 6: Improving Teacher Quality in Nigerian Pre-Primary and Primary Education

The author elucidated the invaluable role of teachers in the educational system and more importantly at the early years. The characteristics, qualities and theories that teachers need to be armed with were clearly examined. The factors affecting teachers' quality were discussed and recommendations proffered.

Article 7: Parents' Perception of over Schooling on Pre-primary Pupils' Learning in Jos South L.G.A. of Plateau State

The authors discussed the concept of over-schooling at early years of children, which is seeing as something that is likely to affect children adversely and examined the perception of parents on the concept using descriptive survey design. The finding indicated that parents were ignorant of the effect on children. Recommendations were proffered.

Article 8: Investigating Early Childhood Care and Education (ECCE) Pre-service Teacher's Preparation through Knowledge of Culturally Appropriate Instructional Resources in Adamawa State

Instructional resources are germane in the teaching-learning and developmental process in early childhood education but in many cases imported resources are heavily relied upon in centres resulting in either shortage or non-availability of the necessary materials. However, there are several culturally relevant instructional resources that have not been explored probably for lack of knowledge by the necessary stakeholders. It is on this premise that the author investigated this concept among pre-service teachers in Adamawa. The findings were presented and recommendations proffered.

All the articles in this Number have considered pertinent issues that could bring about quality early childhood education programme in Nigeria as the nation journeyed towards achieving Agenda 2030 of the sustainable development goals. It is also a joint responsibility among all stakeholders. It is therefore, the expectation of the Editorial Board that readers will not only find this volume a good companion in their continuous search for knowledge but also a reliable source of literature for further research activities in improving the quality of stakeholders and services to early childhood development. It is also hoped that early childhood education practitioners will find it useful in their day – to – day running of school system.

Professor Hannah Ajayi

Contents

Editorial Board

ii

Editorial Comments

iii

Quality, Equitable and Context-Based Early Childhood
Care and Pre-Primary Education: The Journey to 2030

Prof. J. O. AJIBOYE

Registrar/Chief Executive

1

Teachers' Perception of Some Requirements for Job
Effectiveness in Odeda Local Government Area of Ogun
State, Nigeria

T. OKORUWA

10

Parental Involvement for Children Holistic Development
in Ibadan Metropolis

M. OLOTU, A. A. AKINROTIMI

and O. S. BADMUS

25

Effect of Think-Pair-Share as Dynamic Teaching Strategy
on Pupils' Achievement in Mathematics in Ilorin, Kwara State

K. E. OBAFEMI, E. K. Ola-Alani and

A. A. Fajonyomi,

40

Effect of Letters and Sounds as a Phonics Method on
Preschool Children's Reading Abilities in Ilorin
Metropolis of Kwara State

H. T. SULYMAN, M. A. AKOREDE

and T. OGUNSANWO

53

Improving Teacher Quality in Nigerian Pre-Primary
and Primary Education

T. J. POPOOLA

Parents' Perception of Over Schooling on
Pre-primary Pupils' Learning in Jos South L.G.A .
of Plateau State

J. M. ASEYI and O.O. AKINTUUNDE

80

Investigating Early Childhood Care and Education
(ECCE) Pre-service Teacher's Preparation through
Knowledge of Culturally Appropriate Instructional
Resources in Adamawa State

Y. ABDULRASHEED

93

EFFECT OF THINK-PAIR-SHARE AS DYNAMIC TEACHING STRATEGY ON PUPILS' ACHIEVEMENT IN MATHEMATICS IN ILORIN, KWARA STATE

¹Kayode, Ezecheal **OBAFEMI**,²Eniola, Keji **OLA-ALANI**, and
³**A. A. FAJONYOMI**

¹Department of Early Childhood and Primary Education, Faculty of Education, Kwara State University, Malete, Nigeria

^{2&3}Department of Adult and Primary Education,
Faculty of Education,
University of Ilorin, Ilorin, Nigeria

Abstract

This study investigated the effect of think-pair-share teaching strategy on the academic achievement of pupils' in Mathematics in Ilorin West Local Government Area of Kwara State. To guide the study, three hypotheses were formulated and tested at 0.05 level of significance. The study adopted a pre-test post-test control group non-equivalent quasi-experimental research design. Two public primary schools were randomly selected to participate in the study. Primary 6 pupils in the two selected schools constituted the sample. One validated and reliably tested ($r = 0.79$) instrument was used for data gathering. The study lasted for seven weeks and all the data gathered were analyzed using Analysis of Covariance (ANCOVA). The findings of the study unfolded that there was significant main effect of treatment on pupils' achievement in Mathematics ($F_{(1;66)} = 226.432$; $P < 0.05$); there was no significant main effect of gender on pupils' achievement in Mathematics ($F_{(1;66)} = .014$; $P > 0.05$) and there was no significant interaction effect of treatment and gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State ($F_{(1;66)} = .014$; $P > 0.05$). Based on the findings of the study, it was concluded that think-pair-share teaching strategy is a good teaching strategy to improve the academic achievement of pupils in mathematics. It was recommended that teachers should be exposed to training, workshop and seminar on the use of think-pair-share teaching strategy.

Key words: Think-pair-share teaching strategy, Mathematics, Academic achievement

Introduction

Mathematics education is to a nation what protein is to a young human organism. As a vital tool for the understanding and application of science and technology, mathematics is seen by society as the foundation of scientific and technological knowledge that is vital in social- economic development of the nation. Mathematics occupies a pivotal position in Science and Technology and is needed by everybody and in every aspect of human endeavor (Abubakar&Eze, 2010). Because of this, Mathematics is a compulsory subject at both primary and secondary school levels in Nigeria. Mathematics is also used as a basic entry requirement into any of the prestigious courses such as Education, Medicine, Architecture and Engineering among other degree programmes. Despite the important role Mathematics plays in society, performance of learners in the subject at national examinations has not been encouraging.

A closer examination of primary Mathematics teaching in the present time, especially at the basic education level, has become a source of great concern to educators and scholars. The subject has been identified as the most disliked subject in school, with pupils performance worsening from year to year at all levels of education (Brown, Brown & Bibby, 2008). In a report prepared by Nigeria Education Sector Analysis (NESA, 2004), the national percentage of mean scores of primary four and six pupils in numeracy are put at 33.7% and 35.7% respectively which are below average score.

Similarly, the National Assessment of the Universal Basic Education Programme presented the performance of primary six pupils across the nation in 2009. The results revealed that only three states out of the thirty-six states and the Federal Capital Territory had average scores that is up to average- Bayelsa State (Mean= 55.96%), Jigawa State (58.26%) and Osun State (Mean= 54%). Fifteen states have mean scores that were not up to pass mark. Their scores ranged from 23.35% for Kano State to 29.23% for Ondo State. The national mean score is 42.87% which was below average (NAUBEP, 2009).

Furthermore, despite the importance of Mathematics, it has been noted with displeasure that students' academic achievement in

Mathematics has not been encouraging. The academic achievements of learners in external examination of West African Examinations Council (WAEC) in the years 2017 and 2018 were not heartening because students who had credit pass in Mathematics were not up to 50% of the learners who sat for the examination in Kwara state (National Bureau of Statistics, 2019). The percentage of learners who had pass marked in Mathematics in 2017 and 2018 were 49% and 46% respectively.

Considering the status and the importance of Mathematics in various spheres of our national life, this poor learning situation associated with it should not be allowed to continue. This raises a serious concern since if the trend is unchecked, it will undermine national development. Therefore, all hands must be on deck to ensure improvement in the academic achievement of pupils in Mathematics at primary school level where solid foundation for further studies could be laid. Previous studies (Atandi, Gisore,&Ntabo, 2019; Isa, Mammam, Badar&Bala, 2020) have found that improvement in the academic performance of pupils is dependent on method of teaching. That is why the poor academic performance of pupils in Mathematics has partly attributed to lecture method of teaching often used by some teachers. Some researchers and scholars (Kingdom-Aaron, Etokeren&Okwelle, 2019; Molla, &Muche, 2018) have recommended the use of teaching strategies that tolerate pupils' participation in teaching-learning situation. One of such teaching strategies is think-pair-share teaching strategies which is a variable of interest in this study.

According to Usman (2015), think-pair-share strategy is a strategy designed to provide students to think out a given topic by enabling them to formulate individual ideas and share these ideas with another student. This strategy is a learning strategy developed to encourage student's classroom participation. The think-pair-share strategy is a cooperative discussion strategy to help students work in group. In applying this strategy, the teacher poses a question, preferable one demanding analysis, evaluation, or synthesis, and gives students about a minute to think through an appropriate response (Lyman, 1981). The students can share their ideas that appear in their minds as the responses to the teacher's questions in the teaching and learning processes. Students then turn to a partner and share their responses with others. During the third step, student's responses can be shared within a four-person learning team, within a larger group, or with

an entire class during a follow-up discussion. The caliber discussion is enhanced by this technique, and all students have an opportunity to learn by reflection and by verbalization.

Think-pair-strategy reinforces students' communication skills. Each student takes his chance to speak, discuss and participate which has many positive effects on the whole group where students feel more self-confident and more active in the class. Moreover, they learn to listen to each other point of view and to respect each other ideas and thoughts (Raba, 2017). Bamiro (2015) opined that the use of the strategy unites the cognitive and social aspects of learning, promoting the development of thinking and the construction of knowledge.

Think-pair-share gets its name from the three stages of students' action, with an emphasis on what students are to be doing at each of those stages (Marzano & Pickering, 2005). Think-Pair-Share strategy requires pupils to interact with peers by sharing individual understanding (Yusuf, 2019). This teaching-learning strategy works in three phases: (1) Think The teacher provokes students' thinking with a question, prompt, or observation. The students should take a few minutes just to think about the question; (2) Pair Using a partner or a desk-mate, students pair up to talk about the answer each student came up with. They compare their mental or written notes and identify the answers they think are best, most convincing, or most unique; (3) Share: After students talk in pairs for a few minutes, the teacher calls for pairs to share their thinking with the rest of the class (Millis, 2012). Pupils have the opportunity to communicate ideas with their peers about how to solve specific issues. A pupil who clearly understands a particular concept can share his or her views and techniques with other pupils. Brainstorming can also be used to make a difficult decision in order to find optimal solutions. There would be high outlook for pupil to be able to work cooperatively and support one another as they work together.

However, a number of studies (Bamiro, 2015; Marwan, 2015; Raba, 2017; Kaddoura, 2013; Ruiz-Primo; 2011; Yusuf, 2019) have been conducted on the effect of think-pair-share teaching strategy on the academic performance of students in different school subjects but none of these studies attempted to examine the effect of think-pair-share teaching strategy on the academic achievement of pupils in mathematics particularly in Ilorin West Local Government Area of Kwara State.

There seems to be a connection between societal orientation and biological differences to performance. Many issues have always been posed regarding the different abilities inherent in the male and female sexes. It is often believed that the male sex enjoys a form of superiority over the female sex (Nnamani&Oyibe, 2016). This superiority is also argued in the area of academic achievement. To this end, a number of studies (Ajaja&Mezieobi, 2018; Albalawi, 2019; Awodun&Oyeniyi, 2018) have been conducted on the effect of gender on the academic performance of learners in various school subjects but the findings of these studies have not been consistent. Hence, this study intends to factor in gender as a moderator variable in this study to cushion the unexpected effect it may have on the pupils' academic achievement in Mathematics.

Based on the research lacuna established above, this study attempted to determine the effect of think-pair-share teaching strategy on primary school pupils' academic achievement in Mathematics in Ilorin West Local Government Area of Kwara state. To the best knowledge of the researcher, no study of this type has been carried out in the geographical area where this study was carried out particularly with primary school pupils. Therefore, this study aimed to provide empirical evidence of the effect of think-pair-share teaching strategy on pupils' academic achievement in Mathematics in Ilorin West Local Government Area of Kwara state.

Statement of the Problem

The incessant poor performance of pupils in internal and external examinations in primary Mathematics has been partly attributed to the adoption of teacher-centred method of teaching often used by some teachers. Scholars and researchers have suggested the use of teaching methods that promote active participation of pupils in teaching and learning activities. A number of teaching strategies have been opined to improve the performance of pupils in Mathematics and several studies have equally been conducted but none of the teaching strategies was effective to bring about improved performance of pupils in Mathematics particularly at the primary school level of education. Hence, it is against this background that this study examined the effect of think-pair-share as dynamic teaching strategy on the academic achievement of pupils' in Mathematics in Ilorin West Local Government Area of Kwara State.

Research Hypotheses

The following Null hypotheses are formulated to guide the study

- H₀1:** There is no significant main effect of treatment on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State.
- H₀2:** There is no significant main effect of gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State.
- H₀3:** There is no significant interaction effect of treatment and gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State.

Methodology

The study adopted pre-test post-test control group non-equivalent quasi-experimental research design. The population of the study consisted of all the public primary school pupils in primary 6 in Ilorin West Local Government Area of Kwara State. Simple random sampling technique was used to select two public schools. An intact class was selected in each school to participate in the study. One of the two schools was the experimental group while the second school was the control group. The experimental group was taught with think-pair-share teaching strategy while the control group was taught using conventional method. The two classes were taught four topics which are: Timing, money, lengths and basic operations. In gathering data, Mathematics Achievement Test (MAT) was used. MAT consisted of 40 multiple choice questions which were extracted from past questions of common entrance examination. MAT was validated by Lecturers in the Department of Adult and Primary Education, University of Ilorin, Ilorin, Nigeria. To test the instrument for reliability, test retest method was used. MAT was administered twice to 25 primary six pupils who were not part of the study. The two administrations were done in an interval of two weeks. Thereafter, data from the two administrations were correlated using Pearson Product Moment Co-efficient (PPMC) so as to determine the reliability coefficient and the value stood at 0.79. Ethically, consent of the pupils and their parents were sought. The data collection lasted for seven weeks. The first week was used for the training of the research assistant. The second week was used for the administration of Mathematics Achievement Test (MAT) as a

pretest to both the experimental and control groups. Treatment for all the two groups was carried out for a period of four weeks and four topics were taught. Mathematics Achievement Test was administered as post-test to the two groups (both the experimental and control groups) in the 7th week. Data gathered were analyzed using Analysis of Covariance (ANCOVA).

Results

Research Hypothesis One: There is no significant main effect of treatment on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State.

Table 1: Table Showing the Main Effect of Treatment on Pupils' Achievement in Mathematics in Ilorin West Local Government Area of Kwara State.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4400.165 ^a	4	1100.041	62.107	.000
Intercept	1359.706	1	1359.706	76.768	.000
Pretest	26.862	1	26.862	1.517	.223
Treatment	4010.552	1	4010.552	226.432	.000
Gender	.239	1	.239	.014	.908
Treatment * Gender	.251	1	.251	.014	.906
Error	1168.990	66	17.712		
Total	55085.000	71			
Corrected Total	5569.155	70			

Table 1 shows the main effect of treatment on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State. There was significant main effect of treatment on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State ($F_{(1,66)} = 226.432$; $P < 0.05$). The hypothesis is therefore rejected in the light of the result since the significant value is less than 0.05. This implies that treatment had significant main effect on pupils' achievement in

Mathematics.

Table 2 below revealed the source of the difference in pupils' academic achievement in Mathematics.

Table 2: Summary of Bonferroni's Post Hoc pairwise comparison of the scores within the two groups

Treatment	Mean Scores	Experimental Group	Control Group
Thin-pair-share	36.64		*
Conventional method	20.51	*	

Table 2 shows that the significant main effect exposed by table 1 was as a result of the significant difference between:

- i. Think-pair-share teaching strategy
- ii. Conventional method

This implies that those exposed to think-pair-share teaching strategy (Mean = 36.64) performed significantly better than those exposed to conventional method (Mean = 20.51).

Research Hypothesis Two: There is no significant main effect of gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State.

Table 1 also revealed the effect of gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State. There was no significant main effect of gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State ($F_{(1,66)} = .014$; $P > 0.05$). The hypothesis is, therefore, not rejected in the light of the result since the significant value is greater than 0.05.

Research Hypothesis Three: There is no significant interaction effect of treatment and gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State.

Table 1 also revealed the interaction effect of treatment and gender

on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State. There was no significant interaction effect of treatment and gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State ($F_{(1,66)} = .014$; $P > 0.05$). The hypothesis is, therefore, not rejected in the light of the result since the significant value is greater than 0.05.

Discussion of Findings

The findings of the study revealed that there was significant effect of treatment on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State. This implies that think-pair-share teaching strategy had significant effect on pupils' achievement in Mathematics. This finding corroborated the finding of Raba (2017) which unfolded that think-pair-share had significant influence on students' learning outcomes. Similarly, Bamiro (2015) investigated the effect of think-pair-share teaching strategy on senior secondary school students' achievement in Chemistry. It was found that students taught with think-pair-share teaching strategy obtained significantly higher posttest mean scores than those taught with lecture strategy.

Also, the finding of the study unfolded that there was no significant main effect of gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State. This finding is in tandem with the findings of Attah and Ita (2017) who investigated the influence of gender on academic achievement in English Language among senior secondary school students in Calabar metropolis, Cross River State. It was revealed that gender has no significant influence on academic performance in English Language among senior secondary school students in Calabar metropolis. On the contrary, Pirmohamed, Debowska and Boduszek (2017) examined the influence of gender on students' academic performance. The findings of the study unfolded that there was significant difference in the academic performance of final year undergraduate students based on gender.

The finding of the study also revealed that there was no significant interaction effect of treatment and gender on pupils' achievement in Mathematics in Ilorin West Local Government Area of Kwara State. This finding is in support of the finding of Yusuf (2019) which reported that there was no significant interaction effect of treatment and gender on the

academic performance of learners' performance in numeracy.

Conclusion and Recommendations

Based on the findings of this study, it can be concluded that think-pair-share teaching strategy is a good teaching strategy to improve the academic achievement of pupils in Mathematics in Ilorin West Local Government Area of Kwara State. Hence, the following recommendations are made:

1. Think-pair-share teaching strategy should be used in teaching mathematics.
2. Primary school teachers should be allowed to attend seminars, workshops and conference that will expose them to the use of think-pair-share teaching strategy.
3. Teacher education programme should include think-pair-share teaching strategy as part of the topics in methodology courses at the university and colleges of education.

References

- Abubakar, R. B., &Eze, F. B. (2010).Female students' academic performance in Mathematics at Federal College of education (Technical), Omoku, Rivers State. *International Journal of Social and Policy Issues* 11. 2: 48-53.
- Ajaja, R., &Mezieobi S.A (2018). Effect of cooperative learning strategy on students' performance in social studies. *International Journal of Education and Evaluation*, 4(9),
- Albalawi, M. (2019). Does gender difference have an effect in the academic achievements of undergraduate students' and later as interns? A single medical college experience, Taibah University, KSA. *Allied Journal of Medical Research*, 3(1), 20 – 25.
- Atandi, B. C., Gisore, B.,&Ntabo, A. J. (2019). Influence of teaching methods on students' academic performance in kiswahili subject in public and private secondary schools in Lang'ata Sub-county. *African Research Journal of Education and Social Sciences*, 6(2),

- Attah, R. F., & Ita, P. M. (2017). Gender as predictor of academic achievement in english among senior secondary school two students in Calabar Metropolis, Cross River State. *Global Journal of Educational Research*, 16; 149-153
- Awodun, A. O., & Oyeniyi, A. (2018). Influence of school location 'on students' academic achievement in junior secondary school basic science in Ekiti State, Nigeria. *Journal of Emerging Technologies and Innovative Research (JETIR)*, 5(6), 125 – 129.
- Bamiro, A. O. (2015). Effects of guided discovery and thinkpair-share strategies on secondary school students' achievement in chemistry. Retrieved from (<http://www.uk.sagepub.com/aboutus/openaccess.htm>)
- Brown, M., Brown, P., & Bibby, T. (2008). I would rather die: Reasons given by 16-year-olds for not continuing their study of mathematics. *Research in mathematics of education*, 10.1: 3-18: DOI: 10.1080/14794800801915814. Retrieved May 6, 2010, from [URL:http://dx.doi.org/10.1080/14794800801915814](http://dx.doi.org/10.1080/14794800801915814)
- Isa, S. G., Mammam, M. A., Badar, Y., & Bala, T. (2020). The impact of teaching methods on academic performance of secondary school students in Nigeria. *International Journal of Development Research*, 10(7), 37382-37385
- Kaddoura, M. (2013). Think pair share: A teaching Learning Strategy to Enhance Students' Critical Thinking. *Educational Research Quarterly*, 4 – 24.
- Kingdom-Aaron, G. I., Etokeren, I. S., & Okwelle, P. C. (2019). Effect of cooperative learning strategy on biology students' academic performance in senior secondary school in Rivers State. *Journal of Scientific Research and Reports*
- Lyman, F. (1981). The responsive classroom discussion. In A. S. Anderson (Ed.), *Mainstreaming Digest* (pp. 109-113). College Park, MD: University of Maryland College of Education.

- Marwan, Z. B. (2015). Think-pair-share, co op-co op and traditional learning strategies on undergraduate academic performance. *Journal of Educational and Social Research*, 5(1), 217 – 226. Rome-Italy : MCSER Publishing.
- Marzano, R.J. ,& Pickering, D.J. (2005). Building academic vocabulary. VA: Association for Supervision and Curriculum Development.
- Millis, B. J. (2012). IDEA Paper No. 53: Active Learning Strategies in Face-to-Face Courses: The IDEA Center. Retrieved from http://www.ideaedu.org/Portals/0/Uploads/Documents/IDEA%20Papers/IDEA%20Paper%2053/PaperIDEA_53.pdf
- Molla, E., & Muche, M. (2018). Impact of cooperative learning approaches on students' academic achievement and laboratory proficiency in biology subject in selected rural schools, Ethiopia. *Educational Research International*. 2, 1-9
- National Assessment of Universal Basic Education Programme (2009). Mean and standard deviation of performance in mathematics across classes. Final report.
- National Bureau of Statistics (2019). WAEC Results Statistics. Abuja: National Bureau of Statistics.
- Nigeria Education Sector Analysis 2004. Monitoring of learning achievement project 2003: Assessment of learning achievement of primary four and primary six pupils. Abuja: Federal Ministry of Education.
- Nnamani, S. C., & Oyibe, O. A. (2016). Gender and academic achievement of secondary school students in social studies in Abakaliki Urban of Ebonyi State. *British Journal of Education*, 4(8), European Centre for Research Training and Development UK.
- Pirmohamed, S., Debowska, A., & Boduszek, D. (2017), Gender differences in the correlates of academic achievement among university

- Raba, A. A. A. (2017). The influence of think-pair-share on improving students' oral communication skills in EFL Classrooms. *Creative Education*, 8, 12-23. <http://dx.doi.org/10.4236/ce.2017.81002>
- Ruiz-Primo, M. (2011). Informal formative assessment: The role of instructional dialogues in assessing students' learning. *Studies in Educational Evaluation*, 37(1), 15-24.
- Usman, A. H. (2015). Using the Think-Pair-Share Strategy to Improve Students' Speaking Ability at Stain Ternate. *Journal of Education and Practice*, 6 (10), 37–45.
- Yusuf, G. A. (2019). Effects of think-pair-share and problem-solving strategies on academic performance of pupils in numeracy in Ekiti Local Government Area, Kwara State. M.Ed thesis submitted to the Department of Early Childhood and Primary Education, Kwara State University, Malete.