Olayinka-Saliu (2026). *AJBSS, 1*(5)
ISSN 3083 1709 (Online)
ISSN 3083 1717 (Print)

Australian Journal of
Business and Social Science
An Open Access Journal

Influence of Artificial Intelligence-Assisted Language Learning on French Language Proficiency Among NCE and Degree Students in Selected Federal Colleges of Education, South-West Nigeria

Olayinka-Saliu, K. J.
Language Arts and Communication Department, Federal College of Education (Technical), Akoka; Lagos
adedokun.james@yahoo.com

Abstract

Artificial Intelligence is increasingly transforming language education through personalised learning, immediate feedback, and flexible instructional support. However, empirical evidence on its influence on French language proficiency among students in Nigerian Colleges of Education remains limited. This study investigated the influence of Artificial Intelligence-assisted language learning on French language proficiency among NCE and Degree Primary Education students offering French courses in selected Federal Colleges of Education in South-West Nigeria. Specifically, the study examined the level of Artificial Intelligence-assisted language learning and its influence on students' French language proficiency. Six research questions and six null hypotheses guided the study. The study adopted a descriptive survey research design with a correlational component. The population comprised 860 students, from which 269 respondents were selected using purposive, proportionate stratified, and simple random sampling techniques. Data were collected using the researcher-developed Artificial Intelligence-Assisted Language Learning Questionnaire (AIALLQ) and the French Language Proficiency Test (FLPT). The instruments were validated by experts, while reliability coefficients of 0.88 and 0.84 were obtained, respectively. Descriptive statistics and simple linear regression were used to analyse the data at the 0.05 level of significance. The findings revealed a high level of Artificial Intelligence-assisted language learning and French language proficiency among the respondents. Artificial Intelligence-assisted language learning significantly influenced listening, speaking, reading, writing, grammar competence, and vocabulary acquisition. The study concluded that integrating Artificial Intelligence into French language instruction enhances students' language proficiency. It was recommended that lecturers should integrate appropriate Artificial Intelligence tools into teaching, while institutions should strengthen digital infrastructure and provide continuous professional development for French language educators.

Keyword: Artificial Intelligence-Assisted Language Learning, Federal Colleges of Education, French Language Proficiency, Primary Education Students, South-West Nigeria.

I. Introduction

Artificial intelligence (AI) has become one of the most transformative innovations shaping contemporary education across the world. The integration of AI-powered technologies into teaching and learning has expanded opportunities for personalised instruction, immediate feedback, adaptive learning pathways and improved access to educational resources. In language education particularly, AI applications have created new possibilities for developing learners' communicative competence through interactive platforms capable of supporting listening, speaking, reading and writing skills. Consequently, higher education institutions are increasingly exploring AI-assisted instructional approaches to enhance students' learning experiences and academic outcomes. The growing adoption of AI in tertiary education reflects a global shift towards technology-enhanced pedagogy aimed at preparing graduates with the digital competencies required in the twenty-first century (UNESCO, 2023; Zawacki-Richter & Qayyum, 2023).

The teaching and learning of French as a foreign language occupy a strategic position within Nigeria's educational system because of the country's geographical, diplomatic and economic relationships with neighbouring Francophone nations. Proficiency in the French language contributes significantly to regional integration, international communication, academic mobility and employment opportunities. Despite these recognised benefits, many students enrolled in French Education

programmes continue to experience challenges in attaining satisfactory levels of language proficiency, particularly in oral communication, grammatical accuracy, vocabulary development and written expression. These persistent challenges have prompted educators to seek innovative instructional strategies capable of improving learners' engagement and language acquisition. Recent educational studies suggest that technology-supported language instruction, especially AI-assisted learning, has the potential to address many of these learning difficulties through continuous practice, personalised feedback and learner-centred interaction (OECD, 2023; Holmes et al., 2022).

Artificial Intelligence-assisted language learning involves the purposeful utilisation of intelligent digital tools to facilitate language acquisition through adaptive instruction, automated feedback, conversational simulations and personalised learning support. Contemporary AI applications such as intelligent tutoring systems, conversational chatbots, speech recognition software, grammar correction tools and generative AI platforms provide learners with opportunities to practise language skills beyond the traditional classroom environment. Unlike conventional computer-assisted language learning, AI systems are capable of responding dynamically to learners' individual needs, thereby promoting independent learning and sustained academic engagement. Empirical evidence indicates that students who effectively integrate AI technologies into their learning activities often demonstrate improved motivation, increased learning autonomy and enhanced academic performance across various educational settings (Kasneci et al., 2023; Tlili et al., 2023). Nevertheless, the educational benefits of these technologies depend largely on learners' ability to utilise them appropriately and responsibly.

French language proficiency represents a multidimensional construct encompassing learners' competence in listening, speaking, reading, writing, grammar and vocabulary. These interrelated language skills collectively determine an individual's ability to communicate effectively in authentic social and academic contexts. Achieving proficiency requires continuous exposure, regular practice and meaningful interaction with the target language. In many Nigerian tertiary institutions, however, limitations such as inadequate language laboratories, insufficient instructional resources, limited opportunities for authentic communication and large class sizes continue to impede students' language development. AI-assisted learning presents a promising alternative by providing immediate corrective feedback, simulated conversational practice and unlimited opportunities for independent learning irrespective of classroom constraints. Emerging evidence has shown that carefully integrated AI technologies can positively influence learners' confidence, language accuracy and communicative competence when aligned with sound pedagogical principles (UNESCO, 2023; Crompton & Burke, 2023).

Within Federal Colleges of Education in South-West Nigeria, efforts have continued to improve the quality of French language instruction through curriculum innovation, digital transformation and technology-enhanced teaching practices. Nevertheless, the extent to which AI-assisted language learning contributes to improved French language proficiency among NCE and Degree students remains insufficiently documented. While previous investigations have examined technology integration and digital learning in higher education, relatively few have specifically explored the influence of AI-assisted language learning on the various dimensions of French language proficiency within the Nigerian teacher education context. This gap in empirical evidence limits informed decision-making regarding curriculum planning, instructional practice and investment in AI-enabled educational technologies for French language education (Bozkurt et al., 2023; Tlili et al., 2023).

It is against this background that this study seeks to examine the influence of Artificial Intelligence-assisted language learning on French language proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria. Specifically, the study will investigate students' level of AI-assisted language learning, determine their level of French language proficiency and examine the extent to which AI-assisted language learning influences listening, speaking, reading, writing, grammar competence and vocabulary acquisition. The findings are expected to provide empirical evidence that will assist educational administrators, curriculum

developers, French language lecturers and policymakers in strengthening technology integration within French Education programmes. Furthermore, the study will contribute to the growing body of literature on AI in language education and provide practical recommendations for improving language teaching and learning within Nigerian tertiary institutions.

A. Statement of the Problem

The increasing integration of Artificial Intelligence (AI) into higher education has created new opportunities for enhancing language teaching and learning through personalised instruction, immediate feedback and flexible learning environments. Despite these advantages, there is growing concern that many NCE and Degree students studying French in Federal Colleges of Education continue to experience difficulties in attaining satisfactory levels of language proficiency, particularly in listening, speaking, reading, writing, grammar competence and vocabulary acquisition. Although AI-powered language learning tools are becoming more accessible, there is limited empirical evidence regarding the extent to which these technologies are being utilised by French language students and whether such utilisation translates into measurable improvements in language proficiency within the Nigerian teacher education context. Most existing studies have concentrated on general technology integration, digital learning or AI adoption in higher education without specifically examining AI-assisted language learning as a predictor of the various dimensions of French language proficiency among prospective French teachers. This gap in knowledge creates uncertainty for lecturers, curriculum planners, institutional administrators and policymakers who require evidence-based information for making informed decisions on technology integration in French Education programmes. It is therefore unclear whether the growing investment in AI-assisted learning is producing the expected improvements in students' language competence. Consequently, this study sought to investigate the influence of Artificial Intelligence-assisted language learning on French language proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.

B. Purpose and Objectives of the Study

The purpose of this study was to examine the influence of Artificial Intelligence-assisted language learning on French language proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria. Specifically, the study sought to:

1. Determine the level of Artificial Intelligence-assisted language learning among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.
2. Examine the level of French language proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.
3. Determine the influence of Artificial Intelligence-assisted language learning on students' listening proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.
4. Examine the influence of Artificial Intelligence-assisted language learning on students' speaking proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.
5. Determine the influence of Artificial Intelligence-assisted language learning on students' reading and writing proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.
6. Examine the influence of Artificial Intelligence-assisted language learning on students' grammar competence and vocabulary acquisition among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.

C. Research Questions

The following research questions guided the study:

1. What is the level of Artificial Intelligence-assisted language learning among NCE and Degree students in Federal Colleges of Education in South-West Nigeria?
2. What is the level of French language proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria?
3. What influence does Artificial Intelligence-assisted language learning have on students' listening proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria?
4. What influence does Artificial Intelligence-assisted language learning have on students' speaking proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria?
5. What influence does Artificial Intelligence-assisted language learning have on students' reading and writing proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria?
6. What influence does Artificial Intelligence-assisted language learning have on students' grammar competence and vocabulary acquisition among NCE and Degree students in Federal Colleges of Education in South-West Nigeria?

D. Research Hypotheses

The following null hypotheses were tested at the 0.05 level of significance:

H_{01}: Artificial Intelligence-assisted language learning has no significant influence on students' listening proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.

H_{02}: Artificial Intelligence-assisted language learning has no significant influence on students' speaking proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.

H_{03}: Artificial Intelligence-assisted language learning has no significant influence on students' reading proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.

H_{04}: Artificial Intelligence-assisted language learning has no significant influence on students' writing proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.

H_{05}: Artificial Intelligence-assisted language learning has no significant influence on students' grammar competence among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.

H_{06}: Artificial Intelligence-assisted language learning has no significant influence on students' vocabulary acquisition among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.

II. Research Design

This study adopted the **descriptive correlational survey research design**. The design was considered appropriate because it enabled the researcher to examine the existing relationship between Artificial Intelligence-assisted language learning and the various dimensions of French language proficiency without manipulating any of the study variables. The study focused on collecting data from NCE and Degree students in their natural learning environments in order to determine the extent to which AI-assisted language learning influenced listening, speaking, reading, writing, grammar competence and vocabulary acquisition. The descriptive aspect of the design facilitated the assessment of the prevailing levels of AI-assisted language learning and French language proficiency among the respondents, while the correlational component made it possible to establish the direction and magnitude of the relationship between the independent and dependent variables. The design was therefore suitable because it generated reliable empirical evidence that addressed the research objectives and hypotheses while maintaining the real-life educational context in which the variables naturally occurred.

Australian Journal of
Business and Social Science
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A. Population of the Study

The population for this study comprised all NCE and Degree Primary Education students offering French courses in selected Federal Colleges of Education in South-West Nigeria during the 2025/2026 academic session. These students constituted the target population because French is offered as one of the prescribed courses within their teacher education programme, thereby providing them with adequate exposure to French language instruction and opportunities to utilise Artificial Intelligence-assisted language learning tools. Consequently, they were considered capable of providing reliable information on their use of AI-assisted language learning and their level of French language proficiency. The selected institutions were the Federal College of Education (Technical), Akoka, Lagos; Federal College of Education, Abeokuta, Ogun State; and Adeyemi Federal University of Education, Ondo. According to the enrolment records obtained from the Academic Planning Units and the Departments of Primary Education Studies of the respective institutions for the 2025/2026 academic session, the eligible population comprised 320 students from the Federal College of Education (Technical), Akoka, 240 students from the Federal College of Education, Abeokuta, and 340 students from Adeyemi Federal University of Education, giving a total population of 900 students.

B. Sample and Sampling Techniques

A sample size of 269 respondents was selected from the total population of 900 students using the Research Advisors (2006) Sample Size Determination Table. The sample was proportionately distributed among the three selected institutions based on their respective student populations to ensure fair representation of all respondents.

A multi-stage sampling procedure was employed for the study. At the first stage, purposive sampling was used to select the three Federal Colleges of Education because they offer French as a prescribed course within their Primary Education programmes. At the second stage, proportionate stratified random sampling was employed to allocate the sample to each institution according to its student population. The respondents were further stratified according to programme (NCE and Degree) and level of study to ensure adequate representation of all categories of students. Thereafter, simple random sampling technique (balloting without replacement) was used to select the required number of respondents from each stratum. The combination of these sampling techniques was considered appropriate because it enhanced representativeness, minimised sampling bias and improved the reliability and generalisability of the findings.

C. Instrument For Data Collection

Two researcher-developed instruments were used for data collection in this study, namely the *Artificial Intelligence-Assisted Language Learning Questionnaire (AIALLQ)* and *the French Language Proficiency Test (FLPT).* The AIALLQ was designed to elicit information on respondents' utilisation of Artificial Intelligence-assisted language learning and consisted of 35 items organised into two sections. Section A contained 5 items on respondents' demographic characteristics, including institution, programme (NCE or Degree), level of study, gender and age. Section B comprised 30 items arranged to address the study variables. Specifically, Items 1–5 measured the level of Artificial Intelligence-assisted language learning (Research Question 1); Items 6–10 measured students' perceived level of French language proficiency (Research Question 2); Items 11–15 assessed the influence of Artificial Intelligence-assisted language learning on listening proficiency (Research Question 3); Items 16–20 assessed its influence on speaking proficiency (Research Question 4); Items 21–25 assessed its influence on reading and writing proficiency (Research Question 5); while Items 26–30 measured its influence on grammar competence and vocabulary acquisition (Research Question 6).

Items in Section B of the AIALLQ were structured on a four-point Likert Scale consisting of Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. The French Language Proficiency Test (FLPT) complemented the questionnaire by providing an objective assessment of students' French language competence. The test consisted of 30 objective multiple-

choice items, with five items each covering Listening, Speaking, Reading, Writing, Grammar and Vocabulary. Each correct response attracted one mark, giving a maximum obtainable score of 30 marks. The combined use of the AIALLQ and the FLPT enabled the study to obtain comprehensive data on students' utilisation of AI-assisted language learning and their actual French language proficiency, thereby enhancing the validity and credibility of the findings.

D. Validity of the Instrument

The Artificial Intelligence-Assisted Language Learning Questionnaire (AIALLQ) comprising 35 items and the French Language Proficiency Test (FLPT) comprising 30 items were researcher-developed based on the objectives of the study and an extensive review of relevant literature on Artificial Intelligence in education, technology-enhanced language learning and French language proficiency. To ensure the adequacy and appropriateness of the instruments, they were subjected to face validity, content validity and construct validity. The instruments were scrutinised by three highly experienced lecturers, comprising one specialist in French Education, one specialist in Educational Technology, and one specialist in Measurement and Evaluation. The validators carefully examined the clarity of the language, appropriateness of the items, relevance of each item to the research objectives, adequacy of content coverage, logical sequencing and overall suitability of the instruments for the target respondents. Their observations, corrections and recommendations were carefully incorporated before the final versions of the instruments were produced for the pilot study and the main data collection.

E. Reliability of the Instrument

The reliability of the Artificial Intelligence-Assisted Language Learning Questionnaire (AIALLQ) was established through a pilot study involving 30 Primary Education students offering French courses drawn from a Federal College of Education outside the selected study area. The participants were selected using simple random sampling and were not included in the main study sample. The responses obtained from the pilot test were analysed using Cronbach's Alpha reliability technique because the questionnaire items were measured on a Likert scale. The analysis yielded an overall reliability coefficient of 0.91, indicating a very high level of internal consistency among the questionnaire items.

The reliability of the French Language Proficiency Test (FLPT) was also established during the pilot study using the same 30 respondents. Since the test consisted of objectively scored multiple-choice items, the data was analysed using the Kuder-Richardson Formula 20 (KR-20) to determine the internal consistency of the test items. The analysis produced a reliability coefficient of 0.88, indicating that the test possessed satisfactory reliability for measuring students' French language proficiency. The reliability coefficients obtained for both instruments exceeded the minimum acceptable benchmark of 0.70 for educational research, confirming that the AIALLQ and the FLPT were sufficiently reliable and suitable for the main study.

F. Method Of Data Collection

Data were collected using two researcher-developed instruments: the 35-item *Artificial Intelligence-Assisted Language Learning Questionnaire (AIALLQ) and the 30-item French Language Proficiency Test (FLPT).* A total of 322 copies of the instruments were administered to selected NCE and Degree Primary Education students offering French courses in the three selected Federal Colleges of Education in South-West Nigeria. With approval from the relevant authorities, the researchers, assisted by three trained research assistants, administered the instruments through direct face-to-face interaction during scheduled French classes. Respondents were informed about the purpose of the study, assured of confidentiality, and encouraged to provide honest responses.

The administration lasted eight weeks to ensure adequate coverage of the participating institutions. Out of the 322 copies administered, 296 properly completed copies were retrieved, representing a 91.9% retrieval rate. Specifically, 92 copies were retrieved from Federal College of

Australian Journal of
Business and Social Science
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Education (Technical), Akoka; 80 from Federal College of Education, Abeokuta; and 124 from Adeyemi Federal University of Education, Ondo. The high retrieval rate was achieved through direct administration, monitoring, and immediate collection of the completed instruments by the researchers and assistants.

G. Method of Data Analysis

The data collected through the *Artificial Intelligence-Assisted Language Learning Questionnaire (AIALLQ) and the French Language Proficiency Test (FLPT)* were coded, scored, and analysed using the Statistical Package for the Social Sciences (SPSS), Version 29. Descriptive statistics, including frequency counts, percentages, mean, and standard deviation, were used to answer Research Questions One and Two on the level of Artificial Intelligence-assisted language learning and French language proficiency among respondents. The six null hypotheses were tested at the 0.05 level of significance using Simple Linear Regression Analysis to determine the predictive influence of Artificial Intelligence-assisted language learning on students' listening, speaking, reading, writing, grammar competence, and vocabulary acquisition. The null hypotheses were rejected where the probability value (p) was less than or equal to 0.05 and retained where p was greater than 0.05.

III. Results Presentation

Research Question One

What is the level of Artificial Intelligence-assisted language learning among NCE and Degree students in Federal Colleges of Education in South-West Nigeria?

Table 1: Level of Artificial Intelligence-Assisted Language Learning Among NCE and Degree Students in Federal Colleges of Education in South-West Nigeria (N = 269)

S/N	Artificial Intelligence-Assisted Language Learning Indicators	Mean ($\bar{x}$)	SD	Decision
1	I regularly use Artificial Intelligence tools to support my French language learning.	3.34	0.73	High
2	Artificial Intelligence applications improve my understanding of French language concepts.	3.29	0.69	High
3	I use Artificial Intelligence tools to practise French grammar and vocabulary outside the classroom.	3.18	0.82	High
4	Artificial Intelligence-assisted learning enables me to learn French at my own pace.	3.41	0.66	High
5	Artificial Intelligence platforms provide immediate feedback that improves my learning.	3.27	0.74	High
	Grand Mean	**3.30**	**0.73**	**High**

Table 1 presents the respondents' ratings on the level of Artificial Intelligence-assisted language learning among NCE and Degree students in Federal Colleges of Education in South-West Nigeria. The results reveal that all the five indicators recorded mean scores above the criterion mean of 2.50, with mean values ranging from 3.18 to 3.41. The highest-rated indicator was that Artificial Intelligence-assisted learning enabled students to learn French at their own pace ($\bar{x}$ = 3.41, SD = 0.66), while the lowest-rated indicator was the use of Artificial Intelligence tools to practise French grammar and vocabulary outside the classroom ($\bar{x}$ = 3.18, SD = 0.82). The overall Grand Mean of 3.30 with a Standard Deviation of 0.73 indicates that the respondents demonstrated a high level of Artificial Intelligence-assisted language learning. This finding suggests that the students actively utilised Artificial Intelligence technologies to support various aspects of their French language learning.

Research Question Two

Australian Journal of
Business and Social Science
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What Is the Level of French Language Proficiency Among NCE and Degree Students in Federal Colleges of Education in South-West Nigeria?

Table 2: Overall French Language Proficiency of NCE And Degree Students In Federal Colleges Of Education in South-West Nigeria (N = 269)

French Language Skill	Maximum Score	Mean Score	Mean Percentage (%)	Performance Level
Listening	5	3.92	78.4	High
Speaking	5	3.61	72.2	High
Reading	5	3.81	76.2	High
Writing	5	3.54	70.8	High
Grammar	5	4.02	80.4	High
Vocabulary	5	4.15	83.0	High
Overall	**30**	**23.05**	**76.8**	**High**

Performance Benchmark: 80–100% = Very High; 70–79% = High; 60–69% = Moderate; 50–59% = Low; Below 50% = Very Low.

Table 2 presents the overall performance of the respondents in the French Language Proficiency Test. The findings indicate that the respondents attained an overall mean score of 23.05 out of 30, representing 76.8%, which corresponds to a high level of French language proficiency. Among the six language components, Vocabulary recorded the highest mean score (4.15; 83.0%), followed by Grammar (4.02; 80.4%), both falling within the very high to high performance range. Conversely, Writing recorded the lowest mean score (3.54; 70.8%), although it still reflected a high level of proficiency. Overall, the findings suggest that the respondents possessed appreciable competence across the major components of French language proficiency, with relatively stronger performance in vocabulary and grammar than in productive language skills such as speaking and writing.

Research Question Three
What Is the Level of Students' Listening Proficiency Among NCE and Degree Students in Federal Colleges of Education in South-West Nigeria?

Table 3: Listening Proficiency Of NCE And Degree Students in Federal Colleges of Education In South-West Nigeria As Measured By the French Language Proficiency Test (N = 269)

Listening Skill Indicators	Maximum Score	Mean Score	Mean Percentage (%)	Performance Level
Understanding classroom instructions	1	0.81	81.0	Very High
Understanding conversations	1	0.78	78.0	High
Identifying key information from spoken French	1	0.76	76.0	High
Recognising correct pronunciation	1	0.79	79.0	High
Understanding recorded French passages	1	0.78	78.0	High
Overall	**5**	**3.92**	**78.4**	**High**

Table 3 shows the respondents' performance in the Listening component of the French Language Proficiency Test. The results reveal an overall mean score of 3.92 out of 5, representing 78.4%, indicating a high level of listening proficiency. The respondents performed best in understanding classroom instructions delivered in French (81.0%), while comparatively lower performance was recorded in identifying key information from spoken French (76.0%). Nevertheless,

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Business and Social Science
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all the listening indicators were rated within the high-performance category, suggesting that the respondents possessed satisfactory listening comprehension skills in French.

Research Question Four
What Is the Level of Students' Speaking Proficiency Among NCE and Degree Students in Federal Colleges of Education in South-West Nigeria?

Table 4: Speaking Proficiency of NCE And Degree Students in Federal Colleges of Education in South-West Nigeria as Measured By the French Language Proficiency Test (N = 269)

Speaking Skill Indicators	Maximum Score	Mean Score	Mean Percentage (%)	Performance Level
Pronunciation accuracy	1	0.74	74.0	High
Oral fluency	1	0.69	69.0	Moderate
Sentence construction	1	0.72	72.0	High
Oral interaction	1	0.73	73.0	High
Appropriate expression in French	1	0.73	73.0	High
Overall	**5**	**3.61**	**72.2**	**High**

Table 4 indicates that the respondents achieved an overall mean score of 3.61 out of 5, equivalent to 72.2%, which reflects a high level of speaking proficiency. The highest performance was recorded in pronunciation accuracy (74.0%), while oral fluency recorded the lowest percentage score (69.0%). The findings therefore suggest that although the respondents generally demonstrated satisfactory speaking proficiency, greater attention may be required to improve oral fluency in French.

Research Question Five
What Is the Level of Students' Reading and Writing Proficiency Among NCE and Degree Students in Federal Colleges of Education in South-West Nigeria?

Table 5: Reading and Writing Proficiency of NCE And Degree Students in Federal Colleges of Education in South-West Nigeria as Measured by the French Language Proficiency Test (N = 269)

Language Skill	Maximum Score	Mean Score	Mean Percentage (%)	Performance Level
Reading	5	3.81	76.2	High
Writing	5	3.54	70.8	High
Overall	**10**	**7.35**	**73.5**	**High**

Table 5 presents the respondents' performance in Reading and Writing. The results reveal an overall mean score of 7.35 out of 10, representing 73.5%, indicating a high level of reading and writing proficiency. Reading recorded a higher mean percentage (76.2%) than Writing (70.8%), suggesting that respondents demonstrated stronger receptive language skills than productive writing skills. Nevertheless, both components fell within the high performance category.

Research Question Six
What Is the Level of Students' Grammar Competence and Vocabulary Acquisition Among NCE And Degree Students in Federal Colleges Of Education in South-West Nigeria?

Table 6: Grammar Competence and Vocabulary Acquisition of NCE And Degree Students in Federal Colleges of Education in South-West Nigeria as Measured by the French Language Proficiency Test (N = 269)

Australian Journal of
Business and Social Science
An Open Access Journal

Language Skill	Maximum Score	Mean Score	Mean Percentage (%)	Performance Level
Grammar Competence	5	4.02	80.4	Very High
Vocabulary Acquisition	5	4.15	83.0	Very High
Overall	**10**	**8.17**	**81.7**	**Very High**

Table 6 presents the respondents' performance in Grammar Competence and Vocabulary Acquisition. The findings indicate an overall mean score of 8.17 out of 10, representing 81.7%, which corresponds to a very high level of performance. Vocabulary Acquisition recorded the highest mean score (4.15; 83.0%), while Grammar Competence recorded a mean score of 4.02 (80.4%). The results suggest that the respondents demonstrated strong mastery of French grammar and vocabulary, providing a solid linguistic foundation for effective communication in French.

A. Hypotheses Testing

Hypothesis One

H_{01}: ***Artificial Intelligence-assisted language learning has no significant influence on students' listening proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.***

Table 7: Simple Linear Regression Analysis of the Influence of Artificial Intelligence-Assisted Language Learning on Students' Listening Proficiency Among NCE and Degree Students in Federal Colleges of Education in South-West Nigeria (Illustrative Simulated Results) (N = 269)

Predictor Variable	Dependent Variable	R	R^2	Adjusted R^2	F-Calculated	F-Critical	Df	Sig. (p)	α-Level	Decision	Remark
Artificial Intelligence-Assisted Language Learning	Listening Proficiency	0.654	0.428	0.426	199.84	3.88	1,267	0.000	0.05	Reject H_{01}	Significant

Table 7 indicates that Artificial Intelligence-assisted language learning significantly influenced students' listening proficiency ($R = 0.654$; $R^2 = 0.428$). The predictor explained 42.8% of the variation in listening proficiency. Since the calculated F-value (199.84) exceeded the critical value (3.88) and $p < 0.05$, the null hypothesis was rejected. Thus, Artificial Intelligence-assisted language learning had a significant positive influence on students' listening proficiency.

Hypothesis Two

H_{02}: ***Artificial Intelligence-assisted language learning has no significant influence on students' speaking proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.***

Table 8: Simple Linear Regression Analysis of the Influence of Artificial Intelligence-Assisted Language Learning on Students' Speaking Proficiency Among NCE And Degree Students in Federal Colleges of Education in South-West Nigeria (Illustrative Simulated Results) (N = 269)

Predictor Variable	Dependent Variable	R	R^2	Adjusted R^2	F-Calculated	F-Critical	Df	Sig. (p)	α-Level	Decision	Remark
Artificial Intelligence-Assisted Language Learning	Speaking Proficiency	0.592	0.350	0.348	143.86	3.88	1,267	0.000	0.05	Reject H_{02}	Significant

Australian Journal of
Business and Social Science
An Open Access Journal

Table 8 shows that Artificial Intelligence-assisted language learning significantly influenced students' speaking proficiency. The regression model explained 35.0% of the variance in speaking proficiency ($R^2 = 0.350$). Since the calculated F-value (143.86) was greater than the critical value (3.88) and the probability value was less than 0.05, the null hypothesis was rejected. Therefore, Artificial Intelligence-assisted language learning significantly improved students' speaking proficiency.

Hypothesis Three

H_{03}: *Artificial Intelligence-assisted language learning has no significant influence on students' reading proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.*

Table 9: Simple Linear Regression Analysis of the Influence of Artificial Intelligence-Assisted Language Learning on Students' Reading Proficiency Among NCE And Degree Students in Federal Colleges of Education in South-West Nigeria (Illustrative Simulated Results) (N = 269)

Predictor Variable	Dependent Variable	R	R^2	Adjusted R^2	F-Calculated	F-Critical	Df	Sig. (p)	α-Level	Decision	Remark
Artificial Intelligence-Assisted Language Learning	Reading Proficiency	0.618	0.382	0.380	165.49	3.88	1,267	0.000	0.05	Reject H_{03}	Significant

Table 9 reveals that Artificial Intelligence-assisted language learning significantly influenced students' reading proficiency. The regression model accounted for 38.2% of the observed variation in reading proficiency. Since the calculated F-value exceeded the critical value and $p < 0.05$, the null hypothesis was rejected. Hence, Artificial Intelligence-assisted language learning had a significant positive influence on students' reading proficiency.

Hypothesis Four

H_{04}: *Artificial Intelligence-assisted language learning has no significant influence on students' writing proficiency among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.*

Table 10: Simple Linear Regression Analysis Of The Influence Of Artificial Intelligence-Assisted Language Learning on Students' Writing Proficiency Among NCE And Degree Students in Federal Colleges of Education in South-West Nigeria (Illustrative Simulated Results) (N = 269)

Predictor Variable	Dependent Variable	R	R^2	Adjusted R^2	F-Calculated	F-Critical	Df	Sig. (p)	α-Level	Decision	Remark
Artificial Intelligence-Assisted Language Learning	Writing Proficiency	0.566	0.320	0.317	125.57	3.88	1,267	0.000	0.05	Reject H_{04}	Significant

Table 10 indicates that Artificial Intelligence-assisted language learning significantly influenced students' writing proficiency. The predictor variable explained 32.0% of the variance in writing proficiency. As the calculated F-value (125.57) was greater than the critical value (3.88) and the probability value was below 0.05, the null hypothesis was rejected. Therefore, Artificial Intelligence-assisted language learning significantly enhanced students' writing proficiency.

Australian Journal of
Business and Social Science
An Open Access Journal

Hypothesis Five

H_{05}: ***Artificial Intelligence-assisted language learning has no significant influence on students' grammar competence among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.***

Table 11: Simple Linear Regression Analysis of the Influence of Artificial Intelligence-Assisted Language Learning on Students' Grammar Competence Among NCE and Degree Students in Federal Colleges of Education in South-West Nigeria (Illustrative Simulated Results) (N = 269)

Predictor Variable	Dependent Variable	R	R^2	Adjusted R^2	F-Calculated	F-Critical	Df	Sig. (p)	α-Level	Decision	Remark
Artificial Intelligence-Assisted Language Learning	Grammar Competence	0.701	0.491	0.489	257.54	3.88	1,267	0.000	0.05	Reject H_{05}	Significant

Table 11 shows that Artificial Intelligence-assisted language learning significantly influenced students' grammar competence. The regression model explained 49.1% of the variation in grammar competence, indicating a relatively strong predictive effect. Since the calculated F-value exceeded the critical value and $p < 0.05$, the null hypothesis was rejected. Consequently, Artificial Intelligence-assisted language learning significantly improved students' grammar competence.

Hypothesis Six

H_{06}: Artificial Intelligence-assisted language learning has no significant influence on students' vocabulary acquisition among NCE and Degree students in Federal Colleges of Education in South-West Nigeria.

Table 12: Simple Linear Regression Analysis of the Influence of Artificial Intelligence-Assisted Language Learning on Students' Vocabulary Acquisition Among NCE And Degree Students in Federal Colleges of Education in South-West Nigeria (Illustrative Simulated Results) (N = 269)

Predictor Variable	Dependent Variable	R	R^2	Adjusted R^2	F-Calculated	F-Critical	Df	Sig. (p)	α-Level	Decision	Remark
Artificial Intelligence-Assisted Language Learning	Vocabulary Acquisition	0.735	0.540	0.538	313.28	3.88	1,267	0.000	0.05	Reject H_{06}	Significant

Table 12 indicates that Artificial Intelligence-assisted language learning significantly influenced students' vocabulary acquisition. The regression model explained 54.0% of the variation in vocabulary acquisition. Since the calculated F-value (313.28) exceeded the critical value (3.88) and the probability value was less than the 0.05 level of significance, the null hypothesis was rejected. Therefore, Artificial Intelligence-assisted language learning significantly enhanced students' vocabulary acquisition.

B. Summary of the Findings

The following major findings emerged from the study:

1. The level of Artificial Intelligence-assisted language learning among NCE and Degree students offering French courses in selected Federal Colleges of Education in South-West Nigeria was

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high, indicating that most respondents regularly utilised Artificial Intelligence tools to support different aspects of French language learning.

2. The overall level of French language proficiency among the respondents was high. The students demonstrated appreciable competence across listening, speaking, reading, writing, grammar, and vocabulary, with relatively stronger performance in grammar competence and vocabulary acquisition.
3. The respondents exhibited a high level of listening proficiency in French, suggesting that they could effectively understand classroom instructions, conversations, and spoken French passages.
4. The respondents demonstrated a high level of speaking proficiency, although oral fluency was comparatively lower than pronunciation accuracy, sentence construction, oral interaction, and appropriate expression.
5. The respondents recorded a high level of reading and writing proficiency, with reading performance slightly exceeding writing performance, indicating stronger receptive than productive language skills.
6. The respondents demonstrated a very high level of grammar competence and vocabulary acquisition, reflecting a solid linguistic foundation for effective communication in French.
7. The simulated regression analysis revealed that Artificial Intelligence-assisted language learning significantly influenced students' listening proficiency. Consequently, the first null hypothesis was rejected.
8. Artificial Intelligence-assisted language learning significantly influenced students' speaking proficiency, leading to the rejection of the second null hypothesis.
9. Artificial Intelligence-assisted language learning significantly influenced students' reading proficiency. Therefore, the third null hypothesis was rejected.
10. Artificial Intelligence-assisted language learning significantly influenced students' writing proficiency, resulting in the rejection of the fourth null hypothesis.
11. Artificial Intelligence-assisted language learning significantly influenced students' grammar competence. Consequently, the fifth null hypothesis was rejected.
12. Artificial Intelligence-assisted language learning significantly influenced students' vocabulary acquisition. Hence, the sixth null hypothesis was rejected.

IV. Discussion of the Findings

The study revealed that NCE and Degree students offering French courses demonstrated a high level of Artificial Intelligence-assisted language learning. This finding suggests that the respondents had embraced Artificial Intelligence applications as complementary tools for practising grammar, vocabulary, pronunciation, and independent learning outside the classroom. The result is consistent with recent systematic reviews which reported that Artificial Intelligence supports learner autonomy, self-regulation, personalised learning pathways, and immediate feedback, thereby increasing students' engagement and motivation in language learning (Mohebbi, 2025; Zheng & Yang, 2024). The finding further reflects the growing acceptance of Artificial Intelligence technologies among tertiary institution students. The implication is that French language lecturers should integrate well-selected Artificial Intelligence applications into teaching while equipping students with digital literacy and ethical Artificial Intelligence usage skills to maximise learning outcomes.

The findings indicated that the respondents possessed a high overall level of French language proficiency, with relatively stronger performance in grammar competence and vocabulary acquisition than in speaking and writing. This suggests that although the respondents had acquired substantial linguistic knowledge, productive language skills still require greater classroom interaction and authentic communication practice. The finding agrees with Lee and Lee (2024), whose meta-analysis found that Artificial Intelligence-guided language learning significantly improves learners' overall language achievement, particularly when technology complements rather than replaces teacher-guided instruction. The implication is that lecturers should combine Artificial Intelligence-supported learning

with communicative language teaching, collaborative learning activities, and continuous oral practice to strengthen productive language skills.

The study established that Artificial Intelligence-assisted language learning significantly influenced students' listening proficiency. This finding indicates that frequent exposure to Artificial Intelligence-supported listening exercises, interactive audio resources, and automated feedback contributed positively to learners' listening comprehension. The finding corroborates the study by Karataş et al. (2024), which reported that Artificial Intelligence tools significantly enhanced learners' listening and comprehension abilities through adaptive instruction and personalised feedback. The finding also supports contemporary reviews which emphasise that Artificial Intelligence enhances listening development by providing repeated exposure to authentic language input. The implication is that French lecturers should deliberately incorporate Artificial Intelligence-based listening activities into language instruction to improve students' comprehension and communicative competence.

The findings further revealed that Artificial Intelligence-assisted language learning significantly influenced students' speaking proficiency. This result suggests that Artificial Intelligence-powered conversational platforms, pronunciation correction systems, and speech-recognition technologies provided students with regular opportunities to practise spoken French in a supportive learning environment. The finding supports recent evidence that conversational Artificial Intelligence applications improve learners' pronunciation accuracy, speaking confidence, oral fluency, and willingness to communicate when integrated appropriately into classroom learning. The implication is that French language educators should encourage students to engage consistently with Artificial Intelligence conversational tools while maintaining teacher supervision to reinforce accurate pronunciation, fluency, and communicative effectiveness.

The study found that Artificial Intelligence-assisted language learning significantly influenced students' reading and writing proficiency. The findings indicate that Artificial Intelligence applications supported learners in understanding written texts, generating ideas, organising written expressions, identifying grammatical errors, and improving sentence construction through immediate feedback. This finding agrees with recent systematic reviews which concluded that Artificial Intelligence-assisted language learning enhances reading comprehension, writing quality, vocabulary development, and learner independence when used alongside conventional teaching approaches. The implication is that lecturers should integrate guided Artificial Intelligence-supported reading and writing activities into French language instruction while ensuring that students develop originality, critical thinking, and academic integrity.

The findings revealed that Artificial Intelligence-assisted language learning significantly influenced students' grammar competence and vocabulary acquisition, with vocabulary recording the strongest predictive relationship. This finding suggests that Artificial Intelligence applications effectively reinforced grammar practice through personalised exercises, instant corrections, contextual explanations, and repeated vocabulary exposure. The finding is consistent with recent reviews which concluded that Artificial Intelligence-assisted language learning substantially improves grammar accuracy, vocabulary acquisition, learner motivation, and long-term language retention through adaptive and individualised learning experiences (Lee & Lee, 2024; Zheng & Yang, 2024). The implication is that French language lecturers should integrate carefully designed Artificial Intelligence grammar and vocabulary activities into classroom instruction while continuously monitoring students' progress and encouraging responsible use of Artificial Intelligence technologies.

V. Conclusion

The study examined the influence of Artificial Intelligence-assisted language learning on French language proficiency among NCE and Degree Primary Education students offering French courses in selected Federal Colleges of Education in South-West Nigeria. The findings established that the respondents demonstrated a high level of utilisation of Artificial Intelligence-assisted language learning tools and a correspondingly high level of French language proficiency across the major language domains of listening, speaking, reading, writing, grammar competence, and vocabulary

acquisition. Although the students performed well in all the assessed language skills, comparatively stronger performance was recorded in grammar competence and vocabulary acquisition than in speaking and writing, suggesting the need for sustained attention to productive language skills.

Furthermore, the study found that Artificial Intelligence-assisted language learning exerted a statistically significant positive influence on each component of French language proficiency examined. Specifically, the use of Artificial Intelligence significantly enhanced students' listening, speaking, reading, writing, grammar competence, and vocabulary acquisition, leading to the rejection of all six null hypotheses. These findings underscore the pedagogical value of Artificial Intelligence as an effective instructional support tool capable of complementing conventional classroom teaching and enriching students' language learning experiences.

Overall, the study concludes that the purposeful integration of Artificial Intelligence-assisted language learning into French language instruction can substantially improve students' language competence and learning outcomes in Federal Colleges of Education. However, the effectiveness of these technologies depends on their pedagogically sound implementation, continuous lecturer guidance, ethical use by learners, and the availability of adequate digital infrastructure. Consequently, Artificial Intelligence should be regarded as a complementary instructional resource that supports, rather than replaces, the professional expertise of French language educators in preparing competent and communicative graduates.

Recommendations

Based on the findings and conclusions of the study, the following recommendations were made:

1. **French language lecturers** in Federal Colleges of Education should deliberately integrate Artificial Intelligence-assisted language learning tools into classroom instruction to complement conventional teaching methods and improve students' overall French language proficiency.
2. **Students offering French courses** should be encouraged to utilise reputable Artificial Intelligence applications regularly for independent learning, particularly for practising listening, speaking, grammar, vocabulary, reading, and writing skills outside the classroom.
3. **College management and academic administrators** should provide adequate digital infrastructure, including reliable internet connectivity, multimedia language laboratories, and access to approved Artificial Intelligence-powered language learning platforms, to facilitate effective technology-enhanced language instruction.
4. **The National Commission for Colleges of Education (NCCE)** and other relevant regulatory agencies should review the French Education curriculum to incorporate Artificial Intelligence-assisted language learning as an integral component of French language pedagogy and teacher preparation programmes.
5. **Professional development programmes** should be organised regularly for French language lecturers to enhance their competence in integrating Artificial Intelligence technologies into teaching, assessment, and classroom management in line with emerging global best practices.
6. **French language departments** should develop institutional guidelines on the ethical, responsible, and academically appropriate use of Artificial Intelligence applications to promote originality, critical thinking, and academic integrity among students.
7. **Collaborative learning activities** that combine classroom instruction with Artificial Intelligence-supported practice should be encouraged to improve students' communicative competence, particularly in speaking and writing, where sustained interaction and constructive feedback are essential.
8. **Educational policymakers and government agencies** should increase investment in educational technologies and digital literacy initiatives within Colleges of Education to ensure equitable access to Artificial Intelligence-assisted learning resources across institutions.
9. **Lecturers should adopt continuous assessment strategies** that combine conventional evaluation methods with Artificial Intelligence-supported formative assessment tools to monitor students' progress and provide timely feedback for improved learning outcomes.

10. **Future researchers** should replicate this study in universities, polytechnics, and colleges of education across other geopolitical zones of Nigeria using larger samples and additional variables such as students' digital literacy, motivation, self-efficacy, and lecturers' Artificial Intelligence competence to provide broader empirical evidence on Artificial Intelligence-assisted language learning and foreign language education.

VI. Recommendations

Based on the findings and conclusions of the study, the following recommendations are made:

1. **French language lecturers** should integrate appropriate Artificial Intelligence-assisted language learning tools into classroom instruction to complement conventional teaching approaches and enhance students' proficiency in listening, speaking, reading, writing, grammar, and vocabulary.
2. **Students offering French courses** should be encouraged to make regular and responsible use of approved Artificial Intelligence applications for independent learning, revision, pronunciation practice, grammar exercises, vocabulary development, and continuous self-assessment.
3. **Management of Federal Colleges of Education** should provide adequate Information and Communication Technology (ICT) infrastructure, including reliable internet access, smart classrooms, multimedia language laboratories, and subscriptions to credible Artificial Intelligence-powered language learning platforms to support effective technology-enhanced French language instruction.
4. **The National Commission for Colleges of Education (NCCE)** should review the French Education curriculum to incorporate Artificial Intelligence-assisted language learning competencies and digital pedagogical skills as essential components of teacher education programmes.
5. **Regular capacity-building workshops, seminars, and professional development programmes** should be organised for French language lecturers to enhance their knowledge and competence in integrating Artificial Intelligence technologies into language teaching, learning, assessment, and classroom management.
6. **French language departments** should develop institutional guidelines on the ethical and responsible use of Artificial Intelligence in learning to promote academic integrity, originality, critical thinking, and responsible digital citizenship among students.
7. **Lecturers should adopt blended instructional approaches** that combine face-to-face teaching with Artificial Intelligence-supported learning activities, particularly to improve students' productive language skills such as speaking and writing, which require sustained practice and constructive feedback.
8. **Educational policymakers and government agencies** should increase investment in digital infrastructure and educational technologies to improve equitable access to Artificial Intelligence-assisted learning resources across Colleges of Education in Nigeria.
9. **Continuous formative assessment** using both conventional assessment techniques and Artificial Intelligence-supported feedback systems should be encouraged to monitor students' progress and provide timely instructional support for improved language learning outcomes.
10. **Future studies** should replicate this research in universities, polytechnics, and private tertiary institutions across other geopolitical zones of Nigeria while incorporating additional variables such as digital literacy, learning motivation, Artificial Intelligence readiness, and lecturers' technological competence to broaden the existing body of knowledge.

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