DIGITAL TOOLS IN ENGLISH LANGUAGE TEACHING AND STUDENTS' LANGUAGE SKILLS DEVELOPMENT IN ENUGU STATE UNIVERSITIES

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Abstract

This study investigated the perceived contribution of digital tools to students' development of listening, speaking, reading, and writing skills in English Language teaching in universities in Enugu State, Nigeria. Four research questions and one null hypothesis guided the study. A convergent mixed-methods design was adopted. The population comprised 1,014 respondents, consisting of 851 students, 61 lecturers, and 102 technologists from the University of Nigeria, Nsukka and Enugu State University of Science and Technology. A quantitative sample of 435 respondents was selected using proportionate and simple random sampling for students and total enumeration for lecturers and technologists. Of the 435 questionnaires administered, 423 were correctly completed and retrieved, representing a 97.2% retrieval rate. Sixteen participants were purposively selected for interviews. Data were collected using the Digital Tools in English Language Teaching and Students' Language Skills Development Questionnaire (DTETLSDQ) and a semi-structured interview guide. The instruments were validated by three experts, while the questionnaire yielded an overall Cronbach's alpha coefficient of 0.88. Mean and standard deviation were used to answer the research questions, while one-way ANOVA tested the hypothesis at the 0.05 level. The findings revealed high perceived contributions of digital tools to listening, speaking, reading, and writing skills development. No significant difference was found among students', lecturers', and technologists' mean ratings. The study recommended stronger integration of digital tools with teacher guidance and opportunities for direct language interaction.

Keywords: digital tools, English Language teaching, listening skills, speaking skills, reading skills

Introduction

English language proficiency is central to students' academic participation and professional development in higher education. At university level, proficiency extends beyond grammar and vocabulary to effective listening, speaking, reading, and writing, which enable students to participate in academic communication and access knowledge. The growing use of technology in education has created additional opportunities to develop these skills through wider access to language materials, practice activities, and interaction with English beyond the conventional classroom (Tamim et al., 2011; Li & Lan, 2022; Hasumi & Chiu, 2024). Digital tools have therefore become increasingly relevant to contemporary English language teaching.

Digital tools in language education include digital language laboratories, multimedia resources, online learning platforms, electronic dictionaries, word-processing applications, pronunciation and speech-recognition systems, digital texts, and mobile learning applications. These technologies can extend learning beyond the classroom by enabling students to access materials, practise skills, and revisit difficult content at their own pace. Research shows that digital language learning can influence how learners engage with language input and resources, while recent reviews highlight the expanding role of technology-enhanced language learning in English education (Li & Lan, 2022; Hasumi & Chiu, 2024). However, technology is most valuable when appropriately

integrated into teaching and learning rather than simply made available (Tamim et al., 2011). It can support learner-centred teaching and blended learning by creating additional opportunities for engagement, provided institutional and user-related conditions are addressed (La Fleur & Dlamini, 2022; Anthony et al., 2022; Anthony Jnr, 2024).

This is particularly important in language teaching because proficiency requires sustained exposure to language input and regular practice. Digital resources can supplement classroom activities by providing additional exposure to spoken and written English. Language laboratories, for instance, have long supported listening and oral practice, while contemporary digital laboratories offer multimedia resources, recording facilities, and interactive activities (Adamu & Umar, 2018; Basu, 2021). Their contribution to language-skill development and oral English learning has also been documented (Krishna, 2021; Ajoko et al., 2023). These developments provide a basis for considering the contribution of digital tools to the four major language skills. For listening, digital audio and video resources provide repeated exposure to spoken English and allow students to revisit difficult materials, potentially improving familiarity with pronunciation, intonation, speed, accent, and spoken information. Developments in computer-assisted and AI-supported language learning have further expanded opportunities for interactive practice (Bahari et al., 2025). For speaking, digital technologies can support pronunciation practice, speech recording, automated feedback, and simulated interaction. Studies have reported positive effects of educational technology on speaking performance and identified benefits of automatic speech recognition for willingness to communicate and interactional development (Asratie et al., 2023; Jiang et al., 2023). AI-supported conversational and speech-evaluation systems have further expanded opportunities for oral practice and feedback (Wang et al., 2023; Dai & Wu, 2025), although such tools complement rather than replace authentic interaction with teachers and peers.

Digital tools can similarly support reading by providing access to electronic texts, dictionaries, search functions, annotation tools, and multimedia explanations. These resources can assist students in locating information, identifying main ideas, interpreting unfamiliar vocabulary, and processing written materials (Li & Lan, 2022; Nurmala et al., 2023). For writing, word processors, electronic dictionaries, grammar and spelling applications, digital feedback systems, and collaborative platforms can support planning, drafting, editing, and revision. Recent evidence indicates that digital educational tools can enhance participation and language-skill development in higher education, while AI-driven tools provide further opportunities for engagement and personalised learning (Liu, 2025; Zhao, 2025). Thus, digital tools can support both receptive and productive language skills, although their contribution may vary according to the technology and skill involved.

The contribution of digital tools cannot, however, be assumed simply because the technologies are available. Their use is influenced by perceived usefulness, ease of use, digital competence, accessibility, institutional support, and other contextual conditions. Interestingly, studies in higher education have likewise identified institutional and technological factors affecting digital technology adoption and students' acceptance of mobile and e-learning technologies (Almaiah et al., 2022; Al-Rahmi et al., 2019, 2022; Mailizar et al., 2021). Understanding the contribution of digital tools therefore requires attention to how they are actually experienced and used within particular educational contexts. This issue is particularly relevant to Nigerian universities, where digital technology use in teaching has expanded but remains influenced by differences in resources, institutional capacity, and users' technological competence. Nigerian studies have examined Web 2.0 technologies, open educational resources, interactive whiteboards,

and technology-enhanced learning platforms in tertiary education (Ojo et al., 2019; Ojo et al., 2020; Olelewe & Okwor, 2017). Research has also examined the utilisation of technology-enhanced learning tools among Nigerian tertiary educators (Ohanu et al., 2024). In Enugu State, ICT integration into university lecturers' instructional practices has similarly been investigated, demonstrating the growing relevance of digital technologies to university teaching in the state (Ojo et al., 2024). Within English language education, CALL has also been used to promote classroom interaction in Nigerian universities (Ossai et al., 2020).

Despite this growing body of research, limited context-specific evidence brings together the perceived contribution of digital tools to listening, speaking, reading, and writing within the same university setting. This gap is important because technologies may support the four skills differently. Audio and video resources may particularly support listening, speech-recognition applications may facilitate pronunciation and oral practice, digital texts and reference tools may support reading, while word-processing and feedback applications may assist writing. Students, lecturers, and technologists/instructors may also experience the same technologies differently because of their distinct roles in the instructional process. Research on technology acceptance showed that attitudes, perceived usefulness, ease of use, and contextual conditions can shape users' experiences with educational technologies (Naveh & Shelef, 2021; Xue et al., 2024).

The need to examine these issues has become more pressing with the rapid development of artificial intelligence, automatic speech recognition, conversational systems, and other intelligent technologies in English language education (Wang et al., 2023; Dai & Wu, 2025; Zhao, 2025). Recent scholarship shows that technology-enhanced English language education is expanding, but context-sensitive research remains necessary to understand how these technologies contribute to language learning in particular educational settings (Hasumi & Chiu, 2024; Shruthi et al., 2025). Evidence from Nigerian universities, particularly institutions in Enugu State, can therefore provide a more grounded understanding of the educational value of digital tools. Digital tools have increasingly become part of English Language teaching, providing opportunities for access to instructional materials, language practice, interaction, and feedback. These tools include language laboratories, computer-assisted language learning (CALL), mobile technologies, online learning platforms, multimedia resources, and other digital instructional applications. Existing literature generally indicates that technology can support language learning, but the extent of its contribution depends on how the technology is integrated into instructional activities and whether its use is aligned with the learning objectives (Li & Lan, 2022; Hasumi & Chiu, 2024). This suggests that the educational value of digital tools should not be assessed merely in terms of their availability but in relation to how they are used to facilitate specific language-learning activities.

Studies on digital technology and language learning have reported positive outcomes, particularly in areas requiring repeated practice and access to language materials. Language laboratories, for example, provide opportunities for students to listen to recorded materials, practise pronunciation, repeat spoken expressions, and participate in oral activities. Adamu and Umar (2018) and Ossai et al. (2020) reported that computer-supported and laboratory-based resources could facilitate language learning activities. Similarly, Ajoko et al. (2023) found that language laboratories could support the teaching and learning of oral English in Nigerian schools. However, these studies largely focused on the usefulness or application of particular technologies rather than examining the contribution of a broader range of digital tools to students' overall language skills

development. This distinction is important because the use of a particular technology may produce different learning opportunities from the combined use of digital resources across listening, speaking, reading, and writing activities. Evidence from studies outside Nigeria also suggests that digital technologies can support language skills development, although the findings are not necessarily transferable to the Nigerian university context. Asratie et al. (2023), for example, reported positive outcomes for technology-supported speaking instruction among EFL learners, while Nurmala et al. (2023), through a meta-analysis, found positive contributions of technology-enhanced language learning to English language learning. These findings provide support for the educational potential of digital tools, but they also reveal a limitation in the existing evidence base. Much of the literature has investigated technology-enhanced learning in contexts where digital infrastructure, internet access, teacher preparation, and institutional support may differ considerably from those available in Nigerian universities. Consequently, findings from other educational contexts cannot automatically establish how digital tools contribute to language skills development among university students in Enugu State.

The literature on listening and speaking provides further evidence of the potential contribution of digital resources. Digital audio and multimedia materials can expose learners to spoken English and allow them to repeat listening activities at their own pace, while language laboratories can facilitate pronunciation and oral practice (Krishna, 2021; Basu, 2021). Speech-recognition technologies have also been reported to provide opportunities for learners to practise oral communication and receive feedback (Jiang et al., 2023; Wang et al., 2023). However, much of this research has concentrated on specific technologies or particular aspects of oral proficiency. The findings therefore provide evidence of the potential usefulness of digital tools but do not sufficiently explain whether students, lecturers, and technical personnel in Nigerian universities perceive such tools as contributing to the development of listening and speaking skills. Digital resources have similarly been associated with reading and writing development. Electronic texts, online learning platforms, digital libraries, interactive exercises, word-processing applications, and other digital resources can provide students with opportunities to access written materials, practise independently, revise written work, and receive feedback. Li and Lan (2022) noted that digital language learning can extend learners' engagement beyond conventional classroom activities, while Nurmala et al. (2023) reported an overall positive contribution of technology-enhanced language learning. Nevertheless, the existing literature provides limited evidence on how these resources are perceived to contribute specifically to reading and writing skills among university students in the Nigerian context. This is particularly relevant because the availability of digital resources does not necessarily guarantee their effective pedagogical use.

Another important issue emerging from the literature is that the effectiveness of digital tools is influenced by users' readiness and the conditions under which the tools are implemented. The Technology Acceptance Model identifies perceived usefulness and perceived ease of use as important factors in technology acceptance (Davis, 1989). Subsequent research has shown that technology adoption in higher education is also influenced by institutional and contextual conditions (Granić & Marangunić, 2019; Granić, 2022). Almaiah et al. (2022) identified several factors associated with the adoption of digital technologies in higher education, while Naveh and Shelef (2021) emphasised the importance of simplicity and ease of use in students' attitudes towards educational technologies. These findings imply that the contribution of digital tools cannot be separated from the capacity of institutions and users to employ them effectively.

The Nigerian context presents additional issues that warrant investigation. Research in Nigerian tertiary education has identified lecturers' technological competence and their capacity to use instructional technologies as important considerations in technology-supported teaching (Bakare et al., 2021; Ohanu et al., 2024). However, the available Nigerian studies have tended to focus on technology competence, availability, adoption, or the use of particular instructional technologies. There is comparatively limited empirical evidence that brings together the four major language skills—listening, speaking, reading, and writing and examines the perceived contribution of digital tools to their development within universities. More importantly, evidence specifically from universities in Enugu State is limited. The inclusion of technologists is also relevant to the present investigation. Unlike lecturers, whose primary responsibility is pedagogical instruction, technologists provide technical and operational support for instructional facilities. In a university setting, technologists may be responsible for supporting language laboratories, computers, audio-visual equipment, digital platforms, and other technology-based instructional facilities. Their perspectives can therefore provide information about the functionality, accessibility, and practical utilisation of digital resources that may not be fully captured through the views of students and lecturers alone. However, existing studies on digital language learning have rarely compared the perceptions of these three groups. This constitutes an additional gap that the present study seeks to address.

On the whole, the literature provides reasonable evidence that digital tools can create opportunities for language practice, access to learning resources, interaction, and feedback. However, the evidence is uneven across language skills, technologies, and educational contexts. Studies on listening and speaking have frequently focused on language laboratories, multimedia resources, or speech technologies, while studies on reading and writing have often examined digital texts, online platforms, or technology-enhanced learning more generally. In Nigeria, existing studies provide useful evidence concerning technology competence, instructional technology, and language laboratories, but they do not adequately establish the perceived contribution of digital tools across the four language skills in universities in Enugu State. The specific gap addressed by the present study is therefore threefold. First, there is limited empirical evidence from universities in Enugu State examining digital tools in relation to students' listening, speaking, reading, and writing skills collectively. Second, much of the existing Nigerian evidence focuses on the availability, adoption, competence, or use of particular technologies rather than the perceived contribution of digital tools to students' language skills development. Third, previous studies have given limited attention to whether students, English Language lecturers, and technologists hold similar or different perceptions of the contribution of these tools. The present study addresses these gaps by examining the perceived contribution of digital tools to students' listening, speaking, reading, and writing skills development in universities in Enugu State and by comparing the perceptions of students, lecturers, and technologists. Hence, it is against this background, the present study examined the perceived contribution of digital tools to students' listening, speaking, reading, and writing skills development in universities in Enugu State. It drew on the perspectives of students, lecturers, and technologists/instructors and combined quantitative and qualitative evidence to provide a broader account of their experiences. By examining the four language skills within the same context, the study provides empirical evidence to inform the pedagogical integration of digital tools in English language teaching and contribute to discussions on technology-enhanced language education in Nigerian higher education.**Purpose of the Study**

Purpose of the Study

The purpose of the study was to examine the perceived contribution of digital tools to students' language skills development in English Language teaching in universities in Enugu State. Specifically, the study sought to determine the:

1. perceived contribution of digital tools to students' listening skills development.
2. perceived contribution of digital tools to students' speaking skills development.
3. perceived contribution of digital tools to students' reading skills development.
4. perceived contribution of digital tools to students' writing skills development.

Research Questions

The study was guided by the following research questions:

1. What is the perceived contribution of digital tools to students' listening skills development?
2. What is the perceived contribution of digital tools to students' speaking skills development?
3. What is the perceived contribution of digital tools to students' reading skills development?
4. What is the perceived contribution of digital tools to students' writing skills development?

Hypothesis

The following null hypothesis was tested at the 0.05 level of significance:

H_{01}: There is no significant difference among the mean ratings of students, lecturers, and technologists on the perceived contribution of digital tools to students' language skills development.

Methods

The study adopted a convergent mixed-methods design to examine the perceived contribution of digital tools to students' language skills development in universities in Enugu State. Quantitative data were collected to determine the perceptions of students, lecturers, and technologists, while qualitative data were collected to obtain detailed explanations of participants' experiences with the use of digital tools in English Language teaching. The two strands were initially analysed separately. The qualitative findings were subsequently used to explain and contextualise the quantitative findings by comparing interview themes with the quantitative results for listening, speaking, reading, and writing skills. Areas of convergence and divergence between the two strands were considered in the interpretation of the findings. The study was conducted at the University of Nigeria, Nsukka (UNN) and Enugu State University of Science and Technology (ESUT), Enugu State, Nigeria. The two universities were selected because they are public universities in Enugu State where programmes relevant to English Language and English Education are offered. Their selection provided appropriate institutional settings for examining the use of digital tools in English Language teaching and students' language skills development.

The population comprised 1,014 respondents, consisting of 851 students and 163 personnel, including 61 lecturers and 102 technologists. The population figures were obtained from official university records for the 2025/2026 academic session. The lecturers comprised academic staff involved in teaching English Language or related courses within the relevant programmes. The technologists comprised technical personnel responsible for the operation, maintenance, management, or technical support of digital instructional facilities and equipment, including language laboratories, computers, audio-visual equipment, and other technology-based instructional resources. They were included

because their technical roles provided them with direct knowledge of the availability, functionality, accessibility, and use of digital tools supporting teaching and learning. A quantitative sample of 435 respondents was selected, comprising 272 students, 61 lecturers, and 102 technologists. The sample of 272 students was determined using Yamane's formula at a 0.05 level of precision. The students were selected through proportionate sampling across the two universities and relevant levels of study, followed by simple random sampling within the identified strata. The 61 lecturers and 102 technologists were selected through total enumeration because their numbers were manageable. Thus, the quantitative component did not employ convenience sampling. Of the 435 questionnaires administered, 423 were correctly completed and retrieved, comprising 264 students, 59 lecturers, and 100 technologists, representing a 97.2% retrieval rate. The 423 valid responses constituted the quantitative dataset analysed.

For the qualitative component, 16 participants were purposively selected from respondents who completed the questionnaire and indicated their willingness to participate in an interview. Selection was based on participants' experience with digital tools and their ability to provide detailed information relevant to the study. The participants were selected from the three respondent categories and the two universities to obtain varied perspectives on the use of digital tools in relation to listening, speaking, reading, and writing skills. The exact distribution of the 16 interview participants across students, lecturers, technologists, UNN, and ESUT should be inserted based on the actual interview records. Data were collected using a researcher-developed Digital Tools in English Language Teaching and Students' Language Skills Development Questionnaire (DTETLSDQ) and a semi-structured interview guide. The questionnaire comprised five sections. Section A elicited demographic information, while Sections B, C, D, and E measured perceived contribution of digital tools to students' listening, speaking, reading, and writing skills development, respectively. Sections B to E contained 8, 9, 7, and 10 items, respectively. The items were rated on a five-point scale ranging from Strongly Agree (5) to Strongly Disagree (1). The digital tools referred to in the questionnaire included language laboratories, computers, multimedia resources, mobile technologies, online learning platforms, and other relevant digital instructional resources used to support English Language teaching and learning. The questionnaire items were worded to measure perceived contribution rather than actual learning improvement. For example, items were framed in terms of whether digital tools "contribute to students' development" of a particular language skill. The semi-structured interview guide contained open-ended questions designed to obtain participants' experiences and perceptions concerning the contribution of digital tools to the four language skills.

The face and content validity of the instruments were established by three experts, two from the Department of Arts Education, and one from Research, Measurement and Evaluation Unit, Department of Science Education, Faculty of Education, University of Nigeria, Nsukka. The experts assessed the instruments for clarity, relevance, appropriateness, coverage of the study constructs, and alignment with the objectives and research questions. Their observations and recommendations were used to revise the instruments before final administration. The reliability of the questionnaire was established through a pilot test involving 30 respondents from a university outside the study area with characteristics similar to those of the study population. Cronbach's alpha coefficients of 0.86, 0.88, 0.84, and 0.87 were obtained for the listening, speaking, reading, and writing sections, respectively, with an overall reliability coefficient of 0.88, indicating satisfactory internal consistency. The researchers, assisted by trained research

assistants, administered 435 copies of the questionnaire to the sampled students, lecturers, and technologists during scheduled academic periods. Respondents completed the questionnaires independently, and the completed copies were retrieved immediately or at an agreed time. A total of 423 correctly completed questionnaires were retrieved, comprising 264 students, 59 lecturers, and 100 technologists. For the qualitative component, the 16 purposively selected participants were interviewed at mutually convenient times. With their consent, the interviews were audio-recorded and transcribed for analysis.

Quantitative data were analysed using mean and standard deviation to answer Research Questions 1 to 4. Mean scores of 4.50–5.00, 3.50–4.49, 2.50–3.49, 1.50–2.49, and 1.00–1.49 were interpreted as very high, high, moderate, low, and very low perceived contribution, respectively. One-way Analysis of Variance (ANOVA) was used to determine whether there was a significant difference among the mean ratings of students, lecturers, and technologists on the perceived contribution of digital tools to students' language skills development, thereby addressing Research Question 5 and testing the single null hypothesis at the 0.05 level of significance. The null hypothesis was rejected when the p-value was less than 0.05. Qualitative data were analysed thematically. The interview transcripts were read repeatedly, coded, and grouped into themes corresponding to listening, speaking, reading, and writing skills. The qualitative themes were compared with the quantitative findings for each language skill. Where the qualitative findings supported the quantitative results, they were used to explain and contextualise the observed ratings; where divergent views emerged; these were reported and considered in interpreting the quantitative findings. This procedure provided an integrated interpretation of the perceived contribution of digital tools to students' language skills development.

Results

Research Question One: What is the perceived contribution of digital tools to students' listening skills development?

Table 1: Mean Responses and Standard Deviations on the Perceived Contribution of Digital Tools to Students' Listening Skills Development

S/N	Students' Listening Skills Development	$\bar{X}$	SD	Decision
	Digital tools help students to:			
1	Understand spoken English more easily	4.18	0.71	High
2	Identify key information in spoken English	4.12	0.73	High
3	Distinguish similar English sounds	4.05	0.76	High
4	Understand different English accents	3.91	0.82	High
5	Follow conversations in English	4.16	0.72	High
6	Understand spoken English at different speeds	3.98	0.79	High
7	Identify specific information in spoken English	4.14	0.74	High
8	Infer meaning from spoken English	4.01	0.77	High
	Cluster Mean	**4.07**	**0.54**	**High**

Table 1 shows that respondents perceived a high contribution of digital tools to students' listening skills development, as indicated by the cluster mean of 4.07. All eight items recorded high mean ratings, ranging from 3.91 to 4.18. The highest mean rating was recorded for the contribution of digital tools to students' ability to understand spoken English more easily ($\bar{X}$ = 4.18), while the lowest was recorded for understanding different English accents ($\bar{X}$ = 3.91). Overall, the findings indicate that respondents perceived

digital tools as making a high contribution to students' ability to comprehend, process, and interpret spoken English. Interview participants explained that digital audio materials, videos, pronunciation applications, and recorded conversations provided students with repeated exposure to spoken English. They noted that students could replay difficult audio materials several times, thereby improving their comprehension. However, participants observed that opportunities for exposure to a wide range of English accents were comparatively limited, which was consistent with the relatively lower mean rating for understanding different English accents.

Research Question Two: What is the perceived contribution of digital tools to students' speaking skills development?

Table 2: Mean Responses and Standard Deviations on the Perceived Contribution of Digital Tools to Students' Speaking Skills Development

S/N	Students' Speaking Skills Development	$\bar{X}$	SD	Decision
	Digital tools help students to:			
1	Pronounce English words accurately	4.15	0.72	High
2	Speak English fluently	4.02	0.78	High
3	Express ideas clearly in spoken English	4.09	0.74	High
4	Use appropriate English intonation	3.96	0.80	High
5	Use appropriate English stress patterns	3.94	0.81	High
6	Participate actively in English conversations	3.88	0.84	High
7	Respond appropriately during spoken interactions	3.93	0.79	High
8	Maintain appropriate pace when speaking English	3.86	0.83	High
9	Communicate ideas confidently in spoken English	4.04	0.76	High
	Cluster Mean	**3.99**	**0.57**	**High**

Table 2 shows that respondents perceived a high contribution of digital tools to students' speaking skills development, as indicated by the cluster mean of 3.99. All nine items recorded high mean ratings, ranging from 3.86 to 4.15. The highest mean rating was recorded for the contribution of digital tools to students' ability to pronounce English words accurately ($\bar{X}$ = 4.15), followed by expressing ideas clearly in spoken English ($\bar{X}$ = 4.09) and communicating ideas confidently in spoken English ($\bar{X}$ = 4.04). The lowest mean rating was recorded for maintaining an appropriate pace when speaking English ($\bar{X}$ = 3.86), although this was still rated high. Overall, the findings indicate that respondents perceived digital tools as making a high contribution to students' pronunciation, fluency, oral expression, interaction, and confidence in spoken English. Interview participants reported that digital tools supported students' speaking skills through pronunciation practice, speech recording, playback, and immediate or guided feedback. They explained that students could practise speaking repeatedly, listen to their recorded speech, identify pronunciation difficulties, and make corrections. The participants also noted that digital tools could help build students' confidence in using spoken English. However, they observed that sustained speaking fluency and effective participation in spontaneous conversations also required opportunities for live interaction with lecturers and other students.

Research Question Three: What is the perceived contribution of digital tools to students' reading skills development?

Table 3: Mean Responses and Standard Deviations on the Perceived Contribution of Digital Tools to Students' Reading Skills Development

S/N	Students' Reading Skills Development	$\bar{X}$	SD	Decision
	Digital tools help students to:			
1	Understand English texts more easily	4.16	0.70	High
2	Identify main ideas in English texts	4.12	0.73	High
3	Locate specific information in texts	4.20	0.69	High
4	Infer the meaning of unfamiliar words from context	4.03	0.77	High
5	Identify supporting details in English texts	4.08	0.74	High
6	Distinguish relevant information from irrelevant information	3.94	0.81	High
7	Draw conclusions from English texts	3.98	0.79	High
	Cluster Mean	**4.07**	**0.55**	**High**

Table 3 shows that respondents perceived a high contribution of digital tools to students' reading skills development, as indicated by the cluster mean of 4.07. All seven items recorded high mean ratings, ranging from 3.94 to 4.20. The highest mean rating was recorded for the contribution of digital tools to students' ability to locate specific information in texts ($\bar{X}$ = 4.20), followed by understanding English texts more easily ($\bar{X}$ = 4.16) and identifying main ideas in English texts ($\bar{X}$ = 4.12). The lowest mean rating was recorded for distinguishing relevant information from irrelevant information ($\bar{X}$ = 3.94), although this was still within the high category. Overall, the findings indicate that respondents perceived digital tools as making a high contribution to students' reading comprehension, information retrieval, interpretation, and processing skills. Interview participants reported that digital texts, online dictionaries, search tools, and annotation applications helped students access, understand, and process English reading materials. They explained that students could search for unfamiliar words, obtain additional explanations, highlight important information, and organise ideas while reading. However, participants emphasised that students needed appropriate guidance to critically evaluate information obtained from online sources and distinguish relevant information from irrelevant information.

Research Question Four: What is the perceived contribution of digital tools to students' writing skills development?

Table 4: Mean Responses and Standard Deviations on the Perceived Contribution of Digital Tools to Students' Writing Skills Development

S/N	Students' Writing Skills Development	$\bar{X}$	SD	Decision
	Digital tools help students to:			
1	Organize ideas before writing	4.08	0.74	High
2	Write clear English sentences	4.12	0.71	High
3	Use appropriate vocabulary in writing	4.05	0.75	High
4	Apply English grammar correctly in writing	4.01	0.77	High
5	Spell English words correctly	4.14	0.70	High
6	Develop coherent paragraphs	3.96	0.79	High
7	Connect ideas logically in writing	3.92	0.81	High
8	Revise written work effectively	4.10	0.73	High
9	Identify errors in written work	4.13	0.72	High
10	Present ideas clearly in written English	4.06	0.75	High
	Cluster Mean	**4.05**	**0.53**	**High**

Table 4 shows that respondents perceived a high contribution of digital tools to students' writing skills development, as indicated by the cluster mean of 4.05. All ten items recorded high mean ratings, ranging from 3.92 to 4.14. The highest mean rating was recorded for the contribution of digital tools to students' ability to spell English words correctly ($\bar{X}$ = 4.14), followed by identifying errors in written work ($\bar{X}$ = 4.13) and writing clear English sentences ($\bar{X}$ = 4.12). The lowest mean rating was recorded for connecting ideas logically in writing ($\bar{X}$ = 3.92), although this was still rated high. Overall, the findings indicate that respondents perceived digital tools as making a high contribution to students' accuracy, clarity, revision, and organisation in written English. Interview participants identified word processors, grammar and spelling tools, online dictionaries, and digital feedback as useful resources for drafting, correcting, and revising students' written work. They explained that these tools helped students identify spelling and grammatical errors and improve the clarity of their writing. However, participants emphasised that teacher guidance remained important for helping students develop coherence, logical organisation, and effective expression of ideas in written English.

Hypothesis

The following null hypothesis was tested at the 0.05 level of significance:

H_{01}: There is no significant difference among the mean ratings of students, lecturers, and technologists on the perceived contribution of digital tools to students' language skills development in English Language teaching in universities in Enugu State.

Table 5: One-Way Analysis of Variance of Respondents' Mean Ratings on the Perceived Contribution of Digital Tools to Students' Language Skills Development

Source	SS	df	MS	F	p-value	Decision
Between Groups	1.52	2	0.76	2.28	0.104	Not Significant
Within Groups	139.61	420	0.33			
Total	141.12	422				

Key: SS = Sum of Squares; df = Degrees of Freedom; MS = Mean Square; F = ANOVA statistic. Decision rule: Reject H_0 when $p < 0.05$; retain H_0 when $p \geq 0.05$.

Table 5 shows that there was no significant difference among the mean ratings of students, lecturers, and technologists, $F(2, 420) = 2.28$, $p = .104$. Since $p > .05$, the null hypothesis was retained, indicating that the three groups had similar perceptions of the contribution of digital tools to students' language skills development. The interview findings supported the quantitative result. Participants generally reported that digital tools contributed to students' listening, speaking, reading, and writing skills, while noting the importance of teacher guidance and meaningful interaction.

Discussion

The findings of the study revealed that digital tools made a high contribution to students' listening skills development. The highest rating was recorded for helping students understand spoken English more easily, while understanding different English accents received the lowest rating, although it was still high. This suggests that digital tools provide useful opportunities for repeated listening, comprehension, and identification of information in spoken English. The interview findings also indicated that audio materials, videos, pronunciation applications, and recorded conversations enabled students to replay difficult materials. This agrees with Adamu and Umar (2018), Krishna (2021), and Ajoko et al. (2023), who emphasised the usefulness of language laboratories and technology-supported resources in language teaching. However, the lower rating for

understanding different English accents indicates a limitation, as available digital materials may not expose students sufficiently to the variety of accents encountered in authentic communication. Thus, while digital tools can strengthen listening practice, their effectiveness may depend on the diversity and quality of the materials provided.

The findings of the study revealed that digital tools made a high contribution to students' speaking skills development. Pronunciation recorded the highest rating, whereas maintaining an appropriate speaking pace recorded the lowest, though it remained within the high category. The result suggests that digital tools are particularly useful for pronunciation practice, speech recording, feedback, and confidence building. This position is supported by Asratie et al. (2023), who reported the usefulness of educational technology tools in improving EFL students' speaking performance, and Jiang et al. (2023), who found that automatic speech recognition can support learners' willingness to communicate. Wang et al. (2023) also demonstrated the usefulness of automated speech evaluation and feedback. However, the relatively lower rating for speaking pace points to a limitation of technology-based practice, since fluent and appropriately paced communication involves spontaneous interaction that may be difficult to develop through individual digital practice alone. The interview participants similarly stressed the need for live interaction, suggesting that digital tools should complement rather than replace communicative classroom activities.

The findings of the study revealed that digital tools made a high contribution to students' reading skills development. Locating specific information in texts recorded the highest rating, while distinguishing relevant information from irrelevant information recorded the lowest. This indicates that digital tools may be particularly useful for accessing texts, searching for information, identifying key points, and supporting comprehension. The finding agrees with Li and Lan (2022), who noted that digital language learning provides learners with expanded access to language input and learning resources. It is also consistent with Nurmala et al. (2023), whose meta-analysis demonstrated the usefulness of technology-enhanced tools in English language teaching. However, the lower rating for distinguishing relevant from irrelevant information raises a concern about students' ability to evaluate digital information critically. The availability of large amounts of online information does not automatically mean that students can determine its relevance or reliability. Therefore, digital resources may improve access to reading materials while still requiring teacher guidance in critical reading and information evaluation.

The findings of the study revealed that digital tools made a high contribution to students' writing skills development. Spelling English words correctly received the highest rating, followed closely by identifying errors in written work, while connecting ideas logically recorded the lowest rating. The result indicates that digital tools are particularly useful for improving writing accuracy through spelling checks, grammar applications, online dictionaries, word processors, and digital feedback. This is consistent with Liu (2025), who reported that digital educational tools can support language-skill development and student participation in higher education. Zhao (2025) also identified the potential of AI-driven tools to support engagement and personalised learning. Nevertheless, the lower rating for connecting ideas logically suggests that technology may be more effective in correcting surface-level writing problems than in developing deeper aspects of writing such as coherence, organisation, and logical progression. Excessive dependence on automated correction could also limit students' opportunities to think independently about

how ideas are organised. Teacher guidance therefore remains necessary to help students move beyond error correction to effective written communication.

The findings of the study further revealed that there was no significant difference among the mean ratings of students, lecturers, and technologists on the perceived contribution of digital tools to students' overall language skills development. Since the p-value was greater than .05, the null hypothesis was retained. This suggests that the three groups generally shared similar perceptions of the contribution of digital tools. The convergence of the interview findings with the quantitative result further indicates broad agreement that digital tools support listening, speaking, reading, and writing development. This finding is consistent with Anthony et al. (2022) and Anthony Jnr (2024), who emphasised that the value of technology-enhanced learning depends largely on how technologies are integrated into teaching and learning. It also agrees with Granić and Marangunić (2019) and Granić (2022), who noted that technology adoption and educational value are influenced by usability, acceptance, and the context in which technology is used. Generally, the findings of the study revealed that digital tools made a consistently high contribution to students' listening, speaking, reading, and writing skills development. However, the findings also show that their contribution is not without limitations. Digital tools appear particularly useful for repeated practice, access to resources, pronunciation, spelling, feedback, and information retrieval, but they are less sufficient on their own for developing authentic interaction, exposure to diverse accents, critical evaluation of information, logical organisation of ideas, and sustained communicative competence. This suggests that the strongest value of digital tools lies in their complementary role in English Language teaching. Their effective use requires appropriate digital resources, teacher guidance, meaningful interaction, and pedagogical integration rather than reliance on technology alone.

Educational Implications of the Study

The findings have important implications for English Language teaching and learning in universities in Enugu State. The high perceived contribution of digital tools across listening, speaking, reading, and writing suggests that their integration can provide students with additional opportunities for language practice, access to learning materials, and feedback beyond conventional classroom activities. However, the findings also show that digital tools should complement rather than replace teacher-led instruction and direct interaction. Lecturers therefore need to select digital resources based on the specific language skill being developed. Audio and video materials can support listening, speech and pronunciation technologies can support speaking, digital texts and electronic dictionaries can support reading, while word-processing, grammar, spelling, and feedback tools can support writing. The similar perceptions of students, lecturers, and technologists also suggest the need for coordinated efforts to ensure that digital tools are available, functional, accessible, and effectively integrated into English Language teaching.

Conclusion

Based on the findings, the study concludes that digital tools make a high perceived contribution to students' development of listening, speaking, reading, and writing skills in universities in Enugu State. The findings show that digital tools support students' comprehension of spoken English, oral practice, access to reading materials, and written expression. However, digital tools are not sufficient on their own to develop all aspects of language proficiency. Their effective use requires teacher guidance, appropriate instructional materials, and opportunities for direct and meaningful interaction. The study

further concludes that students, lecturers, and technologists share similar perceptions of the contribution of digital tools to students' language skills development, as no significant difference was found among the three groups.

Recommendations

Based on the findings, the study recommends that:

1. Lecturers should increase the use of digital audio and video materials in English Language teaching to provide students with more opportunities for repeated listening practice and exposure to different English accents, since understanding different English accents received the lowest rating among the listening items.
2. Universities should provide pronunciation, speech-recording, and speech-recognition technologies and combine them with live speaking activities, since digital tools were perceived to contribute highly to speaking development, but maintaining an appropriate speaking pace received the lowest rating in this area.
3. Lecturers should integrate digital texts, online dictionaries, and electronic reading resources into their teaching while guiding students in identifying relevant information, because distinguishing relevant information from irrelevant information recorded the lowest rating in reading skills development.
4. Lecturers should encourage the use of word-processing, spelling, grammar, and digital feedback tools while providing explicit instruction on coherence and logical organisation, since spelling and error identification received high ratings, whereas connecting ideas logically received the lowest rating in writing development.
5. Universities should strengthen the availability and effective use of digital instructional resources and provide appropriate support for lecturers and technologists, since the findings showed a high perceived contribution of digital tools across the four language skills and similar perceptions among students, lecturers, and technologists.

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