



AI-ASSISTED AND MULTIMEDIA TOOLS IN DEVELOPING EFL SPEAKING COMPETENCE: A QUASI-EXPERIMENTAL STUDY IN UZBEKISTAN

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Annotatsiya. Maqolada O'zbekiston oliy ta'lim kontekstida sun'iy intellektga asoslangan va multimedia vositalarining EFL talabalarining og'zaki nutq kompetensiyasiga ta'siri kvazi-eksperimental tadqiqot orqali o'rganilgan. 60 nafar talaba ishtirokida o'tkazilgan 12 haftalik tajriba Elsa Speak, raqamli hikoya qilish, TikTok va Flipgrid platformalarining nutq ko'rsatkichlariga statistik jihatdan sezilarli ijobiy ta'sir ko'rsatganligini isbotladi.

Kalit so'zlar: sun'iy intellekt, multimedia vositalari, og'zaki nutq, Elsa Speak, Flipgrid, kvazi-eksperiment.

Abstract. This article examines the impact of AI-assisted and multimedia tools on EFL students' speaking competence through a quasi-experimental study conducted in the context of Uzbek higher education. A twelve-week experiment with 60 students demonstrated statistically significant positive effects of Elsa Speak, digital storytelling, TikTok, and Flipgrid platforms on speaking performance indicators including fluency, pronunciation accuracy, and pragmatic competence.

Key words: artificial intelligence, multimedia tools, speaking competence, Elsa Speak, Flipgrid, quasi-experiment.


INTRODUCTION

The rapid proliferation of artificial intelligence and multimedia technologies in the twenty-first century has opened unprecedented possibilities for the transformation of foreign language instruction. Speaking competence, broadly defined as the ability to produce coherent, contextually appropriate, and linguistically accurate oral discourse in a second or foreign language, has long been recognised as one of the most cognitively demanding dimensions of language learning⁴⁶. The simultaneous orchestration of phonological, lexical, grammatical, and pragmatic knowledge in real time, frequently under conditions of social exposure, gives rise to significant levels of speaking anxiety that inhibit spontaneous oral production⁴⁷.

Despite a growing body of international scholarship attesting to the efficacy of technology-enhanced language learning, the systematic integration of information media into speaking instruction remains underdeveloped in many educational contexts, including

⁴⁶Thornbury S. How to teach speaking. 2nd edn. – Harlow: Pearson Education, 2019.

⁴⁷Horwitz E.K., Horwitz M.B., Cope J. Foreign language classroom anxiety // The Modern Language Journal. – 1986. – Vol. 70, No. 2. – Pp. 125–132.



Uzbekistan⁴⁸. This article presents the results of a quasi-experimental study that investigated the impact of a structured technology-mediated intervention on the speaking competence of EFL students at the tertiary level. The study was guided by four research questions: (1) What is the theoretical basis for integrating AI-assisted and multimedia tools into speaking instruction? (2) Which specific tools and task types are most effective? (3) What are the measurable outcomes of the pedagogical experiment? (4) How do learners perceive the impact of the intervention on their speaking development?

THEORETICAL FRAMEWORK

The theoretical architecture of this study rests upon four complementary pillars of second language acquisition theory. Krashen's Input Hypothesis posits that language acquisition occurs when learners receive comprehensible input at a level slightly beyond their current competence⁴⁹. Digital platforms create what Krashen characterises as an enriched input environment, continuously available and responsive to the learner's individual proficiency level. Swain's Output Hypothesis argues that opportunities for meaningful and stretched output play an essential role in language development, enabling learners to notice gaps in their linguistic knowledge and develop greater automaticity⁵⁰.

Long's Interaction Hypothesis foregrounds the importance of negotiated meaning in second language acquisition, as conversational interaction provides opportunities for modified input, interactional feedback, and modified output⁵¹. Vygotsky's Sociocultural Theory, particularly the concept of the Zone of Proximal Development, highlights the central importance of scaffolded interaction in enabling learners to perform beyond their current unaided capacity⁵². Together, these four theories provide a comprehensive framework for understanding the mechanisms through which technology-mediated speaking activities facilitate oral language development.

Mayer's Cognitive Theory of Multimedia Learning demonstrates that the simultaneous presentation of verbal and visual information facilitates deeper cognitive processing and enhanced retention⁵³. Anderson's Adaptive Control of Thought theory provides a particularly

⁴⁸Fattakhova D. English language education reform in Uzbekistan: Policy and practice // Central Asian Journal of Education. – 2020. – Vol. 5, No. 1. – Pp. 1–18.


⁴⁹Krashen S. The input hypothesis: Issues and implications. – London: Longman, 1985.

⁵⁰Swain M. Communicative competence: Some roles of comprehensible input and comprehensible output // Input in SLA / Ed. by S. Gass, C. Madden. – Rowley, MA: Newbury House, 1985. – Pp. 235–253.

⁵¹Long M.H. Native speaker/non-native speaker conversation and the negotiation of comprehensible input // Applied Linguistics. – 1983. – Vol. 4, No. 2. – Pp. 126–141.

⁵²Vygotsky L.S. Mind in society: The development of higher psychological processes. – Cambridge, MA: Harvard University Press, 1978.

⁵³Mayer R.E. Multimedia learning: Principles that improve classroom instruction // Educational Psychology Review. – 2020. – Vol. 32, No. 2. – Pp. 91–106.



illuminating account of how speaking fluency develops through the proceduralisation of initially explicit and effortful knowledge into implicit, automatic knowledge through extensive and varied practice⁵⁴. Skehan's tripartite model distinguishes fluency, accuracy, and complexity as distinct dimensions of oral production, each susceptible to different instructional influences⁵⁵. These cognitive frameworks underpin the principled selection of technological tools employed in the experimental intervention.

The communicative competence model proposed by Canale and Swain, encompassing grammatical, sociolinguistic, discourse, and strategic competences⁵⁶, has profound implications for technology-mediated speaking instruction. The development of oral proficiency cannot be reduced to the acquisition of grammatical accuracy alone but must encompass pragmatic appropriateness, discourse management, and the strategic capacity to compensate for communicative limitations. Social media platforms and asynchronous video tools have been shown to create learning environments characterised by lower performative anxiety and greater opportunities for reinforcement⁵⁷, conditions that are particularly conducive to the holistic development of communicative competence.

RESEARCH DESIGN AND METHODOLOGY

The study employed a pre-test/post-test control group design consistent with established methodological conventions in experimental SLA research⁵⁸. The participant sample consisted of sixty undergraduate students at Kimyo International University in Tashkent, Samarkand Branch, randomly assigned to an experimental group (n=30) receiving technology-mediated speaking instruction and a control group (n=30) receiving conventional classroom-based instruction. Pre-test assessments confirmed baseline equivalence between the groups on measures of oral fluency, phonological accuracy, and self-reported communicative confidence.

The twelve-week experimental intervention was structured across three sequential phases. Phase One (Weeks 1–4) focused on AI-assisted pronunciation improvement utilising Elsa Speak as the primary tool. Learners received a diagnostic pronunciation assessment with automated phoneme-level analysis, followed by a personalised practice programme


⁵⁴Anderson J.R. The architecture of cognition. – Cambridge, MA: Harvard University Press, 1983.

⁵⁵Skehan P. A cognitive approach to language learning. – Oxford: Oxford University Press, 1998.

⁵⁶Canale M., Swain M. Theoretical bases of communicative approaches to second language teaching and testing // Applied Linguistics. – 1980. – Vol. 1, No. 1. – Pp. 1–47.

⁵⁷Zheng B., Warschauer M. The affordances of social media in foreign language learning // Language and Education. – 2021. – Vol. 35, No. 3. – Pp. 194–209.

⁵⁸Mackey A., Gass S.M. Second language research: Methodology and design. – Mahwah, NJ: Lawrence Erlbaum, 2005.



progressing from controlled minimal pair exercises to communicative production activities⁵⁹. Phase Two (Weeks 5–8) centred on digital storytelling, where learners engaged with model stories, developed their own narratives, and iteratively revised their recordings based on self-assessment and peer feedback⁶⁰.

Phase Three (Weeks 9–12) employed social media platforms and asynchronous video tools. Weekly TikTok speaking challenges targeted specific communicative functions with peer assessment using a structured rubric. A WhatsApp group maintained ongoing informal spoken interaction⁶¹. Flipgrid was used for academic argumentation tasks requiring students to record video responses to academic prompts, review classmates' recordings, and produce follow-up responses⁶². All activities were designed in accordance with task-based language teaching principles⁶³. Speaking performance was assessed using an adapted IELTS Speaking Band Descriptors rubric across four dimensions: fluency and coherence, lexical resource, grammatical range and accuracy, and pronunciation. Inter-rater reliability was established at Cohen's Kappa = 0.81.

RESULTS AND DISCUSSION

Quantitative analysis using ANCOVA with pre-test scores as covariates revealed statistically significant differences favouring the experimental group across all measured dimensions. The experimental group demonstrated a mean gain of 1.8 IELTS band scores compared to 0.9 in the control group ($t(58) = 4.32, p < .001, d = 1.12$). Gains in phonological accuracy were particularly pronounced, with mean phoneme-level error rates decreasing by 34.2% in the experimental group compared to 11.8% in the control group. These effect sizes exceed the conventional threshold for large effects and provide robust evidence for the efficacy of the technology-mediated intervention.

The AI-assisted pronunciation component yielded diagnostically rich data. Elsa Speak identified a consistent pattern of phonological difficulty shaped by first-language transfer from Uzbek and Russian, including difficulties with English consonant clusters, the short/long vowel distinction, word-final consonant production, and English lexical stress


⁵⁹Nguyen T., Le M. Enhancing pronunciation accuracy with AI-powered applications: A case study on Elsa Speak // Journal of Second Language Pronunciation. – 2020. – Vol. 6, No. 3. – Pp. 221–237.

⁶⁰Yang Y., Wu W. Digital storytelling for improving oral fluency in EFL learners // Educational Technology and Society. – 2018. – Vol. 21, No. 4. – Pp. 115–128.

⁶¹Lin M., Brown R. Social media as a tool for language learning: WhatsApp group chats in EFL contexts // Journal of Educational Technology and Society. – 2019. – Vol. 22, No. 2. – Pp. 1–10.

⁶²Pardo A., Téllez M.F. Exploring the use of Flipgrid for asynchronous speaking activities // Language Learning and Technology. – 2021. – Vol. 25, No. 1. – Pp. 45–68.

⁶³Ellis R. Task-based language learning and teaching. – Oxford: Oxford University Press, 2003.



patterns⁶⁴⁶⁵. The application generated targeted practice activities addressing these specific patterns, demonstrating the capacity of AI tools to provide linguistically and culturally specific phonological feedback that generic classroom instruction cannot replicate.

The digital storytelling phase revealed an asymmetric pattern of outcomes: gains in fluency and discourse coherence considerably exceeded gains in grammatical accuracy. This pattern aligns with Skehan's research on attentional trade-offs in task performance⁶⁶, as the creative demands of storytelling direct attention primarily towards meaning-making and discourse organisation rather than grammatical form⁶⁷. This finding has important implications for curriculum sequencing, suggesting that storytelling activities are most effective as fluency-development tools when complemented by accuracy-focused activities.


The social media and Flipgrid components produced notable findings regarding pragmatic competence development. Analysis of TikTok challenge recordings at Weeks 10 and 12 revealed a marked increase in the frequency and appropriateness of informal pragmatic features, including hedging expressions, discourse markers, colloquial vocabulary, and conversational implicature⁶⁸. This finding demonstrates that genre-specific exposure and practice within informal digital communication registers has a measurable effect on pragmatic development, consistent with Kasper and Rose's genre-specific account. Flipgrid response sequences revealed progressive development in peer feedback sophistication: from predominantly superficial evaluative responses in Week 9 to substantive linguistic and argumentative engagement by Week 12, including identification of specific features and counter-argument formulation⁶⁹.

Qualitative data from semi-structured interviews identified five principal themes: enhanced motivation and engagement, reduction in speaking anxiety, greater phonological awareness, increased exposure to authentic language use, and development of autonomous learning strategies. Structured classroom observations at three points during the intervention

⁶⁴Flege J.E. Second language speech learning: Theory, findings, and problems // *Speech perception and linguistic experience* / Ed. by W. Strange. – Timonium, MD: York Press, 1995. – Pp. 233–277.

⁶⁵Yunusova Z. Phonological interference in the English speech of Uzbek learners // *Journal of Language and Linguistic Studies*. – 2019. – Vol. 15, No. 3. – Pp. 1042–1055.

⁶⁸Kasper G., Rose K. *Pragmatic development in a second language*. – Oxford: Blackwell, 2002.



documented higher levels of student oral interaction, longer mean turn lengths, greater lexical variety, and more frequent instances of spontaneous communicative risk-taking in the experimental group. A substantial proportion of participants reported continuing technology-mediated speaking practice on a self-directed basis after the formal intervention concluded⁷⁰. Disaggregated analysis revealed differential effects across proficiency levels, with the greatest gains observed among intermediate learners, consistent with ZPD-based theoretical predictions⁷¹.

CONCLUSION


This study provides robust empirical evidence that the systematic integration of AI-assisted and multimedia tools into EFL speaking instruction significantly enhances oral communicative competence. The technology-mediated intervention produced statistically significant improvements across all measured dimensions of speaking performance, with particularly strong effects on phonological accuracy and communicative fluency. The findings confirm the complementary explanatory power of Input, Output, Interaction, and Sociocultural theories in accounting for the mechanisms through which technology mediates speaking development.

The study contributes to the field by demonstrating that AI-powered pronunciation tools can provide culturally and linguistically specific phonological feedback adapted to the transfer patterns of Uzbek and Russian L1 speakers. It further demonstrates that different technological tools address distinct dimensions of speaking competence: AI tools for phonological accuracy, digital storytelling for fluency and discourse coherence, and social media platforms for pragmatic competence development. These findings support a principled, multi-tool approach to technology integration rather than reliance on any single platform.

Practical recommendations include the systematic integration of technology-mediated tasks into tertiary EFL syllabi, the development of teacher digital pedagogical competence through targeted professional development⁷², and the reform of assessment frameworks to include technology-mediated speaking evaluation. Institutional policy-makers should invest in the digital infrastructure necessary to sustain technology integration across educational institutions⁷³. Future research should investigate the long-term sustainability of experimental effects through delayed post-test designs, explore the optimal sequencing of technology-

⁷⁰Benson P. Teaching and researching learner autonomy. 2nd edn. – Harlow: Pearson Education, 2011.


⁷²Koehler M.J., Mishra P. What is technological pedagogical content knowledge? // Contemporary Issues in Technology and Teacher Education. – 2009. – Vol. 9, No. 1. – Pp. 60–70.



mediated activities, and examine the applicability of these findings across diverse institutional and proficiency-level contexts.

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