

EFFECTS OF MNEMONICS AND PRIOR KNOWLEDGE INSTRUCTIONAL STRATEGIES ON PUPILS' ACADEMIC ACHIEVEMENT IN ENGLISH LANGUAGE IN ENUGU STATE, NIGERIA

EMMANUEL CHIDOBÉ OKENYI,
Department of Educational Foundations,
University of Nigeria, Nsukka
emmanuel.okenyi@unn.edu.ng
+2348036759024

&

VICTOR SUNDAY EZEMA
Department of Educational Foundations,
University of Nigeria, Nsukka

Abstract

This study investigated the effects of Mnemonics and Prior Knowledge Instructional strategy on the academic achievement of pupils in English Language with gender as moderating variables. The study adopted a quasi-experimental pre-test, post-test control group research design. The study was guided by three null hypotheses tested at 0.05 level of significance. Sample of the study consisted of 97 primary 5 pupils in three intact classes from three primary schools in Enugu Urban, Enugu state. Two instruments: Pupils' English Language Achievement Test (PELAT) and Verbal Communication Skills Test (VCST) were developed and used for data collection. The reliability indices of the instruments were 0.78 and 0.79 respectively. Also, used were three operational guides on Mnemonic Instructional strategy, Prior Knowledge Instructional strategy and Conventional Instructional method. The study was guided by three null hypotheses tested at 0.05 level of significant. Analysis of Covariance was used to analyze the data collected. The findings of the study revealed among others that prior knowledge instructional strategy is superior to mnemonic instructional strategy and that gender is not a significant variable in the treatment. It was therefore, recommended among others that teachers should endeavor to employ mnemonics and prior knowledge instructional strategies in the class rooms for better academic achievement of pupils in English Language.

Keywords: Mnemonic, Prior knowledge, Instructional strategy, Academic achievement, Pupils, English Language.

1. Introduction

Language is the only means of communication known to man and seems to distinguish man from other animals. Language is a vehicle for commerce, a means of communicating our thoughts, ideas, and emotions among others. Without language, human interactions would be dull, meaningless and fruitless. There are numerous number of languages around the

globe. Every country has her own national language in addition to various indigenous languages utilized by her people in their various regions (Naved, 2020). Billions of people are utilizing some of these languages while only a few thousands speak others.

English language happens to be one of the numerous languages spoken by many people around the world. According to Ugwuanyi (2020), nearly a quarter of the world's population speaks English Language. This seems to represents about 1.75 billion people and over 21% of the world's population. In Nigeria, English is the lingua Franca and is used in all aspects of the Nigerian school life. This makes is a "conditio sine qua non" for every Nigerian child. Lestari (N.D) argued that English language has been inculcated into the school curriculum as a core subject in all levels of education. The British-Study.com (2021) insisted that in the areas of aviation, computer, science, commerce, tourism and diplomacy English is the language of the day. English language is the official language of academia in Nigeria making it important for pupils to have a grasp of the language. English language also remains a key to understanding other school subjects in Nigeria (Sa'ad & Usman, 2014).

Nevertheless, it is depressing that despite the importance and contributions of English language in Nigeria, abysmal performance of pupils and students in the subject seems to go unabated. Wahab (2018) pointed out that lack of qualified teachers, lack of confidence on the part of the learners, vernacular among others account for poor performance in English language. Similarly, Sa'ad and Usman (2014) pointed out that inadequate teaching periods, inappropriate teaching methods and inadequate instructional resources among other factors militate against successful performance and achievement in English language. Mosha (2014) insisted that incompetent, untrained and under qualified teachers; excessive class size and unfavorable school climate; inadequate use of English language at school and at home; inadequate teaching methods and lack of instructional materials as well as lack of laboratories among others as contributing to poor performance and achievement of learners in English language. Ngbambi (2014) insisted that poor foundation orchestrated by poor teaching methodology in elementary schools rank first among the factors associated with students' abysmal performance in English language. This implies that inappropriate teaching method is one of the most important factors that influence pupil's poor performance in English Language.

The method of teaching English language in Nigerian schools is the conventional method, which is known as lecture method or chalks and talk method. This method seems not to help pupils build a strong vocabulary base in English language. According to Dorgu (2015), lecture method is the prevailing method of teaching in Nigeria, this method according to the author is teacher centered, uninteresting, and unattractive to the learners. Similarly, Sa'ad and Usman (2014) insisted that insufficient infrastructural facilities, inappropriate and inadequate teaching aids and instructional methods are prominent causes of poor performance of learners in English language. Kelly (2019) pointed out that lecture method is monotonous and non-engaging and so does not motivate learners, making it difficult to achieve the set goals of the lesson. According to Ugwuanyi and Okeke (2020), it is obvious that the current instructional strategy in Nigeria is futile since, it cannot equip learners with problem-solving skills as well as lacks the ability to inculcate flexible and critical thinking skills on the learners; therefore, there is need for instructional strategy that could aid the retentive memory of the learners.

Hence, the researcher sought to investigate the effect of mnemonics instructional strategy on the academic achievement of pupils in English Language.

Mnemonic refers to a cognitive tool or strategy that enhances retention of and memorization of information or data. According to Drumm (N.D) mnemonic is a device that gives the brain some tips on how to encode and recall information easily. Mnemonic instruction strategy is arrange of strategies that can be applied to numerous situations to help learners with different aptitudes to improve their retention abilities (Lubin & Polloway, 2016). Similarly, Kuder (2017) pointed out that mnemonic instruction strategy is an instructional strategy that enables learner recall information by linking new data to prior knowledge using visual or acoustic cues. Mnemonic strategy utilizes numerous tactics to improve students' assimilation and retrieval of new information relying on keywords, rhythms and acronyms (Fasih et al, 2017).

Prior Knowledge refers to the entirety of information acquired by the learner before encountering novel information. Prior knowledge is what one may know about a situation before learning more about the particular situation. Prior knowledge is the knowledge a learner brings into play in an attempt to resolve a new problem (Wenk, 2017). It is on this note that Tay (2018) pointed out that prior knowledge is central to coding and encoding new information and making the information meaningful. Admitting the centrality of prior knowledge in acquiring new information, Howard-Jones et al. (2018) pointed out that while some learners may have appropriate previous information, they may not be able to make appropriate connection between the prior and the new information. Prior Knowledge instructional strategy is therefore, the bridge that links prior knowledge to new information. To achieve this, Akinsola and Odeyemi (2014) pointed out that the teacher should discover the learners' prior assumptions and opinions at the beginning of the lesson, and challenge the learner's misconceptions through examples that may prove otherwise. Tay maintained that the extent to which learners involve previous information in the classroom varies.

Nevertheless, previous knowledge can hinder the assimilation of new information. Akinsola and Odeyemi (2014) argued that in cases where the previous knowledge is either incomplete or inaccurate, or situations where the learner over generalizes inappropriately from day-to-day experiences, there could be difficulties encoding and retrieving new information. Brinkmann (2016) pointed out that in the case of growing minds, numerous beliefs and prior convictions are difficult to change, depending on the degree of the conviction. To counter and erroneous belief and conviction in the mind of the learner the instructor may need to activate the prior information that is related and vital to the topic in question. Diaz (2017) pointed out that active review of the prior and present information should be carried out before, during and at the end of the each topic to deal with misconceptions that resist change. This is important as what a student learns is determined by that which he knows and what he knows can be more injurious than what he does not know (Svinicki, 2011 as cited in Akinsola and Odeyemi, 2014). In some cases, it seems girls link prior knowledge to new information easier than boys do.

In Nigeria today, gender has become a critical variable in the front burner of every education deliberation and researches with confounding and inconsistent outcomes. Some scholars have argued that recently, girls are outsmarting boys in educational performance (Ullah & Ullah, 2019). Earlier, Koprowski (2016) pointed out that girls in most countries achieve better in English language than boys. Roivainen (2011) argued that due to girls deeper involvement in

language associated events; they (girls) are more proficient than boys are in writing and speaking skills, which are needed in language acquisition. Gnaulati (2014) in a related study affirmed that girls are well ahead of boys in all school subjects including English language. Collaborating this view, Crawford (2018) in a study pointed out that girls are consistently outperforming boys in reading and writing English with a wide margin. In another study, Erdiana et al. (2019) revealed that female students dominated higher scores in every aspect such as pronunciation, grammar, fluency, vocabulary among others than boys in English language. However, earlier in a related study Musa, Dauda and Umar (2016) insisted that boys out-performed girls in English Language achievement tests and overall academic performance.

Prior knowledge instructional strategy is beneficial in teaching learners who are grounded in English language as well as those who are grappling with the language (Ferlazzo and Synnesko 2018). In a related study, Lynch (2019) discovered that the activation of previous knowledge is essential for English language learners since it forms the basis for the learning of new concepts and skills than mnemonic strategy. Furthermore, Zashchitina and Moysyak (2017) found out that lack of prior and cultural knowledge may constitute a huge obstacle for English language learners and so, recommended the use of mnemonic in the activation of prior knowledge for English language learners.

In another empirical study, Anari et al. (2016) discovered that keywords-mnemonic strategy makes it possible for learners to retrieve and remember new words. In a related but separate investigation, Davoudi and Yousefi (2016) discovered that mnemonic technique is critical in the learning of English vocabularies especially for second language learners in English language. Similarly, Kayaalti (2018) in another study revealed that mnemonics technique of keywords method is most suitable and effective in aiding learners' easy acquisition of vocabularies in any given language, English Language inclusive.

The abysmal performance put up by pupils in both spoken and written English is worrisome and a source of concern for stakeholders in education industry. The scenario may be linked to numerous variables among which is the method of instruction in the classrooms. English is taught in primary schools using the traditional lecture method, which is teacher-centered making English lessons dull and uninteresting to pupils, leading to low achievement in English language. Unfortunately, many learners find it very difficult to remember and retrieve learned words and vocabularies, and principles guiding English grammar and lexicons, and to remember previous topic taught in the class. Majority of school children find it difficult to link their past experiences with the present information proving the inability of the current method of teaching to inculcate the skills of critical and flexible thinking in the children. To this effect, the need for instructional method that is learner-centered that can address the challenges associated with the traditional method is inevitable. Against this backdrop therefore, this study investigated the effects of mnemonic and prior knowledge instructional strategies on pupils' academic achievement in English language in Enugu state Nigeria. The moderating effects of gender and verbal skills on outcomes of learning English language were also investigated.

2. Hypotheses

The following null hypotheses that guided the study were tested at 0.05 level of significance.

Ho₁: There is no significant effect of treatments on pupils' achievement in English language.

Ho₂: There is no significant influence of gender on pupils' achievement in English language.

Ho₃: There is no significant interaction effect of treatments and gender on pupils' achievement in English language.

3.0 Methods

3.1 Design of the Study

A pretest-posttest; control group quasi-experimental research design was adopted by the researcher for the study. Participants were classified into control and experimental groups.

3.3 Ethical Considerations

The Faculty of Education, University of Nigeria approved this study through her institutional review board with ID No. REC/36/00213. The ethical standard specifications of the American Psychological Association (APA, 2017) were strictly adhered to by the researchers.

3.3 Participants

A sample of 97 primary 5 pupils participated in the study. A purposive sampling technique was employed in selecting two public primary schools with intact classes. There was no randomization since intact classes of 48 pupils and 49 pupils were used. The sample is made up of 46 boys and 51 girls.

3.4 Measure

The instruments for data collection were Pupils' English Language Achievement Test (PELAT) and Verbal Communication Skills Test (VCST). The PELAT was a researcher designed test that measured primary 5 pupils' achievement in English language. The instrument consisted of two sections of A and B. The section A was made up of demographic variables such as class, subject, gender, and age, while section B consisted of 20 items test questions drawn from English language concepts and lessons taught during the experiment. Each item has four options of A to D. Each question is awarded one point if answered correctly and zero if answered wrongly. The maximum one can make is 20 points. The instrument was designed to measure knowledge, critical thinking and understanding. Two experts, one from childhood education and another measurement and evaluation respectively validated the instrument. The final draft of 20 items instrument was trial tested by administering the instrument to 30 primary 5 pupils, made up of 17 boys and 13 girls outside the selected schools. From the result of the trial testing, the difficult index of each item was determined. The difficult index ranged between 0.34 (34%) and 0.76 (76%). To this effect, only 20 items of moderate difficult level were selected from final draft of 30 items drawn. Reliability coefficient of 0.78 was obtained for the instrument using Kuder Richardson formula 20 (KR, 20).

The Verbal Communication skills Test (VCST) was adapted from Psychometric Success Verbal Skills Test. The instrument consisted of 10 items and assessed the individual's general personality characteristics, verbal and quantitative reasoning ability and general communication skills. The instrument was trial-tested by administering it on 20 pupils outside the study area. Reliability coefficient of 0.79 was obtained using Kuder-Richardson formula 20 (KR, 20). The results obtained from the test were converted to percentage and were thus used to group pupils into low, medium and high verbal communication skill. To that effect, 0-39% was regarded as low verbal communication skill, 40-59% medium verbal

communication skill while 60% and above was regarded as high verbal communication skill. Based on this criterion, the pupils were grouped into different verbal communication skills groups.

3.5 Procedure for the Treatment

The program lasted for thirteen weeks. The first three weeks of the investigation was spent training the classroom teachers involved in the research, on mnemonics and prior knowledge instructional strategy. The researchers conducted the training. The fourth week, pretests on Pupils' English Language Achievement Test and Verbal Communication Skills were administered on the pupils. This was done by the researchers with the assistance of the classroom teachers acting as research assistants. Weeks five to Twelve were utilized for the treatment in the two schools selected for the research work. The teachers of experimental group 1 were supplied appropriate materials and guideline required for mnemonic instructional strategy and given clues of some relevant mnemonics prior to the commencement of the programs. While the teachers of the experimental group 11 were provided all necessary materials for prior knowledge instructional strategy and keenly reviewed at the beginning, during and at the conclusion of the lessons in order to recall relevant previous topics that may enhance the understanding of the present topic. The teachers of the control group were not supplied any materials or cues since they utilized traditional method of instruction. Week 13, was utilized in conducting the post-test.

3.6 Method of Data Analysis

Data were collected and analyzed using the mean and analysis of covariance (ANCOVA) to answer the research questions and test the null hypotheses. Thus, all the hypotheses were tested at 0.05 level of significance.

Results

Table 1: Mean analysis of the achievement scores of mnemonic and prior knowledge of instruction groups

Treatment	N	Mean	Pretest	Posttest		Mean gain
			Std. Deviation	Mean	Std. Deviation	
Mnemonic Group	48	8.14	1.36	14.62	2.45	6.14
Prior Knowledge Group	49	8.06	1.44	16.36	1.30	8.30

Table 1 showed that the pupils exposed to mnemonic strategy had mean achievement score of ($M = 8.14$, $SD = 1.36$) while that of the prior knowledge of instruction group is ($M = 8.06$, $SD = 1.44$) at the pretest. However, the mean achievement score of the mnemonic group at the posttest is ($M = 14.62$, $SD = 2.45$) while that of the prior knowledge group is ($M = 16.36$, $SD = 1.30$). The mean gain scores of 6.14 and 8.30 for the mnemonic and prior knowledge groups respectively indicate that the prior knowledge of instruction group had higher posttest mean achievement score than the mnemonic group.

Ho₁: There is no significant effect of treatments on pupils' achievement in English language.

Table 2: Analysis of covariance of the difference in the mean achievement scores of mnemonic and prior knowledge of instruction groups

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	117.416 ^a	4	29.354	8.417	.000	.268
Intercept	582.994	1	582.994	167.176	.000	.645
Pretest	2.916	1	2.916	.836	.363	.009
Treatment	68.068	1	68.068	19.519	.000	.175
Gender	11.347	1	11.347	3.254	.075	.034
Treatment * Gender	29.504	1	29.504	8.460	.005	.084
Error	320.832	92	3.487			
Total	23758.000	97				
Corrected Total	438.247	96				

a. R Squared = .268 (Adjusted R Squared = .236)

Table 2 revealed that there is a significant difference in the mean achievement scores of pupils exposed to mnemonic and prior knowledge of instruction in favour of the mean achievement score of those exposed to prior knowledge of instruction, $F(1, 92) = 19.519, p = .000$. Hence, the null hypothesis was rejected ($p < .05$). Besides, the effect size of 0.175 indicates that 17.5% variation in the achievement of pupils in Basic Science is attributed to the use of prior knowledge of instruction.

Table 3: Mean analysis of the achievement scores of male and female pupils in English language

Gender	n	Pretest		Posttest		Mean gain
		Mean	Std. Deviation	Mean	Std. Deviation	
Male	46	8.18	1.31	15.84	1.94	7.66
Female	51	8.03	1.48	15.22	2.26	7.19

Table 3 showed that male pupils had mean achievement score of ($M = 8.18, SD = 1.31$) while the female pupils had mean achievement score of ($M = 8.03, SD = 1.48$) at the pretest. At the posttest stage, male pupils had mean achievement score of ($M = 15.84, SD = 1.94$) while the female pupils had mean achievement score of ($M = 15.22, SD = 2.26$). Besides, the mean gain scores of 7.66 and 7.19 for the male and female pupils respectively indicate that male pupils had slightly higher mean achievement score than the female pupils.

H₀₂: There is no significant influence of gender on pupils' achievement in English language. Table 2 showed that there is no significant difference in the mean achievement scores of male and female pupils in English language, $F(1, 92) = 3.254, p = .075$. Hence, the null hypothesis which stated that there is no significant influence of gender on pupils' achievement in English language was not rejected ($p > .05$).

H₀₃: There is no significant interaction effect of treatments and gender on pupils' achievement in English language.

Table 2 showed that there is a significant interaction effect of treatments and gender on pupils' achievement in English language, $F(1, 92) = 8.460, p = .005$. Thus, the null hypothesis was rejected ($p < .05$). The ordinal nature of the interaction effect of treatment and gender is shown in Figure 1 below.

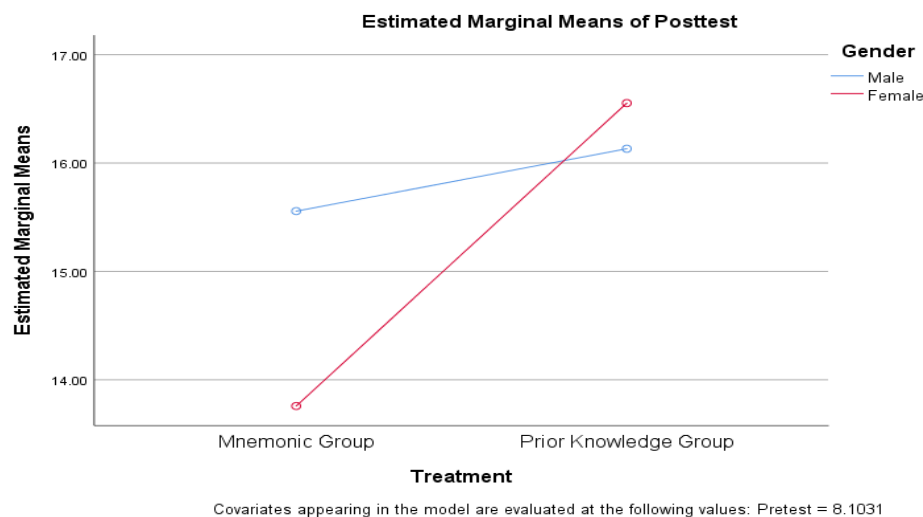


Figure 1: Interaction plot of treatment x gender.

Discussion of Result

From the result of the study, Prior knowledge instructional strategy is superior to Mnemonic instructional strategy. This is because the mean achievement score of pupils exposed to the mnemonic instructional strategy at the posttest is ($M = 14.62, SD = 2.45$) while that of the prior knowledge group is ($M = 16.36, SD = 1.30$). Also, the table 2 indicated that there is a significant difference in the mean achievement scores of pupils exposed to mnemonic and prior knowledge of instruction in favour of the mean achievement score of those exposed to prior knowledge of instruction, $F(1, 92) = 19.519, p = .000$. This finding is line with the findings of Lynch (2019) who discovered that prior knowledge instructional strategy is more beneficial to English learners than mnemonic instructional strategy. Again the finding validated the findings of Ferlazzo and Syniesko (2018) who discovered that prior knowledge instructional strategy is beneficial in teaching learners who are grounded in English language as well as those who are grabbing with the language.

Table 3 indicated that the male pupils had slightly higher mean achievement score than the female pupils at the posttest stage. Since, at the posttest stage, male pupils had mean achievement score of ($M = 15.84, SD = 1.94$) while the female pupils had mean achievement score of ($M = 15.22, SD = 2.26$). However, table 2 indicated that there is no significant difference in the mean achievement scores of male and female pupils in English language. This finding invalidated the findings of Roiveainen (2011), Koprowski (2016) and Ullah and Ullah (2019) who indicated that girls perform better than boys in English language. It also invalidated the

claims of Gnaulati (2014) who insisted that girls are ahead of boys in all school subjects including English language. However, the finding of this study validated the finding of Musa, Dauda and Umar (2016) who maintained that boys achieve more than girls do in English language achievement tests and performed better than girls do in all other school subjects. Hence, the null hypothesis is rejected.

Table 2 show that there is a significant interaction effect of treatment and gender on pupils' achievement in English language $F(1, 92) = 8.460, p = .005$, in favour of girls. The implication of this is that girls benefited a lot from the treatments and that the treatments helped girls achieve more than boys do in English Language.

Conclusion

In conclusion, therefore, it is evident that mnemonic and prior knowledge instructional strategies are effective at improving the pupil's academic achievement in English Language. Mnemonic instructional strategy helped the pupils remember information, demonstrate understanding and provide answers to questions easier. Mnemonics also provided visual and verbal reminders for pupils that had difficulties retaining information. It was also established that prior knowledge assisted the pupils to incorporate and assimilate new knowledge making meaning out of the newly acquired information and determine the pieces of the information that are relevant and those that are not.

Recommendations

Based on the findings of the study the following recommendations were made;

1. That teachers and educators should introduce the use of Mnemonic and Prior Knowledge instructional strategies in the classrooms to enhance pupils' achievement in English language.
2. Teachers should include a various mnemonic cues to cater for the diverse abilities of the pupils.
3. That the government and school authorities should organize period and regular trainings, workshops and seminars to keep primary school teachers abreast the tenets of mnemonic and prior knowledge instructional strategies.

References

- Akinsola, M. K. & Odeyemi, E. O. (2014). Effects of mnemonic and prior knowledge instructional strategy on students' achievement in mathematics. *International Journal of Education and Research* 2(7), 675-688. <https://www.ijern.com/journal/July-2014/54.pdf>
- Anari, F. K., Sajjadi, M. & Sadighi, F. (2015). The magic of mnemonics for vocabulary learning of a second language. *International Journal of Language and Linguistics* 3(1-1), 1-6. <http://sciencepublishinggroup.com/doi/10.11648/j.ijll.s.2015030101.11>
- Azim, M. N. L., Najmi, M. H. S. M. & Rouyan, N. M. (2016). A case study on the effects of mnemonics on English vocabulary. *International Journal of Applied Linguistics and English Literature* 5(7), 178-185.
- Brinkmann, S. (2016). The role of teachers' beliefs in the implementation of learner-centred education in India. <https://core.ac.uk/download/pdf/79549911.pdf>
- Crawford, K. (2018). A review of test scores from 10,000 school districts finds that gender gaps in math and English vary with community wealth and racial

- diversity.<https://ed.stanford.edu/news/new-stanford-education-study-shows-where-boys-and-girls-do-better-math-english>
- Davoudi, M. & Yousefi, D. (2016). The effect of keyword method on vocabulary retention of senior high school EFL learners in Iran. *Journal of Education and Practice* 7(11), 106-113. <https://files.eric.ed.gov/fulltext/EJ1099563.pdf>
- Diaz, K. V. L. T. (2017). Prior knowledge: Its role in learning. <https://www.researchgate.net/publication/334291100>
- Dorgu, T. E. (2015). Different Teaching Methods: A Panacea for Effective Curriculum Implementation in the Classroom. *International Journal of Secondary Education* 3(6), 77-88. <https://www.researchgate.net/publication/304222665>
- Drumm, M. (N.D). 4 types of mnemonic devices and how to use them.<https://www.tckpublishing.com/mnemonic-devices/>
- Erdiana, N., Bahri, S., & Akhmal, C. N. (2019). Male vs. female EFL students: Who is better in speaking skill? *Studies in English Language and Education* 6(1), 131-140. <https://www.researchgate.net/publication/331634638>
- Ferlazzo, L. & Sypniesko, K. H. (2018). Activating prior knowledge with English language
- Gasih, P., Izadpanah, S. & Shahnavaz (2017). The effect of mnemonic vocabulary instruction on reading comprehension of students. *International Journal of Applied Linguistic and English Literature* 7(3), 49-59. <http://dx.doi.org/10.7575/aiac.ijalel.v.7n.3p.49>
- Gnaulati, E. (2014). Why girls tend to get better grades than boys do. <https://www.theatlantic.com/education/archive/2014/09/why-girls-get-better-grades-than-boys-do/380318/>
- Howard-Jones, P. Ioannou, K., Bailey, R., Prior, J., Yau, S. H. & Jay, T. (2018) Applying the science of learning in the classroom.<https://impact.chartered.college/article/howard-jones-applying-science-learning-classroom/>
- Kayaalti, M. (2018). Mnemonic Technique – An effective vocabulary teaching method to plurilingual students. *Modern Journal of Language Teaching Methods (MJLTM)*, 2251-6204. <https://www.researchgate.net/publication/337293283>
- Kelly M. (2019). Advantages and disadvantages of Lecturing.<https://www.thoughtco.com/lecture-pros-and-cons-8037>
- Koprowski, E. (2016). Why are some girls better at English than boys? <https://www.academiccourses.com.br/news/Why-Are-Some-Girls-Better-at-English-than-Boys-639/>
- Kuder, S. J. (2017). Vocabulary Instruction for Secondary Students with Reading Disabilities: An Updated Research Review. *Learning Disability Quarterly*, 40(3), 155-164. DOI:<https://doi.org/10.1177/073194871769011>
- Lestari, L. A. (N.D). Should English be a compulsory subject in primary schools? <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.627.3752>

- Lubin, J. & Polloway, E. A. (2016). Mnemonic instruction in science and social studies for students with learning problems: A review. *Learning Disabilities: A Contemporary Journal* 14(2), 207–224. <https://files.eric.ed.gov/fulltext/EJ1118431.pdf>
- Lynch, M. (2019). Activating prior knowledge for ELLs. <https://www.theedadocate.org/activating-prior-knowledge-for-ells/>
- Mosha, M. A. (2014). Factors affecting students' serformance in English Language in Zanzibar rural and urban secondary schools. *Journal of Education and Practice* 5(35), 64-76. <https://www.iiste.org/Journals/index.php/JEP/article/viewFile/17455/17714>
- Musa, A. K. J., Dauda, B & Umar, M. A. (2016). Gender differences in achievement goals and performances in english language and mathematics of senior secondary schools students in Borno State, Nigeria. *Journal of Education and Practice* 7(27), 165-175. <https://files.eric.ed.gov/fulltext/EJ1115862.pdf>
- Naved, Z. (2020). 6 Reasons why knowing English is important in today's world. <https://owlcation.com/humanities/importanceofenglishlanguages>
- Nghambi, G. H. (2014). Factors contributing to poor academic performance in certificate of secondary education examination for community secondary schools in Urambo District, Tabora, Tanzania. <https://core.ac.uk/download/pdf/44684818.pdf>
- Roivainen, E. (2011). Gender differences in processing speed: A review of recent research. *Journal of Learning and Individual Differences* 21(2), 145-149. <https://www.researchgate.net/publication/251636851>
- Sa'ad, T. U. & Usman, R. (2014). The Causes of Poor Performance in English Language among Senior Secondary School Students in Dutse Metropolis of Jigawa State, Nigeria. *Journal of Research & Method in Education*, 4(5), 41-47. <https://www.researchgate.net/publication/10.9790/7388-04564147>
- Tay, C. (2018). A Good start: The pedagogical challenge of engaging prior knowledge for all pupils. <https://impact.chartered.college/article/tay-pedagogical-challenge-engaging-prior-knowledge/>
- Ugwuanyi, C. S. & Okeke, C. I. O. (2020). A multimedia instructional package on for enhancing achievement in basic science. *International Journal of Advanced Science and Technology* 132(1), 51-60. [Hppt://dx.doi.org/10.33832/ijast.2020.136.05](https://dx.doi.org/10.33832/ijast.2020.136.05)
- Ugwuanyi, K. (2020). A quarter of the world speak English - what makes it so popular? <https://www.weforum.org/agenda/2020/02/english-dictionary-languages/>
- Ullah, R. & Ullah, H. (2019). Boys versus girls' educational performance: Empirical evidences from global north and global south. *African Educational Research Journal* 7(4), 163-167
- Wahab, B. (2018). WAEC explains why students fail English Language in WASSCE. <https://www.pulse.ng/communities/student/mass-failure-waec-explains-why-students-fail-english-language-in-wassce/7vhcxm8>
- Wenk, L. (2017). The importance of engaging prior knowledge. <https://sites.hampshire.edu/ctl/2017/09/14/the-importance-of-engaging-prior-knowledge/>
- Zashchitina, G. & Maysyak, N. (2017). Some aspects of developing background knowledge in second language acquisition revisited. https://bces-conference-books.org/onewebmedia/2017.265-270.Galina.Zashchitina_Natalia.Moysyak.pdf