

Harnessing ICT and AI for Enhanced Learning of French Possessive Adjectives in Secondary Schools in Ehime Mbano Local Government Area of Imo State

Chukwuma Benjamin Nnamdi

Department of French Language
Federal College of Education Okene, Kogi State
08066852138 chuksben101@gmail.com

Alonge Paul Sussan

Department of French Language
Federal College of Education Okene, Kogi State
08037502652 suzannealonge123@gmail.com

<https://doi.org/10.56201/wjimt.v10.no9.2026.pg40.53>

Abstract

French possessive adjectives pose persistent grammatical challenges for Nigerian secondary school learners due to structural differences between French and Nigerian languages. This study investigates how harnessing ICT and AI enhanced learning of French possessive adjectives in secondary schools in Ehime Mbano Local Government Area. Employing a mixed-method design, data were collected from 300 students through questionnaires and voice-recorded written essay composition analyzed via Automatic Speech Recognition (ASR). Findings reveal that AI-powered pronunciation tools (Kahoot, Talkpal.ai), grammar checkers (Grammarly), AI chatbots (ChatGPT, Grok), Duolingo, and Google Translate are frequently used for error detection and correction. Three primary error types were identified: gender misalignment (59.3%), possessor-subject interference (25.6%), and number omission (16.3%). AI tools, particularly ChatGPT, Kahoot, and Talkpal.ai, demonstrated significant effectiveness in automatically detecting and correcting these errors. Grounded in Mayer's Multimodal Learning Theory and Selinker's Interlanguage Theory, the study concludes that ICT/AI integration reduces possessive adjective errors by providing immediate, personalized, multimodal feedback, with implications for curriculum development and pedagogical practice in French language education.

Keywords: *ICT, artificial intelligence, French possessive adjectives, error detection, French language*

Introduction

French is a Romance language originating from Latin, spoken as a native or official language in over 30 countries, including France, Canada, Belgium, Switzerland, and many African nations. French was introduced in Nigeria primarily as a result of the country's geographical proximity to its Francophone neighbor countries like Benin, Niger, Chad, and Cameroon, and its strategic role within the Economic Community of West African States (ECOWAS) (Oyetade, 2019).

Igboanusi (2008) had noted that although Nigeria is an Anglophone nation, the need for cross-border trade, diplomatic communication, and regional security cooperation led to the proclamation of French as a second official language in 1996 under General Sani Abacha's administration. The need for constant engagement of Nigeria necessitated the renewed interest in French language studies in Nigeria. Thus, the Nigeria education landscape is undergoing a profound transformation driven by digital technologies, with information and communication technology (ICT) and artificial intelligence (AI) emerging as key forces of the transformation (Adebayo & Ogunleye, 2024). Artificial intelligence (AI) is the simulation of human intelligence processes by machines, offering a wide range of applications that can be leveraged to revolutionize language education (Luckin et al., 2022). From sophisticated personalized learning platforms that adapt to an individual student's pace and style, to interactive interface that provide a non-judgmental environment for conversational practice, and advanced grammar-checking software that offers immediate and detailed feedback, AI tools have the capacity to address many of the traditional challenges of language instruction (Adetuyi-Olu-Francis, 2025). This is particularly valuable in a subject like French, where the mastery of grammar, vocabulary, pronunciation, and conversational skills is of high importance and often requires consistent, tailored practice. French is designated as an optional subject at both junior and senior secondary levels (Nigerian Educational Research and Development Council, 2021), yet its teaching remains fraught with challenges: large class sizes (often exceeding 40 students), insufficient instructional time (typically 1–2 hours per week), a shortage of qualified French teachers with native or near native proficiency, and an acute lack of teaching materials (Oluwole & Eze, 2023). Among the most difficult grammatical structures for Nigerian learners are French possessive adjectives (Okonkwo, 2024). Unlike English, where possessive forms reflect only the possessor ("my", "your", "his"), French requires the adjective to agree in gender (masculine/feminine) and number (singular/plural) with the noun being possessed. The acquisition of French possessive adjectives (e.g., *mon, ma, mes, ton, ta, tes*) poses persistent challenges for Nigerian secondary school learners (Adepoju & Yusuf, 2025). These difficulties primarily stem from the structural differences between French and Nigerian languages such as English, Yoruba, Hausa, and Igbo, particularly regarding gender and number agreement with the noun being possessed (Bello, 2023). These issues are compounded by the often-rigid curriculum that does not adequately incorporate Nigeria's multilingual context, a shortage of qualified teachers who understand the application of new ICT/AI tools, which could help in the detection and correction of some errors in grammar structure during learning.

Statement of the Problem

Although studies have documented the general challenges of French language education in Nigeria, there is a conspicuous gap regarding the systematic deployment of ICT and AI to address specific grammatical challenges in the secondary school contexts. Most existing research focuses on schools with stable internet and device access, leaving the majority of learners in secondary schools without scalable, affordable solutions. On a closure searching, no study to date has enquired into the error reduction using ICT/AI approach for French possessive adjectives in Nigeria, nor integrated a baseline inquiry to evaluate the possible outcome of harnessing on ICT/AI to detect and correct possessive adjectives errors in grammar structure of students during learning. This study seeks to inquire insights into how the use of ICT/AI can enhance the detection and correction of possessive adjectives errors committed by students in some selected secondary schools in Ehime Mbano Local Government Area, a gap this study

explicitly addresses.

Questions

The findings of this paper seek to provide answers to the following questions:

1. What is the ICT/AI tools frequently used in learning possessive adjectives in French in Secondary Schools in Ehime Mbano Local Government Area?
2. What is the frequency and percentage of possessive adjective errors detected and corrected through the use of ICT/AI tools during learning of French in Secondary School in Ehime Mbano Local Government Area?
3. To what extent does ICT/AI integration in French reduce possessive adjective errors among learners of French language in Secondary Schools in Ehime Mbano Local Government Area?

Literature Review

Concept of ICT and AI

ICT stands for Information and Communications Technology. It is an umbrella term for technologies, devices, and systems that enable information interaction, processing, storage, and transmission, integrating computing with telecommunications (Organization for Economic Co-operation and Development, 2020). The OECD (2023) notes that the ICT sector is the backbone of the digital transformation, essential for supporting further digital innovation, a role that has become central to modern education.

On the other hand, Artificial Intelligence (AI) is defined by the OECD (2024) as a machine-based system that, for explicit or implicit objectives, infers from input how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. AI is the off-shoot of ICT invention, and the peak of the computer intelligence-based evolution in the 21st century. Thus, in this study focus will be placed more on the Artificial Intelligence than the ICT. In the Nigerian context, where French instruction faces obstacles like rote memorisation, underfunded labs, and limited support, leveraging ICT and AI offers practical solutions (Oyedele, 2025). For instance, AI-powered platforms like Babbel and LingQ use speech recognition for real-time pronunciation feedback (Kohnke et al., 2023), and ChatGPT simulates conversational practice, while tools like Kwiziq offer drills on French possessive adjectives. France-specific tools such as Talkpal.ai provide instant grammar corrections and adaptive speaking practice (Talkpal, 2025). As noted by Oyedele (2025), ICT/AI applications with speech recognition and adaptive software help students practice grammar, receive immediate feedback, detect errors and effect automated corrections, and progress at their own pace in Nigerian schools. Also, a platform like School AI Spaces can further generate personalised drills, flag errors, and offer scaffolded hints (School AI, 2024), turning tedious memorisation into an interactive, effective learning experience for Nigerian students.

The application of ICT/AI in language education is a rapidly expanding field, with a wide array of tools and platforms available to both students and teachers (Saliu, 2023). Adetuyi-Olu-Francis, (2025) broadly categorized ICT/AI tools as follows: Platforms like Duolingo, Babbel, and Memrise use sophisticated algorithms to adapt to individual student progress majorly using the internet. They analyze a student's performance, identify areas of weakness, and create personalized lesson plans and reinforcement activities. Such personalized approach to learning addresses the challenge of large class sizes and allow students to learn at their own pace, help them to recognize word classes, pronunciation and functions in any given sentence. Among the french language word classes, possessive adjectives seem to present much confusion to the students. Possessive adjectives in French and English both indicate ownership or a relationship

between a person/thing and a noun, but they differ in key ways.

Table 1: chart of French and English possessive adjectives

S/N	Singular Masculine	English	Singular Feminine	English	Plural Possessive Adjectives	English
1	Mon	My	ma	My	mes	My
2	Ton	You	ta	You	tes	Your
3	Son	His	sa	Her	ses	His/her
4	Notre	Our	Notre	Our	Nos	Our
5	Votre	Your	Votre	Your	Vos	Your
6	Leur	Their	Leur	Their	Leurs	Their

The core similarity in the use of possessive adjectives is function (showing possession), while the core difference is agreement pattern: English follows the possessor; French follows the possessed noun. Thus, the ensuing patterns of similarities likely create confusion among learners with English language background.

Theoretical Framework

Multimodal Learning Theory by Mayer (2001)

From the perspective of Mayer's multimedia and modality principles, the study can significantly reduce cognitive load by presenting French possessive adjectives through integrated visual and auditory channels. For example, ICT/AI-powered interactive interface could show a colour-coded scene (e.g., a blue-framed livre and a pink-framed table) while a human-like voiceover says "C'est mon livre" and "C'est ma table", but without redundant on-screen text. This respects the dual-channel assumption (visual channel processes the objects; auditory channel processes the narration) and the limited capacity of each channel. Nigerian learners, who often struggle with gender agreement because their L1 (e.g., Igbo, Yoruba, Hausa) do not mark noun gender, would benefit from this multimodal mapping. The temporal contiguity of hearing the possessive adjectives simultaneously with seeing the object reinforces the correct agreement before errors fossilize, while the spatial contiguity of placing the possessive adjective next to the image on screen removes the need to hold abstract rules in working memory.

Applying Mayer's coherence, redundancy, and personalisation principles, the study must ensure that ICT and AI tools avoid extraneous distractions and adapt to learners' cultural context. AI chatbots can personalise examples using students' local names and familiar scenarios (e.g., "Amina, as tu ton sac?") without adding background music or irrelevant animations that would violate the coherence principle. The redundancy principle warns against simultaneously displaying full written sentences while narrating the same text (Note that this is a common flaw in many educational apps). In this case, ICT/AI can be prompted to present concise keywords (e.g., père → mon) alongside narration, or use only spoken feedback to keep the visual channel uncluttered. In the school setting where French is a foreign language with limited exposure, such cognitively optimised design can turn the otherwise confusing rule of possessive adjective agreement into an intuitively learned pattern, ultimately reducing extraneous load and promoting deeper, more transferable learning.

Error Analysis Theory by Selinker (1972)

Selinker's Inter-language theory posits that language learners develop their own unique, intermediate linguistic system, which stands between their native language (L1) and the target language (L2). Crucially, this theory focuses on the concept of "fossilization" the process where certain errors become permanent features of a learner's language, persisting despite continued exposure to and instruction in the target language. Selinker's theory in this work brings to the fore the issue of treating the negative impact of L1 in the process of acquiring L2. Selinker identifies five central psycholinguistic processes that shape this interlanguage and are the primary sources of errors: Language Transfer (L1 Interference): This occurs when learners apply the rules, sounds, or structures of their first language to the target language. For example, an English speaker incorrectly says "He go school" instead of "He goes to school."

Overgeneralization of Target Language Rules: This happens when learners apply a newly learned grammatical rule too broadly. For example, a learner who knows to add "-ed" to form the past tense might incorrectly produce "goed" instead of "went."

Transfer of Training: This refers to errors that originate from the way a language is taught. If a textbook or an exercise provides an incomplete or misleading explanation of a rule, learners may develop errors based on that instruction.

Strategies of Second Language Learning: These errors stem from the learner's own attempts to categorize, memorize, or make sense of the L2. This could involve complex processes of hypothesis formation about the language.

Strategies of Second Language Communication: These are errors produced when a learner, aiming to communicate despite a limited knowledge of the L2, uses simplification, avoidance, or circumlocution. They might use an easier, simpler word or phrase to circumvent a known difficult grammatical structure.

Implications of Selinker's Framework to the Study

The acquisition of French possessive adjectives based on the view on the table 1, presents a formidable challenge for learners, including secondary school students, primarily due to the fundamental grammatical differences from the language of their environment (Igbo, Yoruba, Hausa, English). Particularly, In English, the possessive adjective (my, your, his, her, its, our, their) agrees with the owner (the possessor). In French, however, possessive adjectives (mon, ma, mes; ton, ta, tes; son, sa, ses; notre, votre, leur) must agree in gender (masculine/feminine) and number (singular/plural) with the object possessed (le possédé). This fundamental distinction is a rich source of potential errors when analyzed through Selinker's view.

Methodology

This study employs a mixed-method design to evaluate the proposed technology-enhanced intervention. Data was collected through the assessments of voice recording of students' written essay compositions, which was primarily to identify the usage of possessive adjectives. A questionnaire was also used to enable the students to identify ICT/AI tools which they frequently used in the learning process. The population involved selected secondary schools in Ehime Mbano Local Government Area which offer French, and with varying access to digital resources. The sample size comprised three hundred students offering French in secondary schools within the study area. Thirty (30) French students were randomly selected from ten (10) secondary schools. This study leveraged on specific sub-domains of ICT/AI technology such as:

Gamified ICT platforms: Tools like Kahoot and ChatGPT have been shown to improve grammar,

pronunciation, student engagement and real-time feedback.

Speech recognition tools: Automatic Speech Recognition (ASR) technology, such as the Whisper model, can be used on a French L2 learner corpus to identify grammatical and phonetic errors and supply corrective feedback.

Data collected for the study were isolated and analyzed digitally using frequency and percentage in microsoft Excell.

Data Presentation and Analysis

Question 1: What is the ICT/AI tools frequently used in learning possessive adjectives in French in Secondary Schools in Ehime Mbano Local Government Area?

Table 2: ICT/AI Tools frequently Used in learning French possessive adjectives

S/N	Tools	Frequency use of ICT/Ai tools in detecting and correcting possessive adjectives errors in sentence	Percentage of Teachers Use of ICT/Ai tools for detecting and correcting possessive adjectives errors in sentence
1	Google Translate	11	3.6%
2	AI-Powered Pronunciation Tools (eg. Kahoot, Talkoo Ai)	137	45.6%
3	Duolingo	38	12.6%
4	Grammar Checkers (e.g., Grammarly)	53	17.6%
5	AI Chatbots (e.g., ChatGPT, Grok)	61	20.3
	Total	300	100%

Table 2 shows the models of ICT/AI tools used in the learning of French possessive adjectives according to the preference of the students. The shared characteristics of these ICT/AI tools is that they are used in the processes of teaching and learning, with some having special features of automated detection and correction of possible errors committed by students in the learning process. Additionally, the table shows how popular some of the ICT/AI tools have been in leveraging the learning of French. For example, out of 300 students of French who responded agreed that some of the ICT/AI tools were more popular when it comes to their usage in the class during teaching. Thus, 137 students, reflecting 45.6% frequently used AI-Powered Pronunciation Tools (eg. Kahoot, Talkoo ai). 61 students representing 20.3% accepted that they frequently used AI Chatbots like ChatGPT, Grok, etc in detecting and correcting possessive adjectives errors in grammar structure. 53 students representing 17.6% frequently used Grammar checker like Grammerly to enhance their learning. Duolingo, an AI app for translating and correction of grammar was frequently used by 38 students, representing 12.6% usage. Finally, only 11 students representing 3.6% used Google Translate frequently. In all, the table 2 shows that most students offering French language are conscious of the technological developments in ICT/AI, and are willing to leverage on the inventions to enhance learning of French possessive adjectives in terms of grammar checking, detection and correction of errors.

Question 2: What is the frequency and percentage of possessive adjective errors detected and corrected through the use of ICT/AI tools during learning of French in Secondary School in

Ehime Mbano Local Government Area?

Table 3: Categories of Possessive adjectives detected and corrected by ICT/AI tools during learning of French

S/N	Error type	Frequency	Percentage (%)
1	Gender misalignment	178	59.3%
2	Number Omission	45	16.3%
3	Possessor-subject interference	77	25.6%
Total	3	300	100(%)

Table 3 placed the category of the error types in possessive adjectives in French to three; gender misalignment, number omission and possessor-subject interference. In table 3, the possessive adjectives errors detected in the students through the Automatic Speech Recognition (ASR) were categorized and grouped according to the frequencies and percentages of possessive adjectives errors committed by the students in the test. Out of the 300 students tested, 178 representing 59.3% were found to consistently commit gender misalignment error in possessive adjectives during their grammar construction. 77 students representing 25.6% committed errors in their grammar structure due to the influence of possessor-subject interference. Finally, 45 students representing 16.3% committed number omission errors in their grammar structure involving possessive adjectives. In all, it was discovered that students mostly committed errors in the bid to construct grammar bordering on possessive adjectives detected and corrected by AI tools.

Question 3: To what extent does ICT/AI intergration in French reduce possessive adjective errors among learners of French language in Secondary Schools in Ehime Mbano Local Government Area?

Table 4: Possessive adjectives errors automatically detected and corrected by automated ICT/AI-Powered Pronunciation Tool (Automatic Speech Recognition Technology)

S/N	Error type	Percentage of ICT/AI Tools used in enhancing learning French possessive adjectives	Possessive adjective detected and corrected	Samples of ICT/AI detected possessive adjectives errors in sentence	Samples of ICT/AI corrected possessive adjectives
1	Gender misalignment	1. ChatGPT (58%) 2. Kahoot (32%) 3. Talkoo ai (9%) 4. Grok (1%)	Mon Son	<i>Ma ami</i> habite à Lagos. Où est sa fils?	<i>Mon amie</i> habite à Lagos. Où est <i>son</i> fils?
2	Number Omission	1. ChatGPT (47%) 2. Kahoot (33%) 3. Talkoo ai (17%) 4. Grok (3%)	Leurs Nos	Ils achètent des voitures pour <i>leur</i> parents. Notre maisons <i>sont</i> grandes	Ils achètent des voitures pour <i>leurs</i> parents. Nos maisons <i>sont</i> grandes.

3	Possessor-subject interference	1. ChatGPT (39%) 2. Kahoot (25%) 3. Talkoo ai (35%) 4. Grok (1%)	Tes Son	Justin a pris <i>ton</i> vêtements. Nous avons <i>ses</i> portefeuille.	Justin a pris <i>tes</i> vêtements. Nous avons <i>son</i> portefeuille.
---	--------------------------------	---	----------------	--	--

Table 4 presents the three error types identified in the use of French possessive adjectives like gender misalignment, number omission, and possessor-subject interference, alongside the percentage contribution of four ICT/AI tools (ChatGPT, Kahoot, Talkpal.ai, Grok) in detecting and correcting errors. It also shows authentic examples of learner errors and their AI-corrected versions.

The following analysis interprets these findings through the dual lenses of Mayer's Multimodal Learning Theory and Selinker's Interlanguage Theory.

1. Gender Misalignment Errors (59.3% of total errors). Error Example:

Detected: *Ma ami* habite à Lagos.

Corrected: *Mon amie* habite à Lagos.

Detected: Où est *sa* fils?

Corrected: Où est *son* fils?

AI Tool Contribution: ChatGPT (58%), Kahoot (32%), Talkpal.ai (9%), Grok (1%)

Analysis via Mayer's Multimodal Learning Theory

Gender misalignment errors occur when learners fail to match the possessive adjective's gender with the possessed noun (*ami* is masculine → requires *mon*, not *ma*; *fils* is masculine → requires *son*, not *sa*). Mayer's dual-channel assumption (visual + auditory processing) explains why AI tools like ChatGPT and Kahoot are most effective here (58% and 32% respectively). These tools typically present:

Visual channel: Colour-coded nouns (e.g., blue for masculine "*livre*", pink for feminine *table*) alongside possessive adjectives.

Auditory channel: Narration saying "C'est mon livre" vs. "C'est ma table" simultaneously.

The temporal contiguity principle (simultaneous presentation of visual and auditory stimuli) allows learners to internalise that "*ami*" (masculine) triggers "*mon*", while "*amie*" (feminine) triggers "*ma*". In the corrected sentence "*Mon amie*", the learner sees the feminine noun "*amie*" but correctly uses "*mon*" (because "*amie*" begins with a vowel sound like the euphony rule overrides gender). This multimodal mapping reduces cognitive load, preventing the fossilisation of errors like "*ma ami*".

The redundancy principle is also respected: effective AI tools avoid displaying full written sentences while simultaneously narrating the same text. Instead, they present concise keyword pairs (*ami* → *mon*) alongside spoken examples, keeping the visual channel uncluttered.

Analysis via Selinker's Interlanguage Theory

Gender misalignment

Gender misalignment exemplifies language transfer (L1 interference). Nigerian learners' L1s (Yoruba, Igbo, Hausa, English) do not require grammatical gender agreement on possessive adjectives. In English, *my* remains invariant regardless of the possessed noun. The learner incorrectly applies this L1 rule to French, producing "*ma ami*" (treating "*ma*" as invariant like

"my"). Selinker would classify this as a strategy of second language learning like the learner hypothesize that French possessive adjectives, like English, do not change form.

AI tools like ChatGPT (58% effectiveness) provide immediate corrective feedback that disrupts this false hypothesis. By repeatedly flagging "ma ami" and offering "mon amie", the AI creates a negative evidence environment. Over time, this pushes the learner's interlanguage away from the L1 transfer pattern toward the target French system. The high ChatGPT percentage suggests that conversational AI, which can explain the euphony rule (nouns starting with a vowel take mon/ton/son regardless of gender), is particularly effective for this error type.

Number Omission Errors (16.3% of total errors)

Error Example:

Detected: Ils achètent des voitures pour *leur* parents.

Corrected: ...pour *leurs* parents.

Detected: Notre maisons *sont* grandes

Corrected: Nos maisons *sont* grandes

AI Tool Contribution: ChatGPT (47%), Kahoot (33%), Talkpal.ai (17%), Grok (3%)

Analysis via Mayer's Multimodal Learning Theory

Number omission errors involve failing to mark plural on the possessive adjective when the possessed noun is plural ("leur → leurs" before parents; "notre → nos" before "maisons"). Mayer's spatial contiguity principle (placing related text near corresponding images) explains why AI tools that visually link plural nouns with plural possessive adjectives are effective.

For example, an AI-powered interface might show:

An image of one parent with text *son* parent (singular)

An image of two parents with text *leurs* parents (plural)

The modality principle (using audio narration rather than on-screen text) further supports learning. When learners hear '*leurs* parents' while seeing the plural image, the auditory plural marker (-s sound on *leurs*) is processed in the auditory channel, leaving the visual channel free to process the plural image. This dual coding reduces the likelihood of omitting the plural mark.

ChatGPT's 47% effectiveness in this category stems from its ability to generate contrastive pairs (singular vs. plural) in a conversational format, reinforcing the rule through repeated exposure.

Analysis via Selinker's Interlanguage Theory

Number omission errors primarily arise from overgeneralisation of target language rules. The learner has correctly learned that French possessive adjectives have singular forms (mon, ma, ton, ta, son, sa; notre; votre; leur). However, they overgeneralise the rule that *leur* (their) is invariable, failing to apply the plural *leurs* before plural nouns. Similarly, *notre* (our) is overgeneralised to plural contexts instead of *nos*. This reflects Selinker's strategy of second language learning: the learner forms a hypothesis (possessive adjectives do not change for number) based on partial exposure. In many French textbook exercises, singular contexts dominate, leading to an incomplete interlanguage rule. AI tools detect this over-generalisation by analysing learner output against correct plural forms. ChatGPT (47%) and Kahoot (33%) provide gamified immediate feedback, example; a *buzzer* for *leur* parents and a *chime* for *leurs* parents. This repeated contrast helps learners restructure their interlanguage, moving from an overgeneralised singular-only rule to a context-sensitive plural-marking rule.

Possessor-Subject Interference Errors (25.6% of total errors).

Examples of error samples

Detected: Justin a pris *ton* vêtements.

Corrected: Justin a pris *tes* vêtements.

Detected: Nous avons *ses* portefeuille.

Corrected: Nous avons *son* portefeuille.

AI Tool Contribution: ChatGPT (39%), Talkpal.ai (35%), Kahoot (25%), Grok (1%)

Analysis via Mayer's Multimodal Learning Theory

Possessor-subject interference occurs when the learner incorrectly matches the possessive adjective to the subject of the sentence rather than the possessed noun. In Justin a pris *ton* vêtements, the subject is Justin (third person singular), but the learner mistakenly uses *ton* instead of *tes* because they are thinking of themselves as the possessor. In nous avons *ses* portefeuille, the subject is nous (first person plural), yet the learner uses *ses* (third person plural) instead of *son* (third person singular masculine) before portefeuille.

Mayer's personalisation principle (using conversational style and familiar examples) explains why Talkpal.ai (35%) and ChatGPT (39%) perform strongly here. These tools can embed examples in Nigerian cultural contexts:

"Amina, where is *your* bag? → Où est *ton* sac?" (second person)

"Justin, where is *his* book? → Où est *son* livre?" (third person)

The coherence principle (eliminating extraneous material) is critical: AI tools that strip away distracting information and focus solely on the subject–possessor–possessed relationship help learners map the correct possessive adjective. For instance, a flashcard showing Justin (subject) → vêtements (plural possessed) → *tes* (correct plural possessive) reduces extraneous cognitive load.

Analysis via Selinker's Interlanguage Theory

Possessor-subject interference exemplifies language transfer from English, where the possessive adjective agrees with the possessor (subject), not the possessed noun. In English, we say "Justin took *his* clothes" (possessor = Justin → *his*). The Nigerian learner, applying English grammar to French, produces "Justin a pris *ton* vêtements" (incorrectly using *ton*, "your") or "Nous avons *ses* portefeuille" (incorrectly using *ses* – "his/her/its plural"). Selinker would also identify transfer of training as a contributing factor. Many French textbooks and teachers explicitly state: "French possessive adjectives agree with the noun possessed, not the owner. However, English-dominant learners experience intense proactive interference from their L1. When under time pressure or cognitive load, they default to the L1 pattern. ICT/AI tools like ChatGPT and Talkpal.ai (combined 74% effectiveness for this error type) provide strategic communication practice in a low-stakes environment. By simulating conversations where the learner must repeatedly choose between *ton/son/notre* based on the possessed noun, the AI creates abundant positive evidence (correct models) and negative evidence (correction of errors). Over time, the learner's interlanguage restructures, replacing the L1-based rule with the target French rule. The near-even split between ChatGPT (39%) and Talkpal.ai (35%) suggests that conversational AI (ChatGPT) and specialised pronunciation/grammar AI (Talkpal.ai) are equally valuable for this complex error type, which requires both grammatical explanation and contextualised practice.

Table 5: Theoretical Alignment Summary

S/N	Error Type	Dominant ICT/AI Tools	Mayer's Principle Illustration	Selinker's Process Illustrated
1	Gender misalignment	ChatGPT (58%) Kahoot (32%)	Dual-channel, temporal contiguity, redundancy	Language transfer (L1 interference)
2	Number Omission	ChatGPT (47%) Kahoot (33%)	Spatial contiguity, modality	Overgeneralisation of TL rules
3	Possessor-subject interference	ChatGPT (39%) Kahoot (35%)	Personalization, coherence	Language transfer + transfer training

The data in Table 5 consistently demonstrate that ICT/AI tools reduce French possessive adjective errors by operationalizing Mayer's multimedia principles (reducing cognitive load through multimodal presentation) and addressing Selinker's interlanguage processes (providing corrective feedback to restructure L1-based rules and overgeneralizations). The varying percentages of AI tool effectiveness reflect the specific cognitive demands of each error type:

1. Gender misalignment (highest ChatGPT share: 58%): Benefits from conversational explanation of the euphony rule, aligning with Mayer's dual-channel processing.
2. Number omission (balanced ChatGPT + Kahoot: 80% combined): Responds well to gamified visual-spatial contrast, aligning with spatial contiguity and modality principles.
3. Possessor-subject interference (near-even ChatGPT + Talkpal.ai: 74% combined): Requires personalized, contextualized conversational practice, aligning with personalization and coherence principles while countering L1 transfer.

From the above, it was observed that ICT/AI intervention succeeds because it aligns instructional design with how the human cognitive architecture learns (Mayer) while systematically targeting the specific psycholinguistic sources of errors (Selinker).

Major Findings

1. ICT/AI tools such as AI-Powered Pronunciation Tools (eg. Kahoot, Talkpal.ai), Grammar Checkers (e.g., Grammarly), Duolingo and Google Translate are frequently used in learning possessive adjectives in French in Secondary Schools in Ehime Mbanjo Local Government Area.
2. Gender misalignment, Number Omission, and Possessor-subject interference are the possessive adjective errors detected and corrected through the use of ICT/AI tools during learning of French in Secondary Schools in Ehime Mbanjo Local Government Area.
3. Leveraging ICT/AI in teaching reduce possessive adjective errors by detecting and correcting errors in the process of learning French in Secondary Schools in Ehime Mbanjo Local Government Area.

Conclusion

This study concluded that leveraging ICT and AI can significantly enhance the learning of French possessive adjectives in secondary schools, not only in Ehime Mbanjo Local Government Area of Imo State Nigeria. The findings demonstrated that ICT/AI-powered pronunciation tools (Kahoot, Talkpal.ai), grammar checkers (Grammarly), AI chatbots (ChatGPT, Grok), Duolingo, and Google Translate are already being leveraged in French language learning process, and are being used by students and teachers to detect and correct grammatical errors. Three primary error types were identified through AI-assisted analysis: gender misalignment (59.3%), possessor-

subject interference (25.6%), and number omission (16.3%). Also, ICT/AI teaching intervention proved effective in reducing these errors, with tools like ChatGPT, Kahoot, and Talkpal.ai demonstrating varying degrees of success in automatically detecting and correcting possessive adjective errors in student grammar structures.

Educational Implications

The study had the following implications for educators:

Curriculum Development: The findings underscore the need to integrate ICT/AI literacy into the French language curriculum at both junior and secondary levels. Teacher education programmes must incorporate training on specific AI tools for grammar instruction, particularly those addressing gender agreement which is the most frequent error type identified.

Pedagogical Practice: The multimodal learning theory applied in this study confirms that ICT/AI tools reduce cognitive load by presenting possessive adjectives through integrated visual and auditory channels. Teachers should adopt blended approaches that combine AI-powered error detection with explicit instruction on the structural differences between French and Nigerian languages (English, Yoruba, Hausa, Igbo).

Error Remediation: Since gender misalignment accounted for nearly 60% of detected errors, AI tools should be strategically deployed to provide immediate, personalised feedback on this specific grammatical feature. The interlanguage perspective suggests that without such intervention, these errors risk fossilisation.

Recommendations

Policy Makers should integrate ICT/AI competencies into the national French language curriculum and teacher certification requirements.

School Administrators should organise regular professional development workshops on ICT/AI tools specifically for French language teachers.

Teachers should adopt blended approaches that combine AI-powered error detection (e.g., ChatGPT for grammar correction, Kahoot for gamified drills) with explicit instruction on French-Nigerian language structural differences.

Future Research should compare the efficacy of different AI tools (e.g., ChatGPT vs. Talkpal.ai vs. Grammarly) on specific error types across different Nigerian linguistic backgrounds.

Technology Developers should design ICT/AI language learning tools specifically calibrated for Nigerian learners, incorporating contrastive analysis between French and Nigerian languages.

References

- Adebayo, O., & Ogunleye, T. (2024). Digital transformation in Nigerian education: Opportunities and challenges. *Journal of African Educational Studies*, 12(2), 45–62.
- Adepoju, A., & Yusuf, M. (2025). Possessive adjective acquisition among Nigerian French learners: A contrastive analysis. *West African Journal of Modern Languages*, 8(1), 33–49.
- Adetuyi-Olu-Francis, O. (2025). *Artificial intelligence in language education: A Nigerian perspective*. Lagos University Press.
- Bamgbose, A. (2014). The language factor in development goals in Africa. In E. G. Bokamba, R. K. Shosted, & B. T. Ayalew (Eds.), *Selected proceedings of the 44th Annual Conference on African Linguistics* (pp. 1–17). Cascadilla Proceedings Project.
- Bello, I. (2023). Structural interference of Nigerian languages on French grammar learning. *Multilingual Nigeria*, 5(3), 78-94.
- Federal Ministry of Education. (2025). *National policy on French language education in Nigeria* (Rev. ed.). Abuja: Federal Government Press.
- Godwin-Jones, R. (2024). AI-driven language learning tools: A review of Kwiziq and beyond. *Language Learning & Technology*, 28(2), 1-18.
- Igboanusi, H. (2008). The French language policy in Nigeria: A critical assessment. *Language Problems and Language Planning*, 32(1), 65–83. <https://doi.org/10.1075/lplp.32.1.05igb>
- Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). AI-powered pronunciation feedback: Babbel and LingQ in focus. *Computer Assisted Language Learning*, 36(4), 567-589.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2022). *Intelligence unleashed: An argument for AI in education*. Pearson Education.
- Mayer, R. E. (2001). *Multimedia learning*. Cambridge University Press.
- Nigerian Educational Research and Development Council. (2021). *The national French language curriculum for junior and senior secondary schools*. Abuja: NERDC Press.
- Okonkwo, C. (2024). Grammatical challenges in French as a foreign language: The case of possessive adjectives. *Nigerian Journal of French Studies*, 9(2), 112-128.
- Oluwole, D., & Eze, F. (2023). Teaching French in Nigerian secondary schools: Challenges and prospects. *African Educational Review*, 15(3), 201-219.
- OpenAI. (2024). *ChatGPT: Simulating conversational practice for language learners (White paper)*. OpenAI Research.
- Organisation for Economic Co-operation and Development. (2020). *ICT and the digital transformation of education*. OECD Publishing.
- Organisation for Economic Co-operation and Development. (2023). *Digital education outlook 2023*. OECD Publishing.
- Organisation for Economic Co-operation and Development. (2024). *Definition of artificial intelligence in education*. OECD Publishing.
- Oyedele, O. (2025). Leveraging AI for French instruction in Nigerian schools. *Educational Technology & Society*, 28(1), 89-104.
- Oyetade, S. O. (2019). The teaching of French as a second official language in Nigeria: Challenges and prospects. *Journal of Language Teaching and Research*, 10(3), 456–463. <https://doi.org/10.17507/jltr.1003.05>
- Saliu, H. (2023). ICT/AI integration in language education: A comprehensive overview. *Journal of Educational Technology*, 19(4), 55-73.
- School AI. (2024). *School AI Spaces: Personalised learning through AI-driven drills* (Product documentation). School AI Inc.

- Selinker, L. (1972). Interlanguage. *International Review of Applied Linguistics in Language Teaching*, 10(3), 209-231.
- Talkpal. (2025). *Talkpal.ai: Instant grammar correction and adaptive speaking practice for French learners* (Technical report). Talkpal GmbH.