

Effect Of Visual Auditory Kinesthetic (Vak) On Senior Secondary Students

Achievement in English Language Grammar in Abia State Nigeria

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Abstract

The study investigated the effect of Visual Auditory Kinesthetic (VAK) instructional strategy on senior secondary school two students' achievement in English language grammar. The study adopted a quasi-experimental control design, specifically the pre-test post-test non-equivalent control group design. Two research questions were posed and one hypothesis formulated to guide the study which was carried out in 2 schools in Umuahia North Local Government area of Abia State. Eighty (85) SSS two students were used for the study. The study is a quasi-experimental study which employed pretest posttest control design and a 2x1 factorial design. Instrument used for data collection was English language grammar achievement Test (ELGAT) developed by the researcher. ELAT was validated by three experts and the reliability coefficient using Kuder Richardson (KR-20) was found to be 0.84. Mean and standard deviation were used to answer the research questions while Analysis of covariance (ANCOVA) statistics was used to test the hypothesis at 0.05 significance level. The result revealed that method was a significant factor on students' achievement in English language grammar. Thus, it was confirmed that students taught English language grammar using VAK instructional strategy performed better than those taught using the lecture method. It was recommended among others things, that SSS English language teachers should align the curriculum for English language grammar instruction with the principles of VAK. This means that learning content should be structured to employ a multimodal approach that incorporates elements from all three styles.

Keywords: Kinesthetic, quasi-experimental, strategy, posttest, multimodal

Introduction

English language proficiency is paramount in Nigeria due to its status as the country's official language and its role as a medium of instruction in schools and universities. In a multicultural and multilingual country like Nigeria, English serves as a unifying language, fostering communication and understanding among diverse ethnic and linguistic groups (Okunrinmeta, 2017). The ability to communicate effectively in English is not only crucial for academic success but also for social and economic mobility. Proficiency in English opens doors to various educational and employment opportunities, both within the country and internationally, allowing individuals to compete in the globalized world (Ebigbo, 2019). Proficiency in English is not obtainable without good knowledge of English language grammar. Grammar skills are fundamental to mastering any language, including English. In the context of English language learning, grammar provides the structure and rules necessary for constructing meaningful sentences and coherent communication. A strong foundation in grammar is essential for several reasons. Proper grammar ensures clarity in communication. It enables

individuals to convey their thoughts, ideas, and intentions accurately, reducing the likelihood of misunderstandings (Brown, 2015). Grammar skills are vital for writing essays, reports, and other academic or professional documents. Correct grammar usage enhances the quality of written work, making it more persuasive and compelling (Dawson, 2019). Understanding grammar enhances reading comprehension. Readers who grasp grammatical structures can decipher complex texts more easily, improving their overall literacy skills (Berman, 2018). Standardized tests assessing English proficiency, such as TOEFL and IELTS, include grammar components. A strong grasp of grammar is necessary to excel in these tests, which are often prerequisites for higher education or employment opportunities abroad (Smith, 2016).

In the context of the topic, understanding the significance of grammar skills in English language learning underscores the importance of finding effective teaching methods, such as incorporating Visual, Auditory, and Kinesthetic (VAK) learning styles, to enhance students' grammar proficiency in Senior Secondary 2 in Nigeria. Tailoring teaching strategies to accommodate

different learning styles can facilitate a deeper understanding of grammar rules and structures, contributing to improved English language proficiency among students.

Senior Secondary 2 (SS2) students in Nigeria encounter several challenges when learning English grammar, which can significantly impact their achievement and understanding of the subject matter. These challenges are pivotal to consider when exploring effective teaching methods such as Visual, Auditory, and Kinesthetic (VAK) approaches. Many schools in Nigeria, especially in rural areas, lack access to up-to-date English grammar textbooks and learning materials (Olatunji, 2018). Outdated or insufficient resources hinder students' exposure to diverse grammar concepts and exercises, limiting their understanding of complex grammatical rules. Overcrowded classrooms are common in Nigerian schools, making it challenging for teachers to provide individualized attention to each student (Ololube, 2012). In such settings, students might struggle to voice their questions or concerns, leading to unaddressed doubts and misunderstandings about grammar concepts. Nigeria is linguistically diverse with numerous native languages. Students often face challenges in

translating grammar rules from English to their native languages and vice versa (Ufomata, 2015). This language barrier can impede the understanding of English grammar concepts, affecting their overall proficiency. In some households, English may not be the primary language of communication. Students with limited exposure to English outside the classroom find it challenging to practice and reinforce their grammar skills, hindering their ability to grasp advanced grammar concepts (Oladele, 2013).

Traditional teaching methods that rely solely on lectures and rote memorization might not cater to the diverse learning styles of SS2 students. Engaging, interactive lessons that incorporate visual, auditory, and kinesthetic elements are often lacking, leading to disinterest and lack of motivation among students (Okoli & Ezinne, 2017). Addressing these challenges is crucial for enhancing SS2 students' achievement in English grammar. The application of VAK learning styles can provide a solution by offering diverse and interactive teaching methods tailored to individual students' preferences, thereby improving their comprehension and retention of grammar concepts.

Understanding the impact of various learning styles, such as Visual, Auditory, and Kinesthetic (VAK), on English grammar achievement is a crucial area of research in education. Investigating how these learning styles affect students' grasp of grammar concepts provides valuable insights for educators and curriculum designers. Visual learners grasp information better through visual aids such as charts, graphs, and images. In the context of English grammar, visual learners benefit from visual representations of grammar rules, including diagrams illustrating sentence structures and infographics explaining parts of speech (Fleming & Mills, 1992). Visual stimuli help these learners conceptualize abstract grammar concepts, making it easier for them to comprehend and apply rules in their writing and communication. Auditory learners learn best through listening. They comprehend information through lectures, discussions, and spoken explanations. For English grammar, auditory learners benefit from listening to grammatically correct sentences, participating in group discussions, and engaging in activities that involve verbal explanations of grammar rules (Kuznekoff & Titsworth, 2013). Auditory input helps these

learners internalize correct sentence structures and improve their language fluency. Kinesthetic learners learn through physical experiences and hands-on activities. In the context of English grammar, kinesthetic learners benefit from interactive exercises, role-playing activities, and games that involve physical movement (Dunn & Dunn, 1992). Engaging in these activities helps them understand grammar concepts by associating movements with specific rules, making learning more interactive and memorable. Research studies have shown that tailoring teaching methods to accommodate diverse learning styles, including VAK, can significantly enhance students' grammar achievement. By incorporating visual aids, interactive discussions, and hands-on activities, educators create a dynamic learning environment that caters to different learning preferences (Rashidi & Pazhakh, 2015). Such varied approaches not only improve students' understanding of grammar but also increase their motivation and engagement in the learning process (Farooq, Chaudhry, Shafiq, & Berhanu, 2011). The investigation of the impact of Visual, Auditory, and Kinesthetic (VAK) learning styles on English grammar

achievement underscores the importance of adapting teaching strategies to accommodate diverse learning preferences.

Numerous studies have investigated the impact of Visual, Auditory, and Kinesthetic (VAK) learning styles on language acquisition. These studies aim to understand how tailoring teaching methods to accommodate these learning preferences can enhance language learning experiences and outcomes. Research suggests that visual learners benefit from visual stimuli in language learning. Visual aids such as diagrams, charts, and images help them grasp vocabulary and grammar concepts more effectively (Coffield et al., 2004). Visual techniques facilitate the association of words with images, aiding vocabulary retention and comprehension (Oxford, 2001). Auditory learners excel when language instruction incorporates listening activities. Studies have shown that listening to native speakers, engaging in conversations, and participating in language-rich discussions enhance auditory learners' language skills (Reiss, 2004). Auditory input aids in phonological awareness, pronunciation, and intonation (Lightbown & Spada, 2006). Kinesthetic learners benefit from hands-on activities and

physical experiences. Studies indicate that incorporating gestures, role-playing, and interactive tasks into language lessons helps kinesthetic learners internalize language structures and improve their language production skills (Hadfield, 1998). Physical engagement reinforces grammar rules through muscle memory and sensory experiences.

Visual aids enhance grammar instruction by making abstract concepts tangible. Diagrams illustrating sentence structures and infographics explaining parts of speech improve students' understanding of complex grammar rules (Jewitt, 2006). Visual representations simplify grammar explanations and aid in retention (Mayer, 2009). Auditory methods, such as listening to grammatically correct sentences and engaging in spoken language activities, improve grammar comprehension. Research has shown that auditory input helps learners internalize correct sentence structures, leading to improved language fluency and grammatical accuracy (Bunch, 2012). Kinesthetic activities, including manipulative tasks and interactive games, facilitate a deeper understanding of grammar rules. Research findings indicate that physical

engagement in language learning enhances kinesthetic learners' grasp of grammar concepts and supports their language production skills (Hadfield, 2007). Incorporating VAK learning styles into English language grammar instruction addresses diverse learning preferences, promoting engagement and understanding among students. By aligning teaching methods with these styles, educators create an inclusive learning environment that enhances language acquisition and grammar proficiency.

There are different methods of incorporating VAK instructional learning strategy in grammar lesson. Info-graphics and diagrams visually represent grammar rules, making abstract concepts more concrete. For example, a diagram illustrating sentence structures or verb tenses provides a clear visual reference for students (Fleming & Levie, 1993). Mind maps visually organize grammar concepts, linking related ideas. Teachers and students can create mind maps collaboratively, mapping out different parts of speech or sentence structures (Buzan, 2003). This method aids in understanding relationships between grammar elements. Interactive whiteboards allow teachers to

display dynamic visual content during lessons. Teachers can use animations, interactive diagrams, and color coding to visually explain complex grammar rules, engaging students in the learning process (Beeland, 2002).

Utilizing auditory techniques to enhance grammar understanding involves structuring oral discussions to enable students practice grammar in context. Teachers can guide discussions focusing on specific grammar points, encouraging students to use correct grammar while expressing their ideas (Thornbury, 2005). Listening to authentic materials, such as podcasts, interviews, or songs, exposes students to real-life language usage. Teachers can design exercises based on these materials, helping students identify grammar structures in spoken language (Vandergrift & Tafaghodtari, 2010). Creating songs or rhymes that incorporate grammar rules can make learning fun. Melodic patterns help students remember grammar concepts, enhancing retention (Wagoner, 2013). Teachers or students can compose catchy tunes to reinforce specific grammar rules.

Kinesthetic activities for hands-on grammar learning experiences involve using Interactive board games or online quizzes

engage students in friendly competition. Games like grammar bingo or crossword puzzles allow students to apply grammar rules practically (Ur, 2012). Role-playing activities involve creating dialogues or scenarios where students act out specific roles. This hands-on approach encourages students to use appropriate grammar and vocabulary while enhancing their communication skills (Byrne, 1986). Using physical objects like word cards or sentence strips, students can manipulate and arrange them to form correct sentences. This tactile experience reinforces sentence structures and word order (Harmer, 2007).

Incorporating these methods enhances grammar lessons by catering to diverse learning styles, ensuring active student engagement, and improving understanding and retention of grammar concepts. It is on these note that the researchers investigate the effect of Visual Auditory-Kinesthetic instructional strategy on SS2 academic achievements in English language grammar

Purpose of the Study

The purpose of the study was to determine the effects of Visual -auditory-Kinesthetic instructional strategy on SS2 academic achievements in English language grammar

Specifically, the study sought to:

1. Find out the differential effect of Visual-auditory-kinesthetic instructional strategy on SS2 academic achievements in English language grammar
- 2 Find out the effect of gender on the mean achievement scores of senior secondary school students taught reading comprehension using the Visual Auditory-Kinesthetic instructional strategy on SS2 academic achievements in English language grammar

Research Questions

The following research questions guide the study:

1. What is the differential effect of Visual Auditory-Kinesthetic instructional strategy on SS2 academic achievements in English language grammar?
2. What is the effect of gender on the mean achievement scores of senior secondary school students in English language grammar when taught using the Visual Auditory-Kinesthetic instructional strategy?

Hypothesis

To guide the study, this hypothesis was formulated and tested at 0.05 level of significance:

HO₁: There is no significant difference in the mean achievement scores of senior secondary school students taught English language grammar using the Visual Auditory-Kinesthetic instructional strategy and lecture method of teaching.

Method

This study adopted pre-test, post-test, control group experimental design with a 2 x 2 factorial matrix to determine the effects of training in Visual Auditory-Kinesthetic instructional strategy and lecture method on students' academic achievement in English language grammar. The experimental group adopted Visual Auditory-Kinesthetic instructional strategy and the control group used the lecture method for teaching. The population of the study comprised all the senior secondary school two (SS2) English Language students in all the Government owned co-educational Secondary schools in Imo State in the 2022/2023 academic session numbering 9,538 students (3,987 male and 5551 female students) in Imo State (Imo State Secondary Education Management Board, 2023).

The SS II Students of City School was purposively sampled. City School is one of the coeducational public secondary schools

in Owerri Education Zone. The sample of the study consists of 85 students comprising 42 students assigned to the experimental groups and 43 students assigned to the control group from the same school. One class for experimental group has 19 males and 23 females (Visual Auditory-Kinesthetic instructional strategy) while the other class for control group has 15 males and 28 females. Instrument used was English Language Grammar Achievement Test (ELGAT) which consists of 25 multiple-choice questions. The Pre-test Post- test achievements test items were based on the unit topics for English language grammar taught to the students. The face and content validity were established for the English Language Grammar Achievement Test (ELGAT) Forms 1 and 11. To ensure the face validity of the English Language Grammar Achievement Test, they were presented to four specialists in Measurement and Evaluation and English language from Michael Okpara University of Agriculture, and an expert in Curriculum Studies from Alvan Ikoku Federal Collage of Education. The content validity of the English Language Grammar Achievement Test Forms 1 and 11 were ensured through the use of the test blue

prints and item analysis. Thereafter, the test items generated were sent to experts in Curriculum Studies from Alvan Ikoku Federal College of Education, two experts in Measurement and Evaluation and the two experts in English Language from Michael Okpara University of Agriculture, Umudike for comments and suggestions. The reliability of the English Language Grammar Achievement Test Reading Comprehension Achievement Test (ELGAT) was 0.79. The instrument was subjected to trial testing. The English Language Grammar Achievement Test instrument was administered to 30 students who were not sampled for the study. The scores obtained from the trial testing were subjected to Kuder-Richardson (KR-20) formular to determine the internal

consistency of the English Language Grammar Achievement Test. The Kuder-Richardson (KR-20) was appropriate for determining the reliability of the English Language Grammar Achievement Test because the instrument required only one correct answer in every case. The following decision rules were applied: For the analyses of research questions:

Accept any variable which computed mean is from 2.5 and above and reject any variable that has below the cut-off mean of 2.5.

- For the testing of hypothesis:
If p value is less than 0.05 the Null hypotheses was rejected but if P value is greater than 0.05 the Null hypotheses was retained.

Table 1: Pre-test and posttest mean score and standard deviations scores of students in English grammar achievement test due to exposure to VAK and Lecture Method

Teaching Method	Number of Students	Types of Tests				Achievement Mean Gains
		Pre-test		Post test		
		\bar{X}	S. D	\bar{X}	S. D	
VAK Method	42	18.93	4.69	39.47	6.39	20.54
Lecture						

Method	43	18.85	4.87	26.39	5.28	7.54
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The data presented on Table 1 indicated that students taught using VAK strategy had a mean achievement score of 18.93 and a standard deviation of 4.69 in the pre-test and a mean of 39.47 and a standard deviation of 6.39 in the post-test with a pre-test post-test gain of 20.54. The data also showed that students taught using Lecture method had a mean score of 18.85 and a standard

deviation of 4.87 in the pre-test and a mean score of 26.39 and a standard deviation of 5.28 in the post test, making a pre-test posttest gain to be 7.54. The findings reveal that students taught English language grammar with VAK teaching strategy had a higher mean achievement gain score than those taught with Lecture method of teaching.

Table 2: Pre-test and post –test mean achievement score and standard deviation scores of students in English grammar achievement test due to teaching methods and gender.

Teaching method	Types of tests	Male		Female	
		Student	Achievement gain	Student	Achievement gain
		\bar{X}	S.D	\bar{X}	SD
1. VAK	Pretest	19	18.02	5.3	
	Posttest			5	
				23	17.98
					4.58

	Post-	19	38.69	6.2	20.67	23	38.89	6.41	20.91
	test			6					
2.	Pretes	15	18.07	5.8		26	18.72	5.82	
Lecture	t			8					
method									
	Post-	15	27.56	5.5	9.49	26	27.41	5.41	8.69
	test			8					

The data presented on the table 2 indicated that the male students in the VAK experimental group had a mean score of 18.02 and a standard deviation of 5.37 in the pre-test while in the post-test, the male scored a mean score of 38.69 and a standard deviation of 6.29, with achievement gain score of 20.67. The result also shows that the female student in the VAK experimental group had a mean score of 17.98 and a standard deviation of 4.58 in the pre-test of VAK experimental group which is lower than that of male students in the pre-test of VAK experimental group, while the female students also had a mean score of 38.89 and a standard deviation of 6.41 in the post-test of the experimental group with achievement mean score of 20.91 which is higher than that of the male students in the post-test score of the VAK experimental group.

The data presented on Table 2 also indicate that male students had a mean score of 18.07 and a standard deviation of 5.88 in the pre-test of the control group which was lower than the pre-test of the experimental group, while in the post-test, the male students had a mean score of 27.58 and a standard deviation of 5.58, with mean achievement gain of 9.49 which was lower than the experimental group. The result also shows that the female students had a mean score of 18.72 and a standard deviation of 5.82 in the pre-test of the control group which is higher than that of the male students score in the pre-test of the control group, while the female students had a mean score of 27.41 and a standard deviation of 5.58, with mean achievement gain of 8.69 which is higher than that of the male students in the post-test of the control group. This finding shows that statistically

sex is not a significant factor in academic achievement of male and female students taught English language grammar with VAK

and Lecture method though in every endeavor there is always gender perceptible.

Hypotheses 1: There is no significant difference between the mean achievement scores of the Senior Secondary students taught using VAK and the lecture method.

Table 3: Analysis of covariance (ANCOVA) for English grammar Achievement Test mean achievement scores of students when taught using VAK and lecture method

Sources of Variation	Type II sum of square	Df.	Mean sum of square	F.	Significance
Correlated model	5778.340 ^a	2	2387.670	114.824	.000
Intercept	2436.533	1	2236.538	107.556	.000
Pre-test	789.828.543	1	699.828	33.655	.000
Teaching method	4214.528	1	4214.529	154.588	.000
Error	1701.176	83	20.794		
Total	79521.000	85			
Corrected total	6376.499				

a. R square = .745 (adjusted R squared = 0.746)

The data on table 4 shows that the teaching methods (VAK and Lecture method) is a significant factor in the mean achievement scores of the students in the English

language grammar Achievement Test, this is because the p-value of 0.00 is less than 0.05. This indicates that we reject the null hypotheses which state that there is no

significant difference between the mean achievement scores of students in English language grammar Achievement Test when taught using the VAK and lecture method. Thus, this implies that there was a significant difference between the mean achievement scores of students in English language Grammar Achievement Test when taught using the VAK and Lecture method.

On the test of hypothesis presented on Table 4. It was revealed that there was a significant difference in the academic achievement means score of the students taught using VAK and those taught using Lecture method. The result may be because VAK involves the use of images, sounds, and physical activities respectively. These methods engage multiple senses, making learning experience more immersive and interactive compared to traditional lecture methods.

Discussion

Result of the present study revealed the effect of VAK strategy on senior secondary school students' academic achievement in English language grammar. The data presented on Table 1 reveals that students taught English language grammar with VAK teaching strategy had a higher mean achievement gain score than those taught with Lecture method

of teaching. The finding of this study is in consonance with Kuznekoff & Titsworth, 2013 and Rashidi & Pazhakh, 2015. The researchers observed that VAK strategy was effective in enhancing students' academic achievement can significantly enhance students' grammar achievement. By incorporating visual aids, interactive discussions, and hands-on activities, educators create a dynamic learning environment that caters to different learning preferences. Also, data in Table 2 shows that statistically sex is not a significant factor in academic achievement of male and female students taught English language grammar with VAK and Lecture method though in every endeavor there is always gender perceptive. All so, the data on Table 3, revealed that there was a significant difference in the academic achievement means score of the students taught using VAK instructional strategy and those taught using Lecture method. The result may be because VAK strategies often involve real-world examples, role-plays and practical exercises. This contextual learning can help students understand how English grammar is used in everyday situations, making it more relevant and easier to remember. This

finding is in line with the result of Bunch, (2012) and Jewitt, (2016) that VAK instructional strategy method when used in teaching English grammar to students, enhances their academic achievement better than lecture method of teaching through its instructional procedures that involve enhanced engagement, contextual learning and active learning.

Conclusion

The study explored the impact of Visual, Auditory, and Kinesthetic (VAK) instructional strategies on the academic achievements of Senior Secondary 2 (SS2) students in English language grammar in Abia State. The findings revealed that incorporating VAK methods significantly enhanced students' understanding and retention of grammar concepts compared to traditional lecture methods. Visual aids, auditory input, and hands-on activities engaged students in a dynamic learning environment, making abstract grammar concepts more tangible and relevant. The study also found no significant gender-based differences in academic achievement, emphasizing the effectiveness of VAK strategies across diverse student groups.

Recommendations:

Based on the research findings, the following recommendations are proposed:

- Educators should incorporate Visual, Auditory, and Kinesthetic instructional methods into their teaching practices. Schools and educational institutions should invest in resources that support these strategies, including visual aids, interactive whiteboards, and hands-on learning materials.
- Teachers should receive training and professional development on how to effectively implement VAK strategies in the classroom. Workshops and seminars can enhance their skills in creating engaging and interactive lessons that cater to diverse learning styles.
- Curriculum designers and policymakers should consider integrating VAK-based activities into the official curriculum. This integration can ensure that students across schools have equal access to these effective learning methods.
- Schools, especially those in rural areas, should be equipped with up-to-date learning materials, including visual aids, educational software, and interactive tools. Adequate resources can enhance the

implementation of VAK strategies and improve students' grammar proficiency.

- Continued research in the field of language education should focus on exploring innovative ways to integrate technology and digital media into VAK strategies. Additionally, further studies can investigate the long-term effects of VAK-based learning on students' language proficiency and overall academic performance.

By implementing these recommendations, educational institutions can create a more inclusive and effective learning environment, ensuring that students develop strong grammar skills essential for their academic, social, and professional success.

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