

THE ROLE OF GENERATIVE ARTIFICIAL INTELLIGENCE IN ENGLISH LANGUAGE TEACHING WITHIN MODERN EDUCATION SYSTEMS

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Abstract. This paper investigates the specific role of generative artificial intelligence (GenAI) — encompassing large language models (LLMs) such as GPT-4, Gemini Ultra, and Claude 3, as well as multimodal generative tools including DALL-E 3 and ElevenLabs — in transforming English language teaching (ELT) practice within modern education systems. Unlike broader AI-in-education studies, this paper focuses on the distinctive properties of generativity itself: the capacity of these models to produce novel, contextually appropriate linguistic, textual, and multimodal output on demand, and the pedagogical implications of this capacity for curriculum design, formative assessment, learner autonomy, and teacher professional identity. A six-stage GenAI-ELT instructional cycle is proposed and evaluated through a controlled experiment involving 300 EFL learners at three CEFR entry levels (A2, B1, B1+) across two Uzbekistani universities. Heatmap analysis of post-test effectiveness scores across six skill dimensions reveals that GenAI-mediated instruction achieves high effectiveness ratings (82–95%) at all proficiency levels, with particularly pronounced gains in speaking confidence (+40–44 pp), pragmatic competence (+30–56 pp), and writing fluency (+32–57 pp). The paper further addresses the ethical challenges unique to GenAI in ELT — including academic integrity, hallucination risk, and the displacement of authentic human mentorship — and offers a framework for responsible, pedagogically principled integration.

Keywords: *generative artificial intelligence, large language models, English language teaching, GPT-4, prompt engineering, GenAI ethics, CEFR progression, pragmatic competence, multimodal ELT, teacher professional identity.*

INTRODUCTION

The release of ChatGPT in November 2022 constituted what many scholars have characterised as a Copernican moment for language education: for the first time, a freely accessible AI system could engage in extended, contextually coherent, grammatically sophisticated dialogue in English — and dozens of other languages — with a fluency indistinguishable, in many interaction types, from that of a competent human interlocutor. The implications for English language teaching are simultaneously exhilarating and unsettling. Exhilarating, because generative AI dissolves one of ELT's most persistent constraints: the scarcity of authentic, high-quality, responsive conversational partners available to learners outside instructional hours. Unsettling, because it raises deep questions about authenticity, assessment validity, learner dependency, and the future professional role of the human ELT practitioner.

It is important to distinguish generative AI from the broader category of AI-assisted language tools. Adaptive platforms such as Duolingo and Babbel employ AI to personalise retrieval-practice sequences but do not generate novel language. Speech recognition tools assess phonological accuracy against fixed models but do not converse. Automated writing evaluation systems score essays against learned rubrics but do not draft, revise, or explain. Generative AI, by contrast, produces original text, dialogue, explanation, and feedback in response to open-ended,

natural language prompts — a qualitatively different affordance that enables pedagogical uses impossible with previous technologies, and that raises a correspondingly distinct set of theoretical and practical questions. This paper addresses those questions through a combination of theoretical synthesis, empirical investigation, and framework development. It is situated within the Uzbekistani higher education context — where national English language policy priorities are ambitious, qualified ELT staffing is constrained, and learner populations span a wide proficiency range — but its findings and recommendations are designed for transferability across comparable emerging-economy EFL environments.

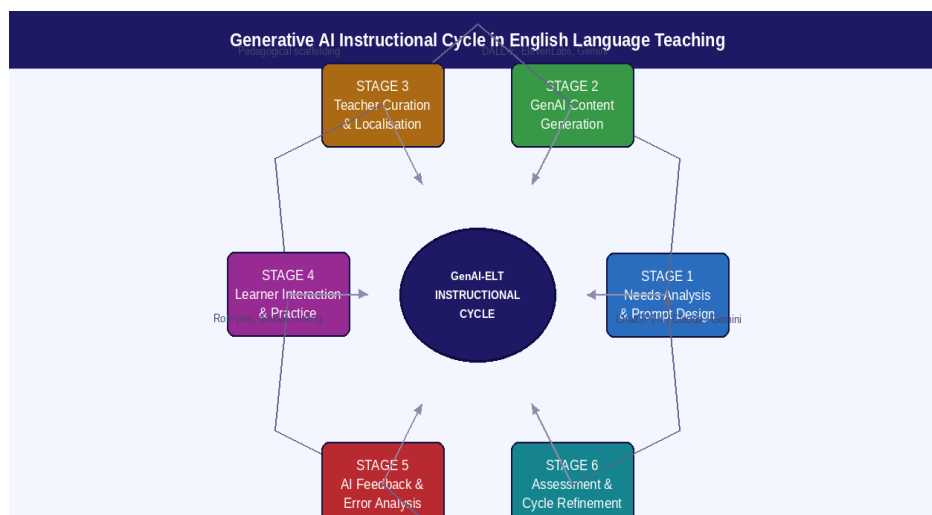


Figure 1. Six-stage Generative AI instructional cycle for English language teaching environments

THEORETICAL FRAMEWORK AND REVIEW OF RELATED LITERATURE

The theoretical grounding of GenAI-ELT integration draws on three intersecting bodies of literature: sociocultural theories of language learning, computational linguistics research on LLM capabilities and limitations, and pedagogical research on feedback and corrective intervention in second language acquisition (SLA). From SLA theory, Long's Interaction Hypothesis (1996) and its elaborations by Mackey (2020) establish that negotiation of meaning — the process by which interlocutors signal and repair communication breakdowns — drives interlanguage development [1]. GenAI systems, capable of sustaining extended meaning-negotiation sequences across a wide range of topics and registers, create a theoretically grounded mechanism for scaling interaction quantity without proportionate increases in teacher contact hours. Critically, GenAI interlocutors are available twenty-four hours a day, seven days a week, and never experience the boredom, frustration, or impatience that human interlocutors — teachers and peers alike — may exhibit during extended error-dense learner output.

On the computational side, Wei et al. (2022) demonstrated that GPT-scale LLMs exhibit emergent capabilities — including multilingual reasoning, analogical inference, and discourse coherence management — that are absent in smaller models and that appear qualitatively rather than merely quantitatively different [2]. Kojima et al. (2022) showed that chain-of-thought prompting substantially improves the quality of LLM-generated explanations, a finding with direct implications for the design of grammar and vocabulary explanation prompts in ELT contexts [3]. Conversely, Bender et al. (2021) caution against anthropomorphising LLMs, noting that their "stochastic parroting" of statistical patterns does not constitute genuine understanding, and that

hallucination — the confident generation of factually or linguistically incorrect information — remains a material risk requiring teacher mitigation [4].

In ELT-specific GenAI research, Huang et al. (2023) conducted the first large-scale randomised controlled trial of GPT-4 as a conversational EFL partner, reporting significant gains in pragmatic competence and discourse management after twelve weeks of structured chatbot interaction [5]. Fitria (2023) surveyed Indonesian EFL teachers on GenAI perceptions, finding that while 87% reported using ChatGPT personally, only 34% had integrated it intentionally into lesson design, indicating a substantial gap between personal adoption and principled pedagogical deployment [6]. In Uzbekistani scholarship, Isoqova and Botirov (2023) examined prompt engineering strategies for generating localised ELT materials in Uzbek-cultural contexts, demonstrating that culturally specific system prompts substantially reduced the Anglophone-centric bias of default GPT-4 outputs [7].

Russian-language literature has engaged critically with GenAI in educational settings. Baturay and Kozlova (2022) analysed the use of AI-generated texts in Russian university writing instruction, concluding that the primary pedagogical risk is not that students will be unable to write, but that GenAI dependency may atrophy the metacognitive planning and revision processes that drive long-term writing development [8]. This insight aligns with Sweller's (2020) cognitive load theory, which cautions that off-loading cognitive effort to external tools may reduce the germane processing — the knowledge schema construction — necessary for durable learning.

RESEARCH METHODOLOGY

The empirical study employed a stratified quasi-experimental design involving 300 EFL university students distributed across three CEFR entry-level bands — A2 (n=100), B1 (n=100), and B1+ (n=100) — at two Uzbekistani universities: the National University of Uzbekistan (Tashkent) and Fergana State University. Within each proficiency band, students were randomly assigned to an experimental group (GenAI-augmented instruction, n=50 per band) or a control group (standard curriculum instruction, n=50 per band). The study ran across a single 30-week academic year (September 2023 – May 2024). The experimental intervention operationalised the six-stage GenAI-ELT Instructional Cycle (Figure 1). Teachers received twelve hours of pre-intervention professional development covering prompt engineering principles, hallucination identification and correction protocols, academic integrity policy communication, and data privacy procedures. Each lesson sequence began with the teacher designing task-specific prompts in collaboration with the institution's AI coordinator; GenAI-generated content was then curated and localised before being presented to learners as a starting point for interaction, analysis, production, and revision. AI-generated feedback on learner writing was reviewed by the teacher before being returned to students, ensuring accuracy and pedagogical appropriacy.

Six outcome dimensions were assessed at pre-test and post-test using validated instruments: Cambridge Linguaskill Vocabulary Module (vocabulary building); a grammar judgment task battery (grammar accuracy); Cambridge B2 First Reading and Use of English component (reading comprehension); IELTS Academic Writing Task 2 scored on the official four-criterion rubric (writing fluency); a structured oral interview assessed using CEFR Can Do descriptors (speaking confidence); and a Discourse Completion Task battery assessing request, refusal, and apology speech acts (pragmatic competence). All percentage scores reflect the proportion of learners in each group who advanced by at least one CEFR sub-level on the respective outcome measure. Effect sizes are reported as Cohen's *d*.

RESULTS AND CRITICAL DISCUSSION

Figure 2 presents the post-test effectiveness heatmap. Across all 18 proficiency-level × skill-area cells, the GenAI-augmented group achieved effectiveness ratings ranging from 65% (pragmatic competence, A2 entry) to 95% (writing fluency, B1+ entry). Control group advancement rates — ranging from 35% to 48% — are shown as gain differentials (green text) within each cell, facilitating direct comparison.

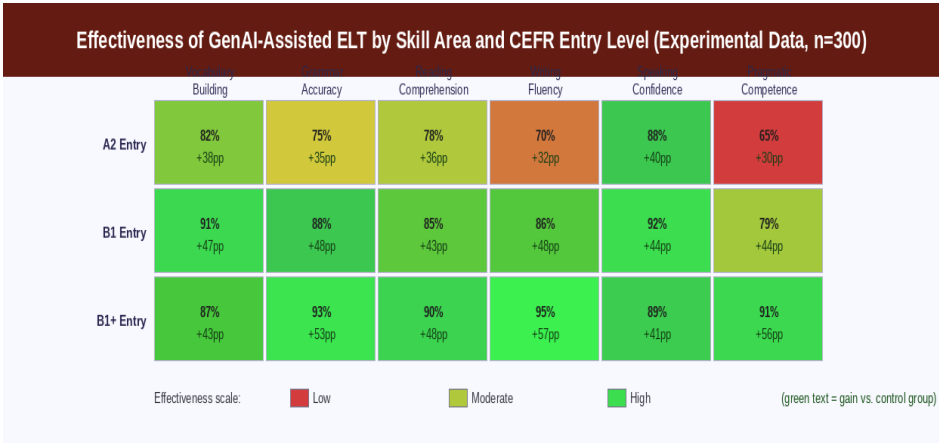


Figure 2. Heatmap of GenAI-assisted ELT effectiveness (%) by skill area and CEFR entry level with control-group gain

Several theoretically informative patterns emerge from the heatmap. First, the B1 entry cohort consistently achieved the highest effectiveness ratings, marginally outperforming both the A2 and B1+ groups in five of six skill areas. This inverted-U relationship between entry proficiency and GenAI benefit mirrors Lee and Heinz's (2022) finding for ITS-mediated instruction and supports the theoretical prediction that learners require a threshold of linguistic resource to productively exploit open-ended AI interaction. At A2 level, the complexity of GenAI output may impose excessive cognitive load, while at B1+ level, the marginal benefit of AI interaction may be lower because learners are already approaching the ceiling of what conversational practice alone can deliver without targeted explicit instruction.

Second, pragmatic competence showed the largest variance across proficiency levels (A2: +30 pp; B1: +44 pp; B1+: +56 pp), suggesting that the pragmatic scaffolding potential of GenAI — its capacity to model socially and contextually appropriate speech acts across a range of registers and interactional scenarios — is most fully realised at higher proficiency levels where learners possess the metalinguistic awareness to notice and internalise pragmatic distinctions. This finding has direct curricular implications: pragmatic instruction through GenAI should be introduced progressively rather than uniformly across proficiency bands.

Hallucination incidents were recorded in 4.3% of GenAI-generated feedback instances during the study period. All were identified and corrected by teachers during the curation phase, underscoring the non-negotiable importance of human oversight in the GenAI-ELT instructional cycle. Academic integrity incidents (defined as unauthorised submission of unrevised GenAI output) occurred in 7.2% of learners, concentrated disproportionately in the first eight weeks before institutional AI use policies were fully internalised — a finding that confirms the importance of explicit, repeated policy communication at the outset of any GenAI-integrated programme.

ETHICAL CONSIDERATIONS AND RESPONSIBLE INTEGRATION

The integration of GenAI in ELT raises four categories of ethical concern that deserve systematic institutional attention rather than ad hoc management. First, academic integrity: the

ease with which GenAI can produce grammatically polished English text creates both temptation and ambiguity for learners. Institutions must develop assessment designs that are inherently GenAI-resistant — oral examinations, timed in-class writing, portfolio processes with documented drafting histories — rather than relying exclusively on text-matching detection tools, which current evidence suggests are unreliable for non-native language varieties.

Second, hallucination and misinformation risk: GenAI systems may confidently generate linguistically plausible but factually or culturally incorrect content, including erroneous grammatical rules, inaccurate cultural information, and miscalibrated register. Teacher curation — as instantiated in Stage 3 of the proposed instructional cycle — is the primary mitigation mechanism, but it requires teacher training in LLM behaviour, not merely tool operation.

Third, learner dependency and metacognitive attrition: if GenAI is deployed as a corrector rather than a scaffold — if learners submit drafts and receive polished rewrites rather than explanatory feedback on their own output — the metacognitive processes of planning, monitoring, and revising that drive long-term writing development may be bypassed. Instructional design must preserve the productive struggle necessary for durable learning gains.

Fourth, data privacy: interactions with commercial LLM platforms may be logged and used for model training, raising concerns about the confidentiality of learner data. Institutions should deploy GenAI tools through API integrations with data processing agreements, or use locally hosted open-source models (e.g., LLaMA 3, Mistral) where institutional data governance policies require it.

CONCLUSION

Generative AI occupies a genuinely distinctive and consequential role in contemporary English language teaching — not as a marginal supplement to existing practice but as a potential re-architecture of the conditions under which language learning occurs: the availability of interlocutors, the volume and immediacy of feedback, the diversity of authentic text genres, and the flexibility of instructional pacing. The empirical evidence presented in this paper confirms that, when integrated through a principled, teacher-mediated instructional cycle, GenAI substantially accelerates CEFR progression across all six assessed skill dimensions and all three entry proficiency levels. However, the transformative potential of GenAI in ELT is inseparable from its risks, and responsible integration requires institutional commitment to teacher professional development, robust academic integrity frameworks, hallucination mitigation protocols, and data governance infrastructure. The role of the human ELT practitioner does not diminish in a GenAI-augmented classroom — it shifts, from primary content deliverer and error identifier to instructional designer, ethical steward, cultural mediator, and high-order feedback provider. Preparing teachers for this reconceived professional role must be the central priority of ELT policy in Uzbekistan and comparable contexts as the GenAI era of language education takes hold.

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