© MAY 2026 | IRE Journals | Volume 9 Issue 11 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I11-1718290

Artificial Intelligence as a Transformative Tool to Improve Students' English Oral Communication in Sudan Higher Education

AZZA ELMADANI[1], MUDATHIR YOUSIF MOHAMED AHMED[2], SALMA MOHAMMED OSMAN ELIAS[3], ROMYSA SAMEER SHAIKIDRESS[4], JEHAN ADLI TAWFIQ[5]
[1]*Assistant professor, Ahfad University Women, Sudan*
[2]*Assistant professor, City University Ajman, UAE*
[3]*Lecturer, City University Ajman, UAE*
[4]*Ahfad University Women, Sudan*
[5]*Ahfad University for Women*

Abstract*—The application of AI in CALL has recently accelerated its advancement; nevertheless, empirical studies investigating the potential role of AI in enhancing learners' oral communication skills have been quite rare. The situation becomes even worse regarding EFL learners in higher education settings who are significantly impacted by the educational disruptions due to the present crisis and war situation in Sudan. In such an environment, AI tools appear as a promising alternative to continue communicating and developing language skills. In this context, the current study investigates how undergraduate students utilize AI technologies and whether the utilization is beneficial for English oral communication skill enhancement during educational disruption periods in the Sudanese context. The study uses a quantitative survey design collecting responses from 100 participants studying English communication and English-medium subjects at university. Structural Equation Modeling (SEM) was applied to analyze associations between AI utilization, perception of AI by learners (usefulness, ease of use, and instructional value), and self-perceived improvements in the skills of pronunciation, clarity, fluency, confidence, and communication. The results showed a high level of AI utilization among participants and positive correlations between AI technologies and self-improvement in oral communication skills. The findings also emphasize the significance of perceptual, motivational, and emotional aspects of AI-supported oral communication learning, especially within environments experiencing educational instability and emergency conditions for online learning. This study adds to the existing literature on language learning using AI technologies by presenting data from an environment impacted by conflict and focusing on the value of AI tools in maintaining educational continuity and developing English oral communication skills amid crisis conditions.

***Keywords:* artificial intelligence, oral communication, speaking skills, CALL, EFL, Sudan higher education**

I. INTRODUCTION

1.1 Oral English Communication for EFL Learners in Sudan Higher Education

The development of oral communication skills is a central goal of English language education in higher education, particularly in English-medium instruction (EMI) environments. University students are increasingly required to demonstrate spoken proficiency and effectively English for academic purposes within English-medium instructional settings, including participating in lectures and seminars, delivering oral presentations, collaborative tasks, engaging in group and/or academic discussions, professional communication and interacting with instructors and peers. This ability involves the appropriate use of fluency, grammatical accuracy, pronunciation, listening comprehension, and discourse management skills necessary for successful academic participation in multilingual and multicultural university contexts. *(Adapted from Richards, 2008).* In an English for Foreign Language (EFL) setting, the chances for extensive speaking practice as well as personalized feedback are constrained by larger class sizes, limitations of curriculum, and affective blocks on the part of the learner, such as anxiety and lack of self-confidence. Thanks to the recent developments in artificial intelligence (AI), there is hope that many of these problems can be alleviated using AI-powered speech recognition programs, applications for pronunciation practice, conversational chatbots, and generative role-playing platforms. Consequently, AI has been receiving more attention in CALL research. Although there is much interest in the topic, little research has been done on how AI can enhance speaking development, especially in an academic

EFL setting. Most of the previous work in AI-based CALL has paid attention to vocabulary, grammar, writing, and reading skills, with little focus on oral communication skills. Moreover, research conducted in North Africa countries, such as the Sudan, is less prevalent, despite the focus on digital innovation and AI-based instruction within higher education institutions in the area. The current study aims at filling some of these gaps through exploring the use of AI as a tool for enhancing oral communication skills among college students in Sudan. Specifically, this paper attempts to explore how AI is used by learners in their oral English classes and what students' perceptions of AI-based learning are like.

II. LITERATURE REVIEW

2.1 English Oral Communication in Higher Education

There are many elements that enhance the efficacy of oral communication. They include clearness, fluency, pronunciation, self-assurance, and audience interaction. It is essential to have strong oral communication skills to succeed in one's studies at higher levels of education. Foreign learners of English language do not have opportunities for authentic practice and personalized feedback.

2.2 Artificial Intelligence in Language Learning

The use of AI technologies for teaching language skills has become more prevalent using speech recognition technology for pronunciations, intelligent tutoring systems, chatbots, and generative AI tools. The above AI tools help learners engage in constant practice, receive timely corrections, and simulate interaction, all of which are not easily possible in regular classroom settings.

2.3 SLA and CALL Theoretical Foundations

Speaking practice assisted by AI is also consistent with important Second Language Acquisition (SLA) theories like Interaction Hypothesis, Output Hypothesis, and Noticing Hypothesis. The use of AI ensures that learners get comprehensible input, require output from themselves, and engage in noticing activities.

2.4 Learner Perceptions and Technology Acceptance

In Computer Assisted Language Learning (CALL), it is evident that learners' perceptions have always been considered crucial when using the technology and its effect on learners. Such variables include perceived usefulness, ease of use, and instructional value, which enhance learner motivation and consistent practice through AI language learning.

2.5 AI in Sudan Higher Education

Characteristics of Sudanese higher education include multilingualism among its students, English-based teaching, and favorable conditions for computer-assisted learning, which makes Sudan especially suitable for researching oral language development assisted by artificial intelligence.

2.6 Online Learning and Artificial Intelligence Usage in Sudan During the War

The recent conflict in Sudan has adversely affected the higher education sector, whereby many institutions have seen their face-to-face teaching and learning processes interrupted due to various disruptions. Several universities saw the closure of their operations, displacement of learners and tutors, and the imposition of significant barriers in accessing their physical educational infrastructures. As a way of overcoming this disruption, institutions of higher learning were compelled to embrace online learning tools that would assist them in maintaining some form of instructional process. Indeed, this was the trigger for the adoption of technology-mediated learning, where institutions had to adopt AI-supported educational practices in order to facilitate continuous teaching and learning processes. In this regard, online learning environments became important tools that enabled learners and educators to engage in instruction remotely using various online media. For instance, students engaged in learning through the use of videoconferencing, learning management systems, mobile communication apps, cloud-based educational sources, and other technology-mediated learning tools amid the lack of face-to-face instruction. Increased reliance on distant learning was yet another factor that led to higher levels of engagement with AI-based educational technologies. Learners started using AI technology including automatic translation software, pronunciation applications, conversational chatbots, speech recognition software, and generative AI technologies to facilitate self-study processes. Such AI-based technologies were easily accessible means of practicing English language speaking skills in those cases when there was little chance for learners to communicate directly in class.

Moreover, AI technology was quite helpful for English speaking skill improvement as these tools

allowed users to practice their speaking skills repeatedly and get feedback instantaneously. In conflict-torn educational environments when teachers' presence and continuity of teaching process can become problematic for learners, use of AI-based technologies would provide additional learning opportunities for learners, which could be taken advantage of independently. In addition, the extensive use of distance learning amid the Sudan war revealed the significance of learner autonomy and approaches to self-directed learning. The learners had to be more responsible and self-reliant regarding the organization of their studying time. At the same time, they had to utilize additional digital resources outside traditional classroom settings. Thus, it could be presumed that tools for AI-supported language learning are essential for sustaining English language learning amid educational disruptions. At present, not much empirical research has been dedicated to investigating how students in Sudan and other regions affected by conflicts benefit from applying AI tools to learn oral communication. While numerous studies on artificial intelligence in language learning were conducted in a stable educational context with advanced technological support, very few attempts have been made to focus on emergency and unstable conditions. Therefore, the experiences of students amid the Sudan war offer an insightful perspective for the further exploration of the topic of the importance of artificial intelligence in promoting oral communication learning in difficult educational conditions. This area of inquiry will help advance current debates on educational resilience, digital transformation, and technology-assisted continuity of education.

2.6 Research Gaps

The review shows that there is a requirement for: (a) empirical research on AI-enabled speech learning, (b) research conducted in EFL settings within North Africa , and (c) quantitative analyses investigating the mediating effects of learner perceptions.

III. STUDY QUESTIONS

1. How frequent is the use of AI tools for oral communication in English among Sudanese university students?
2. What are the perceptions of students regarding the usefulness, availability, and teaching value of AI tools?
3. To what extent can AI use predict gains in English oral communication competence?
4. Is there a mediating role of learner perception between AI use and oral communication improvement?

IV. STUDY HYPOTHESES

1. The use of AI technology is common among Sudanese university learners.
2. Positive learner perceptions correlate with better oral communication.
3. The use of AI technology correlates positively with better oral communication.
4. Learner perceptions mediate the correlation between AI technology use and improved oral communication.

V. METHODOLOGY

5.1 Research Design

Survey design was quantitative and cross-sectional.

5.2 Participants

The participants were 380 undergraduates from five Sudanese universities who took part in English communication or EMI programs.

5.3 Instrument

Google forms questionnaire was used to assess artificial intelligence use, perception (usefulness, ease of use, educational worthiness), and oral communication benefits (clearness, fluency, pronunciation, confidence, audience interaction).

5.4 Validity and Reliability

Content and construct validity were determined through expert assessment and confirmatory factor analysis. The values for Cronbach’s alpha coefficients were between .87 and .93.

5.5 Data Analysis

SPSS and AMOS software were used to analyze data. Descriptive statistics, correlation, CFA, SEM, and mediation analyses were performed.

VI. RESULTS

Findings revealed high levels of AI usage, positive attitudes towards learning, and substantial direct and indirect effects of AI usage on oral communication improvement. In the SEM analysis, findings showed good model fit and partial mediation by learners' attitudes towards learning.

© MAY 2026 | IRE Journals | Volume 9 Issue 11 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I11-1718290

Variable	Category	n	%
Gender	Female	236	62.1
	Male	144	37.9
Age	17–19	118	31.1
	20–22	186	48.9
	23–28	76	20.0
Academic Major	Business	114	30.0
	Engineering	96	25.3
	Humanities	92	24.2
	Health Sciences	78	20.5
English Proficiency (Self-rated)	A2–B1	142	37.4
	B2	158	41.6
	C1	80	21.0

Table (1) Shows Participant Demographic Characteristics (N = 380)

AI Tool Type	n	%
ASR Pronunciation Applications	255	67.1
AI Pronunciation Feedback Tools	222	58.4
Chatbots for Conversation Practice	200	52.6
Generative AI Role-play Tools	175	46.1
Virtual Reality Speaking Tools	49	12.9

Table (2) Shows Types of AI Tools Used for English Oral Communication

Construct	Mean	SD
AI Usage	3.41	1.10
Perceived Usefulness	3.88	0.79
Ease of Use	4.02	0.72
Instructional Value	3.91	0.82
Oral Communication Improvement	3.76	0.77

Table (3) Descriptive Statistics of Main Constructs

Construct	Cronbach's α	CR	AVE
AI Usage	.84	.86	.54
AI Perceptions	.91	.92	.60
Oral Communication Outcomes	.92	.93	.63

© MAY 2026 | IRE Journals | Volume 9 Issue 11 | ISSN: 2456-8880
DOI: https://doi.org/10.64388/IREV9I11-1718290

CR = Composite Reliability; AVE = Average Variance Extracted.

Table (4) Shows Reliability and Validity Statistics

Variable	1	2	3
1. AI Usage	—		
2. AI Perceptions	.48**	—	
3. Oral Communication Outcomes	.34**	.56**	—

Table (5) Shows Pearson Correlations Among Latent Constructs

Hypothesized Path	β	P	Result
AI Usage → AI Perceptions	.48	< .001	Supported
AI Perceptions → Oral Communication	.56	< .001	Supported
AI Usage → Oral Communication	.21	< .01	Supported

Table (6) Shows Structural Equation Model Results

Path	Indirect Effect (β)	95% CI	Mediation
AI Usage → AI Perceptions → Oral Communication	.27	[.18, .39]	Partial

Table (7) Shows Mediation Analysis Results

Figures

Figure (1) shows Conceptual Framework of AI-Supported English Oral Communication

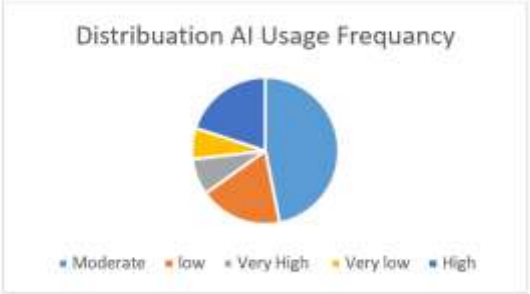

Figure (2) shows Distribution of AI Usage Frequency

VII. DISCUSSION

The findings reveal that there is an important role played by the AI-assisted software to improve English oral communication where the participants viewed them as relevant to their learning. The findings are congruent with theories on SLA and CALL with emphasis placed on affective and perceptual aspects of language learning.

7.1 Relevance to Higher Education

The use of AI-powered oral communication tools is especially relevant to universities because they enhance classroom-based training while also offering extra chances to practice communication skills outside the classroom. Such tools may be especially relevant in scenarios involving online education, disruption of education, or reduced in-person interactions, as in cases of emergency remote learning situations due to crises or conflicts. AI-powered communication tools can thus be seen as essential assets for developing oral communication skills in English in the modern university environment.

VIII. CONCLUSION AND IMPLICATIONS

From this study, it is evident that AI can be used to enhance English speaking skills in UAE universities. The pedagogical implications from this study

indicate that AI tools can be incorporated in speaking syllabuses through a hybrid CALL approach. Among the limitations of this study are self-reporting and the use of cross-sectional data.

REFERENCES

[1] Bibauw, S., François, T., & Desmet, P. (2021). Conversational agents in language learning: State of the art, applications, and challenges. *Computer Assisted Language Learning, 34*(3), 1–28. https://doi.org/10.1080/09588221.2020.1751532

[2] Bygate, M. (2018). Learning language through task repetition. *Language Teaching*, *51*(4), 493–509. https://doi.org/10.1017/S026144481800019X

[3] Chapelle, C. A. (2001). *Computer applications in second language acquisition: Foundations for teaching, testing and research.* Cambridge University Press.

[4] Chapelle, C. A., & Jamieson, J. (2008). *Tips for teaching with CALL: Practical approaches to computer-assisted language learning.* Pearson Education.

[5] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340. https://doi.org/10.2307/249008

[6] Derwing, T. M., & Munro, M. J. (2015). *Pronunciation fundamentals: Evidence-based perspectives for L2 teaching and research.* John Benjamins.

[7] Godwin-Jones, R. (2018). Using mobile technology to develop language skills and cultural understanding. *Language Learning & Technology, 22*(3), 1–17.

[8] Godwin-Jones, R. (2022). Chatbots and language learning: Emerging applications and opportunities. *Language Learning & Technology, 26*(2), 1–12.

[9] Goh, C. C. M., & Burns, A. (2012). *Teaching speaking: A holistic approach.* Cambridge University Press.

[10] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage.

[11] Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal, 70*(2), 125–132. https://doi.org/10.2307/327317

[12] Hubbard, P. (2017). Evaluation of CALL: Foundations and framework. *CALICO Journal, 34*(1), 1–24. https://doi.org/10.1558/cj.29585

[13] Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.

[14] Krashen, S. D. (1982). *Principles and practice in second language acquisition.* Pergamon.

[15] Lee, J. (2022). Effects of automated corrective feedback on EFL learners' speaking accuracy. *Computer Assisted Language Learning*, *35*(7), 1305–1328. https://doi.org/10.1080/09588221.2020.1868534

[16] Li, Z. (2021). Automatic speech recognition in second language pronunciation assessment: A meta-analysis. *Language Learning & Technology, 25*(3), 1–17.

[17] Long, M. H. (1996). The role of the linguistic environment in second language acquisition. In W. C. Ritchie & T. K. Bhatia (Eds.), *Handbook of second language acquisition* (pp. 413–468). Academic Press.

[18] Mirza, A. A., & Al-Abri, M. (2019). Teachers' professional development in the digital age: A UAE perspective. *Journal of Education and Learning, 8*(4), 1–10.

[19] Neri, A., Cucchiarini, C., & Strik, H. (2022). Automatic speech recognition for pronunciation training: What learners perceive. *Computer Assisted Language Learning, 35*(5–6), 1012–1037. https://doi.org/10.1080/09588221.2019.1595664

[20] Schmidt, R. (1990). The role of consciousness in second language learning. *Applied Linguistics, 11*(2), 129–158. https://doi.org/10.1093/applin/11.2.129

[21] Stockwell, G., & Hubbard, P. (2013). Some emerging principles for mobile-assisted language learning. *The International Research Foundation for English Language Education*, 1–15.

[22] Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output. In S. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 235–253). Newbury House.

[23] Zhang, R., & Lin, C.-H. (2023). Artificial intelligence in second language education: A

systematic review. *Language Learning & Technology, 27*(1), 1–23.