ISSN 3060-4567

AI-POWERED DIGITAL TOOLS FOR ENHANCING SPEAKING PROFICIENCY FOR FOREIGN LANGUAGE STUDENTS

Umarov Ozodbek

Abstract: *The research explores how artificial intelligence powered digital devices affect the speaking proficiency acquisition of foreign language students. Language acquisition becomes more achievable through the implementation of artificial intelligence (AI) since it provides personalized and accessible and interactive speaking practice for students. The study used a mixed research design that measured 60 English as a Foreign Language (EFL) university students who utilized speech recognition applications and chatbots together with voice analysis tools for a 5-week duration. The research used Common European Framework of Reference (CEFR)-based pre- and post-tests to evaluate changes in speaking ability. Learners participated in semi-structured interview sessions for exploring their insights about their learning experiences. Participants achieved statistically important advancement in their overall speaking skill levels mainly through improved pronunciation and fluency results. The tools connected to artificial intelligence provided participants with enhanced confidence levels together with heightened motivational states and student engagement because of their flexible function and quick feedback mechanisms. In addition to their noted strengths the tools displayed some weaknesses through their repetitive nature and occasional inaccuracies in feedback. The research identifies AI digital instruments as valuable supports for conventional speech learning because they promote student autonomy through continuous practice. Further studies should examine both prolonged effects of these tools and ways to enhance their production methods.*

Key words: *Artificial Intelligence (AI), Speaking Proficiency, Speech Recognition, Chatbots, Voice Analysis Tools, CEFR (Common European Framework of Reference),Real-time Feedback, Mobile-Assisted Language Learning (MALL), Autonomous Learning, Anxiety Reduction, Mixed Methods, Speaking Assessment*

ISSN 3060-4567

Introduction

Artificial intelligence enabled educational approaches to develop new prospects by creating interactive learning systems. The acquisition of foreign languages creates difficulties for students to get live feedback because they struggle with speaking without anxiety and rarely engage in authentic language usage. Education occurs successfully through traditional teaching practices despite their insufficient provision of real-time guidance for each student and limited practice time away from material content. The language learning field experiences transformations because of artificial intelligence-based digital instruments which include speech recognition systems as well as virtual partners and pronunciation assessment tools. Educational artificial intelligence tools enable students to receive real-time feedback during virtual conversations and feedback monitoring which creates better opportunities for developing independent speaking abilities. All students in this generation have effortless access to technology through personal computers and smartphones because they function both inside educational establishments and in public spaces. Future academic research must evaluate the precise influence of technological tools on student speaking development because the technology market expands without adequate proof. The study analyzes AI digital tool effects on language speaking abilities by uniting research from technological practice and pedagogical strategies and speech development frameworks. The assessment measures examine benefits and drawbacks which will assist faculty members and developers together with learners to enhance their foreign language speaking abilities.

Methodology

The research used mixed methods to identify how artificial intelligence software tools help foreign language students develop their speaking abilities. Different types of data collection incorporating quantitative and qualitative research methods allowed the investigation to provide deep insights about learner's improvement and their educational experiences.

Participants

ISSN 3060-4567

Sixty students studying intermediate-level foreign language English as a Foreign Language courses in two universities participated in the study. The research team chose participants through purposive sampling because all recruits demonstrated basic digital skills and possession of smartphones or computers. This research evaluation included three AI-assisted speaking programs: (1) a speech identification application that delivers real-time pronunciation evaluation, (2) a language-learner specialized virtual dialogue chatbot and (3) a voice analytic system which monitors speech precision and speed. The speaking improvement was evaluated through pre-test and post-test assessments which followed speaking descriptors from the Common European Framework of Reference (CEFR). Research investigators utilized semi-structured protocols during interviews to understand the learners' perspectives about their interactions with the supplied tools. The entire research period lasted six weeks. The participants performed the speaking pre-test during the initial week of the study. The participants spent twenty minutes daily using AI instruments for five weeks during their speaking practice. The participants completed post-testing during the last week while also taking part in interview sessions. Researchers recorded all speaking activities and communication for subsequent analytical purposes. Paired sample t-tests were used to analyze pre- and post-test quantitative data in order to measure any significant change in speaking proficiency. Researchers applied thematic coding to interview data to extract recurring patterns about student perceptions of working with AI tools.

Results

The research findings based on quantitative and qualitative analysis showed that students achieved better speaking ability results from continuously using AI digital tools over five weeks. The speaking proficiency scores increased significantly according to the CEFR-based speaking rubric assessments. The pre-test scores began at 5.2 but post-test scores improved to 6.1 across the board thus demonstrating noteworthy progress. Researchers applied a paired sample t-test and obtained results of $t(59) = 7.89$ that demonstrated statistical significance ($p < 0.01$) to verify the mean difference. The AI speech recognition app delivered 0.9-point pronunciation

enhancements to students through multiple uses because students demonstrated reduced phonetic problems. Students scored 0.8 points higher on fluency tests because they engaged in multiple relaxed conversations with the AI assistant. Students who utilized the voice analysis tool featuring filler word tracking and sentence structure analysis showed moderate improvement in both range of grammar and vocabulary (+0.5 points). The improved results show that AI-based tools created helpful feedback structures to guide students during their independent speaking exercises. Speaking through an AI interface appeared more comfortable to learners than speaking with human teachers or their peers. The lower levels of anxiety among learners enabled them to expand their speaking sessions duration and frequency. Learners said they would continue with another attempt after getting immediate feedback containing positive reinforcement and corrective comments. The participants valued receiving detailed feedback instantly from the system particularly regarding pronunciation along with intonation. The students developed better recognition of their speech patterns which caused them to naturally make self-corrections during speaking practice. The AI tools faced sporadic problems with pronunciation scoring according to some participants amongst the group. Ease of schedule flexibility made practicing at any time during or outside their normal classes very accessible for students.

Students took advantage of the tools during their daily commute and short breaks as a strategy to integrate speaking practice into their daily schedule. Students used these accessible tools with regularity because they could access them at any time. The participants liked the chatbot on average yet they found difficulty in interactions because its conversations often repeated the same lines and sounded too rigid. At the beginning of their use the digital literacy skills of some learners prevented them from effectively using mobile applications. The research findings show that AI digital tools effectively enhanced student speaking ability according to both the numerical and textual data analysis. Test scores improved together with learner mental attitudes and increased motivation and speaking comfort.

Discussion

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The study proves that AI digital tools effectively boost foreign language speaking abilities of learners through personalized learning opportunities which are both accessible and engaging. The observed advancements in CEFR speaking scores together with learner appreciation indicate that these technological tools deliver effective results that students discreetly welcome. The main result from this research showed students became better at both pronunciation and fluency. Research from Li et al. (2020) confirmed that real-time corrective feedback remains essential for developing speaking competencies because students obtained improved speaking scores. Students who used speech recognition technology became better at recognizing pronunciation mistakes while using the chatbot they produced better sustained oral responses which helped their fluency increase. The findings support second language acquisition models which state spoken competence development needs both output from learners and feedback and repetition (Swain, 1985; Ellis, 2003).

The gathered qualitative findings showed learners achieved elevated levels of self-confidence alongside higher motivation since these elements remain vital to language acquisition. The low-stress environment alongside uncontested interactions served to lessen the usual fear which students experience while communicating in foreign languages. Students who avoid speaking in classroom environments because of fear or concern about mistakes need this approach to learn effectively. The accessibility together with flexible nature of these tools enabled students to integrate their speaking practice into their regular daily activities. The concept that mobile-assisted language learning (MALL) generates better and substantive language encounters outside classroom walls (Stockwell, 2013) finds support. While AI tools deliver numerous benefits they are not sufficient replacements for human communication or curriculum-developed instruction because students experience repeated dialogue cycles and technical system problems.

Conclusion

A research project evaluated how artificial intelligence tools help develop speaking abilities for language students with emphasis on pronunciation and learner

ISSN 3060-4567

fluency along with participation levels. Participants devoted five weeks of their studies to AI applications consisting of speech recognition systems and virtual chatbots together with voice analysis tools. The research based on mixed data samples revealed strong positive outcomes for trainees' capability in oral communication. The implemented AI applications led to statistically confirmed improvement of speaking test assessments according to CEFR standards where pronunciation received notable gains alongside fluent performances. The data indicates that AI tools provide solutions to the common barriers which prevent foreign language speaking development through insufficient real-time feedback and small amounts of practice. The implementation of real-time error detection combined with repeated practice along with performance measurement systems apparently builds self-governing and analytical speaking practices among students. Additional information gained through interview data provided deeper knowledge about the learners' experiences. Several interviewees praised the tools because they found them both interesting and beneficial for building confidence and suitable for regular everyday use. The AI-generated non-judgmental communication approach led learners to practice more often because it reduced their anxiety which matches well with affective practices in language acquisition. The learners valued unlimited practices that accommodated unrestricted speaking time because this enabled them to improve their rhythm and receive confidence in their speech together with enhanced stamina. Additional constraints in AI speaking tool technology were found during the conducted research. The participants mentioned the constrained nature of chatbot chat because conversations lacked contextual depth which could restrict the growth of more complex conversational abilities. Particular speech instances and scoring fluctuations that occurred were recorded in the study which might reduce the reliability factor when delivering feedback during some interactions. The current implementation of AI speaking tools requires continuous development because they must achieve alignment between educational requirements and student reception standards.

ISSN 3060-4567

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