

**COMMUNICATIVE LANGUAGE TEACHING APPROACH TO
GRAMMAR INSTRUCTION USING ARTIFICIAL INTELLIGENCE
IN OBUDU, CROSS RIVER, NIGERIA**

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Abstract

Technological advancement together with the advent of Artificial Intelligence (AI) coupled with changes in the approach to instruction and the demographics of students in the post-methods era of the 21st century exerts more pressure on teachers to adopt more effective and technologically driven contemporary approaches to the teaching of English grammar. Though some teachers still hold on to traditional approaches, this study aims to determine the effect of the adoption of Communicative Language Teaching (CLT) approach to grammar instruction using Artificial Intelligence on students' performance in grammar test in Obudu Local Government, Cross River State. In line with the research objectives, two research questions and two hypotheses were formulated to guide the study. A quasi-experimental research design was adopted with a sample of 84 students of SSII in two intact classes that formed the experimental group (CLT approach to grammar using AI) and the control group (conventional approach to grammar instruction) selected through simple random sampling technique without replacement. Mean and t-Test of independent samples revealed that the experimental group significantly improved in grammar test than the control group. On the basis of gender, it revealed that both male and female students benefited cognitively from the integration of AI into CLT of English grammar even though male students made more progress when compared to their female counterparts. Based on the findings, it is recommended that teachers and students should be exposed vigorously to AI applications that teach English grammar communicatively.

Keywords: Communicative, Language Teaching, Approach, Grammar Instruction, Artificial Intelligence

Introduction

There is a whole lot of revolution in English language instruction as a result of the advent of Artificial Intelligence (AI) and the need for functional approach to English language instruction in order to enhance the communicative competence of students. AI has totally revolutionized the use of technology in all facets of human endeavours especially in the education sector and language teaching and learning in particular. Stevens (2025) states that Artificial Intelligence (AI) is rapidly reshaping the landscape of communication, language use and interactions as the field of education is rapidly evolving due to Artificial Intelligence (AI), especially in the areas of language instruction and acquisition. In the same vein, Naranjo and Urrutia (2024) point out that Artificial Intelligence (AI) has brought about a substantial transformation in education, particularly in the realm of language learning as a result of its ability to provide customized and personalized instruction. Stevens (2025) avers that the integration of Artificial Intelligence (AI) into education has gained significant momentum globally because of its ability to offer creative and innovative solutions to teaching and learning.

There is a need to effectively integrate AI in language instruction in order to teach grammar functionally from the communicative language teaching (CLT) perspective. English grammar is a fundamental component of English language proficiency which borders on learners' ability to communicate effectively in both spoken and written forms. Traditional grammar instruction methods often do not cater to individual learner's needs/differences and fail to promote functional language use in the classroom. The introduction of Artificial Intelligence in grammar instruction provides new pathways to grammar instruction that are adaptive, interactive, and responsive to learners' needs (Stevens, 2025). The extent to which English language teachers leverage AI to teach English grammar communicatively has remained a question of concern. The study reported in this paper was conceived to assess how AI-based tools can be used to enhance the communicative language teaching approach to English grammar and the effect on grammar learning outcomes of students. AI tools are deployed in schools globally to automate tasks that were originally the responsibility of teachers by providing customized learning and immediate feedback (UNESCO, 2023). AI-enabled platforms such as Grammarly and ChatGPT provide real time correction, contextual explanations, and adaptive learning paths that support learners at various proficiency levels in the field of language education, specifically in English grammar instruction (Ranalli, 2018; Hsu et al., 2021). Despite this global momentum, many teachers in sub-Saharan Africa, including Nigeria, still stick to the traditional methods of teaching English grammar than more proficient and novel approaches such as Communicative Language Teaching approach embedded in Artificial Intelligence (AI) tools.

Obudu Local Government is not left out in the overwhelming influence of technology, especially AI in education and English language instruction in particular. The preparedness of schools, teachers, government, parents and students to embrace these new technologies remains a thing of concern as some stakeholders still cling to the traditional approach of teaching English language whether because of lack of technological gadgets, skill gap, culture or fear of technology. Hence, this research is poised to unravel the effect of teaching English grammar from communicative language teaching perspective using Artificial Intelligence tools in order to find out its effect on students' performance in English grammar.

Literature Review

The approach to grammar instruction is fast changing possibly because of the language demands of contemporary times. Mere knowledge of a language does not suffice as there is the need for a more meaningful use of language. Many language scholars are of the opinion that traditional grammar instruction is often characterized by rote learning, limited contextual application, and outdated teaching materials. Stevens (2025) avers that AI tools bridge the pedagogical gaps of the traditional approach by providing immediate and personalized feedback, gamified interactive learning environments, scaffolding mechanisms in line with CLT approach which help students to understand and use the English language grammar in accepted contexts.

Communicative Language Teaching (CLT) is an approach to language teaching that prioritizes meaningful communication and the practical use of language over rote memorization of grammatical rules (Phuengrod, et al, 2026). Communicative Language Teaching or Communicative Approach is an instructional procedure that seeks the attainment of progressive communicative competence in the target language (ESL) (Ogbor & Iliyas, 2025). Based on the contemporary English language demands, the traditional approach to language teaching and learning may not suffice to develop the needed communicative competence of students. CLT, traceable to Hymes in the 1970s in the proposition on communicative competence, reveals that mastering language rules and grammar cannot be enough as students need practical skills of how to deploy a language in context (Ogbor & Iliyas, 2025). Ogbor and Iliyas (2025) outline some principles of Communicative Language Teaching to include: (a) a language is best mastered when it is used in context rather than studying how it works and practising its rules; (b) errors are not obtrusively corrected but recognized as a part of developing competence in a language; (c) classroom activities should be meaningful and involve real communication; and (d) dialogues are not exclusively used in Communicative Language Teaching and that both accuracy and fluency are core targets in Communicative Language Teaching.

CLT approach focuses on enabling learners to communicate effectively and appropriately in real-life situations by integrating all aspects of language competences (linguistic or grammatical competence, sociolinguistic competence, discourse competence and strategic competence) within classroom practices (Phuengrod, et al, 2026). In Communicative Language Teaching, learners of English as a Second Language are given the natural setting to master communicative activities so that they can understand messages produced by other speakers and produce their own ideas and meaning (Amusegham, 2018). The Communicative Language Teaching method shifts emphasis from linguistic competence to communicative competence. Communicative competence emphasizes how a speaker can produce and interpret messages effectively and appropriately according to situational demands.

Overall, CLT has changed English language teaching and learning by shifting the perspective of language as a set of abstract rules to language as a tool for social interaction and real-world communication. This perspective has some impact on grammar instruction as grammatical rules are not overtly taught but engrained in any grammar lesson through practical communicative practices that allow students to use English language. This implies that grammar is taught implicitly as it is embedded in communicative and practical activities in the classroom. Its emphasis on communicative competence helps learners to navigate different communicative situations effectively, which is essential in an increasingly globalized world where English serves as a primary medium for international communication.

The use of AI in education is not a new concept, but its application in language instruction particularly in grammar instruction became prominent in the last decade (Stevens, 2025). With the malleability of AI, it can be used to teach English grammar from the structural or functional view. Artificial Intelligence (AI) has emerged as a transformative technology in various fields, including grammar instruction. AI, by its definition, encompasses computer systems capable of performing tasks that typically require human intelligence, such as understanding natural language, recognizing patterns, solving problems, and learning (Bernate & Vargas-Guativa, 2020). The foundational concept of AI was first proposed by Alan Turing, a mathematician who questioned whether machines could think, leading to the development of the Turing Test as a method for assessing machine intelligence. AI refers to the capability of computer systems to perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, perception, and natural language understanding. AI-powered grammar checking tools such as Grammarly, meta, ChatGPT are designed to give learners feedback on their writing (Dizon & Gayed, 2021; Nazari, et al, 2021). Such tools are embedded with Natural Language Processing (NLP) abilities which enable computers to carryout syntactic and semantic analysis, named entity recognition, part of-speech tagging, and sentiment analysis, thereby enabling machines to parse and interpret the structure and meaning of natural language text, allowing for more nuanced and context-aware processing (Abro, et al., 2023).

AI technologies such as Natural Language Processing (NLP), speech recognition technologies and machine translation tools create interactive, personalized, and adaptive learning environments that align with communicative language teaching principles. Some innovative and novel digital systems such as Intelligent Tutoring Systems (ITS) and Natural Language Processing (NLP) are grammar checkers and adaptive learning platforms that have shown their relevance in improving grammatical accuracy and retention. The extent to which teachers leverage AI to teach grammar communicatively is somewhat abysmal. Edmett, et al (2024) state that 76 per cent of teachers use AI-powered tools, but very few reported that they have had enough training on incorporating it into teaching (a mere 20 per cent). In the context of education, AI has been widely adopted to enhance learning experiences, personalize instruction, and improve educational outcomes. These features of AI make it possible for teachers to adapt grammar instructions to the interests, capabilities and peculiarities of the students.

The current landscape of AI in language teaching is characterized by a diverse array of technologies designed to personalize learning, making it more responsive to the individual needs of students (Garzón-Daza, 2021). Adaptive learning systems, for instance, dynamically adjust the content and pace of learning based on real-time feedback from the learner's performance. This personalization is based on predictive models and data analytics that meticulously analyze learners' interactions, preferences, and difficulties, aiming to deliver a more effective learning experience (Álvarez-Sepúlveda, 2020). It is obvious that proper use of AI in grammar instruction using the aforementioned principles makes the learning of English grammar personal and easy.

Several studies have revealed the effect of AI powered instruction on students' learning outcomes. Wei (2023) reveals that some studies on AI-supported grammar instruction showed that experimental groups that received AI-based instruction outperformed those who were taught using the conventional approach, thereby showing that AI-assisted language instruction has a great contribution to students' grammar skill development. According to Chen (2023), the experimental group that used AI-based English learning tools scored significantly higher on the English proficiency test than the control group. Wang and Vásquez (2012) and Burstein et al (2013) argue that AI can offer real time feedbacks, correct nuanced grammatical errors, and track progress more effectively than traditional approaches. Similarly, Hsu et al. (2021) assert that, in language learning, AI has found some relevance in grammar instructions, where AI tools offer real time feedbacks, sentence restructuring, and error explanations. It is also indicative that, in high income countries, AI assisted writing tools help students improve grammatical accuracy and fluency over time (Ranalli, 2018; Roscoe & McNamara, 2013). AI tools are embedded with automated grammar tutors that offer immediate feedback, highlight mistakes and recommending corrections for grammatical faults in syntax, verb usage, article placement and other areas in order to help learners to practise English grammar independently and make multiple attempts without fear of judgment, thereby supporting learners' autonomy and motivation (Stevens, 2025). This is contrary to the traditional approach in which there is usually delayed feedback as such truncating the learning process.

The effect of AI-powered Communicative Language Teaching approach on students' performance in English grammar based on gender is another angle explored in this research. Similarly, Suciati, Silitonga, and Anggara (2026) state that males exhibited stronger cognitive engagement and self-efficacy when using AI, while females benefited more in emotional engagement attributing females' emotional advantages to the use of feminine avatar or smiley. Scherer and Siddiq (2019) and Venkatesh and Morris (2000) also show how male and female students interact differently with technology in terms of technology affinity, engagement, self-efficacy and learning outcomes. In the study, it was stated that male students' cognitive engagement and self-efficacy were enhanced with the use of technology while the female students exhibited a stronger link between technology and emotional engagement, suggesting a more holistic integration of technology into their learning and emotional experiences.

Despite the laudable impact of AI in grammar instruction some scholars raise some concerns over over-reliance on AI. Roscoe and McNamara (2013) state that AI lacks the deeper explanatory power and contextual sensitivity of skilled language instructors as AI may flag non-standard but acceptable expressions. Other scholars hold the view that students who use grammar checkers without understanding their corrections risk reinforcing bad habits or failing to internalize grammar rules. Other notable challenges include: the potential for over-reliance on automated systems (Dugosija, 2024) as such eroding critical thinking skills in students/teachers; lack of pedagogical knowledge among teachers (Moorhouse, 2024) as teachers copy verbatim approaches/methods as pointed out by AI tools; the inability of AI to assess creativity, critical thinking, and context (Sporrong et al., 2024); and the ethical concerns and misuse for academic shortcuts (Meylani, 2024). Similarly, Yin et al. (2020) observe that teachers in poor schools often perceive AI not as a tool for pedagogical enhancement but as a threat to professional authority or a distraction from traditional methods. Amusan and Ibrahim (2022) aver that cultural reluctance to change and a strong preference for in-person instruction were the main reasons why AI was underutilized in many West African classrooms, rather than a lack of access. Vardi (2012) and Selwyn (2019) attribute the rejection or opposition of AI tools usage in some schools to technology anxiety, obsolescence dread, and mistrust of automated systems. Access to infrastructure such as computers, internet connectivity and electricity is another notable barrier to digital learning (World Bank, 2022).

The theoretical foundation of this work is Vygotsky's social cultural theory basically leveraging Artificial Intelligence applications as the More Knowledgeable Other (MKO) in the learning of English grammar. According to Ogbor (2024), the More Knowledgeable Other, as a key component of Vygotsky's theory, refers to a person who has a higher level of ability or understanding than the learner in terms of the task, process or concept at hand in which AI exemplifies here. Based on the malleability of AI applications, they can also provide the socially and culturally relevant environment for students to learn

English grammar. The conceptual framework that underpins this research is as captured in Figure 1 that follows.

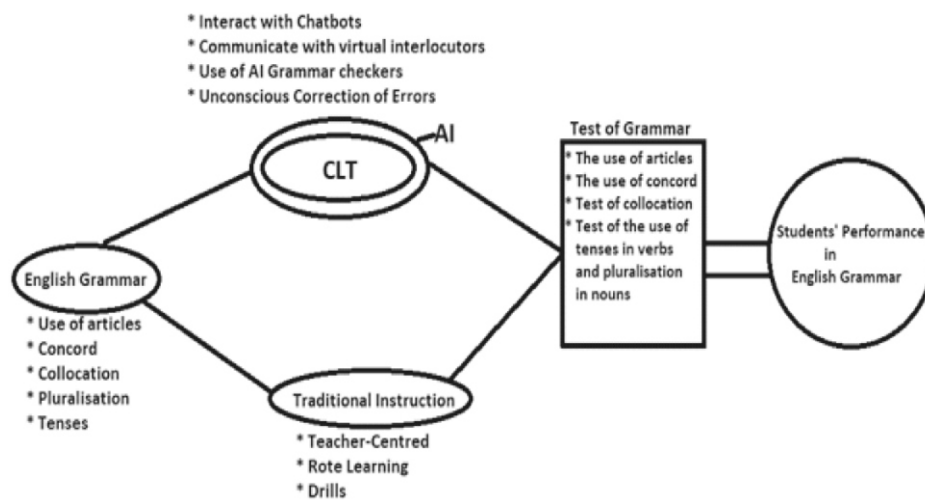


Figure 1: Author's Designed Path of Grammar Instruction

Figure 1 shows that the main concern of this work is on how applying two different approaches to grammar instruction impact the learning outcomes of students.

The need to teach English grammar communicatively using AI cannot be overemphasized as the contemporary primary rationale for language teaching/learning today is communicative competence and, with the vogue of technology in the 21st century, using AI to teach English grammar is the new normal.

Statement of the Problem

Effective communication is one of the indispensable skills of the 21st century. It has become very obvious that a mastery of the rules of English language without the ability to communicate effectively in the language is grossly inadequate. But it is quite unfortunate that students of English language in Obudu Local Government still struggle to use the English language effectively even though some of them show some appreciable knowledge of English grammar. Even English language teachers in the area are somewhat reluctant to tinker with their approaches to English language instruction to accommodate approaches that enhance students' communicative competence as the new approaches may be considered cumbersome. Even with the advent of Artificial Intelligence, it obvious most teachers feel reluctant or lack the wherewithal to leverage AI to teach English grammar communicatively.

Purpose of the Study

The general purpose of this study was to ascertain how the teaching of English grammar communicatively with the use of AI affects secondary school students' learning of the English grammar in Obudu Local Government Area. Specifically, the study sought to:

1. examine the difference in the mean performance of students taught English grammar using communicative language teaching approach with AI technologies and their counterparts taught using the conventional approach; and
2. assess the difference in the mean performance of students exposed to English grammar instruction using CLT with AI based on gender.

Research Questions

The study provided answers to the following research questions:

1. Is there any difference in the mean performance of students in English grammar between students taught using Communicative Language Teaching approach with AI and their counterparts taught using the conventional approach?
2. Is there any difference in the mean performance of male and female students exposed to English grammar instruction using Communicative Language Teaching approach with AI?

Research Hypotheses

The following null hypotheses were formulated to guide this study:

- H₀₁: There is no significant difference in the performance of students in English grammar between students taught using communicative language approach with AI and their counterparts taught using the conventional approach.
- H₀₂: There is no difference in the mean performance of male and female students taught English grammar using communicative language teaching approach with AI.

Methodology

The design of the study was a non-randomized pre-test and post-test quasi-experimental research design. The population of the study consisted of all the 4,890 senior secondary school students in public secondary schools in Obudu Local Government Area of Cross River. The sample consisted of all the SS2 students in the two sampled classes in two secondary schools selected through simple random sampling technique without replacement. The simple random sampling technique without replacement was repeated to determine the control group and experimental group. Intact class sampling technique was used to determine the participants in the study with 45 students in the experimental group and 39 students in the control group making a total of 84 participants. The instrument used for this study was a 20 item grammar test questions extracted from past WAEC objective questions from 2022 to 2025. Each question had ½ mark with a total score of 10 marks. Since WAEC questions are standardized items, the study relied on the validity and reliability already established by

WAEC, which conducts the final High school equivalent secondary school examination and issues certificates that qualify successful candidates for university admission in English speaking countries of West Africa (Nigeria, Ghana, Gambia, Sierra Leone).

The instrument was used as the pre-test questions after which the questions were reshuffled and repeated at post-test. A week after the pre-test, participants in the two groups were exposed to different treatments for five weeks. The experimental group had instructions on English grammar using communicative language teaching approach with AI while the control group had grammar instruction using the conventional approach. The post-test was administered a week after the treatment sessions. Scores of both tests were collated and statistically analyzed using mean and t-test of paired and independent sample.

Results

Research Question (a): Is there any difference in the mean performance of students in English grammar between students taught English grammar using Communicative Language Teaching approach with AI and their counterparts taught using the conventional approach?

Table 1: Mean Gain Analysis of Pre-test and Post-test Scores of Students in English Grammar between Students Taught Using Communicative Language Teaching Approach with AI (Experimental Group) and Those Taught using the Conventional Approach (Control Group)

Group	N	Pre-test Mean Score	Post-test Mean Score	Gain Score	Decision
Experimental (CLT)	45	6.525	9.346	2.821	There is a difference of 1.745 in the mean gained scores in favour of the experimental group.
Control	39	7.124	8.200	1.076	

Table 1 reveals that the pre-test and post-test mean scores of experimental group students in English grammar were 6.525 and 9.346 with a gained score of 2.821, while the pretest and post-test mean scores of the control group were 7.124 and 8.200 with a gained score of 1.076. The difference in the mean gained scores of 1.745 between the groups in favour of the experimental group revealed that there was more improvement in the performance of students in English grammar after treatment in the experimental group even though the control group also

Research Question (b): Is there any difference in the mean performance of male and female students exposed to English grammar instruction using Communicative Language Teaching approach with AI?

Table 2: Mean Gain Analysis of Pre-test and Post-test Scores of Students in English Grammar between Male and Female Students Taught Using Communicative Language Teaching Approach with AI (Experimental Group)

Group	N	Pre-test Mean Score	Post-test Mean Score	Gain Score	Decision
Male	19	5.321	9.001	3.680	There is a difference of 0.259 in the mean gained scores in favour of the male group.
Female	26	5.500	8.921	3.421	

Table 2 shows that the pre-test and post-test mean scores of male students in the experimental group were 5.321 and 9.001 with a gained mean score of 3.680, while the pretest and post-test mean scores of female students were 5.500 and 8.921 with a gained mean score of 3.421. The difference in the mean gained scores of 0.259 between the groups in favour of the male group revealed that the male students performed a bit better their female counterparts after the introduction of the treatment.

The null hypotheses formulated to guide this study were tested at 0.05 level of significance using the paired and independent sample t-test statistic. The analysis is presented in the tables 3 and 4.

H_{01} : There is no significant difference in the performance of students in English grammar between students taught using communicative language approach with AI and their counterparts taught using the conventional approach.

Table 3: Result of t-Test Analysis on the Difference between Experimental and Control Group Students' Posttest Mean

Group	N	Mean	SD	t-value	df	Sig(2-tailed)	Decision
Experimental	45	9.346	5.2593	-.523	83	.032	Rejected
Control	39	8.200	3.9697				

*Significance @ Value of $0.032 < 0.05$

The result in Table 3 shows a significant value of 0.032 which is less than the 0.05 level of significance set as the decision rule. Consequently, the null hypothesis was rejected which means there was a significant difference in the mean performance of students in English grammar between students taught using the communicative language approach with AI and their counterparts taught using the conventional approach.

H₀₂: There is no difference in the mean performance of male and female students taught English grammar using communicative language teaching approach with AI.

Table 4: Result of t-Test Analysis on the Difference between Male and Female Students' Post-test Mean Scores in English Grammar Test in the Experimental Group (Students Taught Using Communicative Language Teaching Approach with AI)

Group	N	Mean	SD	t-value	df	Sig(2-tailed)	Decision
Male	19	9.001	4.6420				
				-.553	44	.065	Accepted
Female	26	8.921	4.2453				

*Significance @ Value of 0.065 > 0.05

The result in Table 4 shows a significant value of 0.065 which is more than the 0.05 level of significance set as the decision rule. Consequently, the null hypothesis was accepted which shows that there was no significant difference in the mean performance of male and female students after they were taught English grammar, using the communicative language teaching approach with AI.

Summary of Findings

The following findings were made based on the results of data analysis carried out in this study to determine the effect of Communicative Language Teaching approach with Artificial Intelligence technologies in grammar instruction:

1. The experimental group outperformed the control group in the English grammar test with a mean gain score difference of 1.745 in favour of the experimental group.
2. Male students in the experimental group improved more than their female counterparts after the treatment with a mean gain score of 3.680 as against the female students' 3.421. With an initial pre-test mean score less than the female students, the male students got a higher post-test mean score as compared to their female counterparts.

3. There was a significant difference in the mean performance of students in grammar test between students taught English grammar using Communicative Language Teaching approach with AI and their counterparts taught using the conventional approach.
4. There was no significant difference in the mean performance of male and female students taught English grammar using Communicative Language Teaching approach with AI.

Discussion of Findings

The findings of this study are significant in several ways. Largely, there are several areas of consistency with previous empirical works notwithstanding, each study has its own uniqueness and this study is certainly not an exception. The first major finding of this study revealed that the use of Communicative Language Teaching approach significantly improves students' general performance in English grammar even though there are varying degrees of improvement when considered against the backdrop of gender. As regard the first research question and hypothesis, the results of data analysis indicate that adopting communicative language teaching approach to grammar instruction using AI significantly enhances students' performance in grammar test when compared with the conventional approach. These findings and previous studies by Wang and Vásquez (2012); Burstein et al (2013); and Hsu et al (2021) suggest that the incorporation of AI in CLT offers real time feedback, correct nuanced grammatical errors, error explanation and track progress more effectively than traditional approaches. Wei (2023) and Chen (2023) corroborate this finding in their researches when they reveal that some studies on AI-supported grammar instruction showed that experimental group that received AI-based instruction outperformed those who were taught using the conventional approach, thereby showing that AI-assisted language learning instruction has a great contribution to the students' grammar skill development. Similarly,

The second research question and hypothesis sought to determine whether the teaching of English grammar through the communicative language teaching approach using AI had different effect on male and female students' performance in English grammar. The findings revealed that male students performed better than their female counterparts even though the female students showed more emotional affinity to AI applications as a result of the use feminine emojis. The findings align with the work of Suciati, Silitonga, and Anggara (2026) which showed that males exhibited stronger cognitive engagement and self-efficacy when using AI, while females benefited more in emotional

engagement. Scherer and Siddiq (2019) and Venkatesh and Morris (2000) also show how male and female students interact differently with technology in terms of technology affinity, engagement, self-efficacy and learning outcomes. Venkatesh and Morris (2000) state that ATI primarily influences male students' cognitive engagement and self-efficacy, suggesting that men benefit more from technology when it enhances their ability to process and retain information while female students showed a stronger link between ATI and emotional engagement.

Conclusion

The study experimented the influence of Communicative Language Teaching on secondary school students' performance in the production and perception of vowel duration. Based on the findings, the study concludes that Communicative Language Teaching approach is effective when deployed by knowledgeable teachers of oral English, who meticulously prepare very rich and engaging instructional contents that improve students' performance in English vowel length mastery. Appropriate use of the method is capable of changing the persisting heavy mother tongues interference in spoken English of secondary students, thereby making them fitting and prepared for further studies and better speakers of English for engagements and functions across borders.

Recommendations

The following recommendations are suggested:

1. There should a massive shift in teacher training education to incorporate the use AI to teach different aspects of English language in order to enable teachers to adopt this novel practice in their classes.
2. Students should be exposed massively to how they can leverage AI intelligence to learn different aspects of English language in order to enable them to personalise their learning.
3. There should be provision of adequate infrastructure to support the adoption of AI in the teaching of English grammar and other aspects of English language.
4. There should be reorientation of teachers and students in order to promote the ethical use of AI in the teaching and learning of English grammar in order to benefit maximally.

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