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APPLICATION OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN FOREIGN LANGUAGE TEACHING AT THE B1 Level

Abstract

This article examines the effectiveness of integrating Artificial Intelligence (AI) technologies into the English language teaching process for undergraduate students at the B1 (Intermediate) proficiency level. In the context of modern educational demands, AI tools such as conversational chatbots, automated writing evaluation systems, and personalized language learning applications represent a relevant and highly effective approach. The study involved designing and implementing lessons where AI tools were used to practice functional language, generate real-time feedback, and facilitate independent learning. Data was collected using qualitative and quantitative methods, primarily through student questionnaires administered after a four-week intervention. The results indicate that the use of AI significantly enhances student motivation, promotes learner autonomy, and reduces speaking anxiety by providing a judgment-free environment for practice. Students reported notable improvements in vocabulary acquisition and writing structure. However, challenges such as over-reliance on AI for complex grammar, technical glitches, and a lack of emotional intelligence in AI responses were identified.

Keywords: *artificial intelligence; English language teaching; B1 level; learner autonomy; foreign language education; educational technology; qualitative research.*

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ПРИМЕНЕНИЕ ТЕХНОЛОГИЙ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В ОБУЧЕНИИ ИНОСТРАННОМУ ЯЗЫКУ НА УРОВНЕ B1

Аннотация

В статье рассматривается эффективность интеграции технологий искусственного интеллекта (ИИ) в процесс обучения английскому языку студентов бакалавриата на уровне B1 (Intermediate). В условиях современных образовательных требований инструменты ИИ, такие как диалоговые чат-боты, системы автоматизированной оценки письма и персонализированные приложения, представляют собой актуальный и высокоэффективный подход. В ходе исследования были разработаны и проведены занятия, на которых инструменты ИИ использовались для отработки функционального языка, получения обратной связи в реальном времени и развития самостоятельного обучения. Данные собирались с помощью качественных и количественных методов, в первую очередь посредством анкетирования студентов после четырехнедельного эксперимента. Результаты показывают, что использование ИИ значительно повышает мотивацию, способствует автономии учащихся и снижает тревожность при говорении, создавая комфортную среду для практики. Студенты отметили заметное улучшение в освоении словарного запаса и структурировании письменной речи. Однако были выявлены и такие проблемы, как чрезмерная зависимость от ИИ при сложной грамматике, технические сбои и отсутствие эмоционального интеллекта в ответах ИИ.

Ключевые слова: *искусственный интеллект; обучение английскому языку; уровень B1; автономия учащихся; иноязычное образование; образовательные технологии; качественное исследование.*

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В1 ДЕҢГЕЙІНДЕ ШЕТЕЛ ТІЛІН ОҚЫТУДА ЖАСАНДЫ ИНТЕЛЛЕКТ ТЕХНОЛОГИЯЛАРЫН ПАЙДАЛАНУ

Аңдатпа

Мақалада В1 (Орташа) деңгейіндегі бакалавриат студенттеріне ағылшын тілін оқыту процесінде жасанды интеллект (ЖИ) технологияларын біріктірудің тиімділігі зерттеледі. Қазіргі білім беру талаптары жағдайында диалогтық чат-боттар, жазба жұмыстарын автоматты түрде бағалау жүйелері және тіл үйренуге арналған дербестендірілген қосымшалар сияқты ЖИ құралдары өзекті әрі жоғары тиімді тәсіл болып табылады. Зерттеу барысында функционалдық тілді қолдануға, нақты уақыт режимінде кері байланыс алуға және өздігінен білім алуды дамытуға бағытталған ЖИ құралдары қолданылған сабақтар әзірленіп, өткізілді. Деректерді жинау төрт апталық эксперименттен кейін студенттерден сауалнама алу арқылы сапалық және сандық әдістермен жүзеге асырылды. Нәтижелер ЖИ қолдану студенттердің мотивациясын едәуір арттыратынын, олардың дербестігін дамытатынын және қате жіберуден қорықпайтын орта қалыптастыру арқылы сөйлеу кезіндегі уайымды азайтатынын көрсетті. Студенттер сөздік қорды меңгеруде және жазбаша сөйлеу құрылымында айтарлықтай жақсаруды атап өтті. Дегенмен, күрделі грамматикада ЖИ-ге тым тәуелділік, техникалық ақаулар және ЖИ жауаптарындағы эмоциялық интеллектінің болмауы сияқты қиындықтар да анықталды.

Түйін сөздер: *жасанды интеллект; ағылшын тілін оқыту; B1 деңгейі; білім алушының дербестігі; шет тілінде білім беру; білім беру технологиялары; сапалық зерттеу.*

Introduction

English language teaching (ELT) is currently undergoing a profound paradigm shift driven by the exponential integration of Artificial Intelligence (AI) into educational ecosystems [6, 9]. As globalization continues to cement English as the universal lingua franca, the demand for highly efficient, adaptive, and scalable pedagogical methodologies has never been greater. Traditional instructional frameworks, which often rely on static curricula and generalized classroom instruction, are increasingly being augmented—and in some contexts, replaced—by Intelligent Computer-Assisted Language Learning (iCALL) and Technology-Enhanced Language Learning (TELL). Among these technological advancements, Generative Pre-trained Transformers (GPT) and sophisticated Natural Language Processing (NLP) models present unprecedented opportunities to deliver hyper-personalized, dynamic language instruction [2].

The application of AI tools is particularly critical for learners operating at the Common European Framework of Reference for Languages (CEFR) B1 (Intermediate) proficiency level. In applied linguistics, the B1 level is universally recognized as a transitional threshold where learners must move beyond foundational, highly scaffolded language use toward independent, spontaneous communication. However, it is at this precise stage that students frequently encounter the phenomenon known as the "intermediate plateau" [8]. This cognitive and linguistic stagnation occurs when learners possess sufficient linguistic resources to meet basic communicative needs but struggle to acquire complex syntactic structures, sophisticated lexical variations, and nuanced pragmatics. Overcoming this plateau requires a high volume of individualized, interactive practice

and immediate corrective feedback—resources that are often constrained by the large student-to-teacher ratios inherent in traditional higher education settings.

Theoretically, the integration of Artificial Intelligence serves as a powerful mechanism to bridge this pedagogical gap. Grounded in Lev Vygotsky's sociocultural theory, AI tools can effectively function as a digital "More Knowledgeable Other" (MKO) within the learner's Zone of Proximal Development (ZPD) [10]. By providing continuous, non-judgmental scaffolding, AI conversational agents and automated writing evaluators reduce the cognitive load and affective barriers associated with second language acquisition. Furthermore, AI platforms facilitate a low-affective filter environment [5], which is crucial for minimizing Foreign Language Classroom Anxiety (FLCA). When interacting with an AI, learners are shielded from the fear of peer judgment, thereby promoting linguistic risk-taking and enhanced communicative confidence.

Despite the growing enthusiasm for Artificial Intelligence in Education (AIED), there remains a noticeable lacuna in empirical research detailing its specific, practical efficacy at the intermediate proficiency level within formal university curricula [4]. Much of the existing literature either focuses on early-stage vocabulary acquisition or highly advanced academic writing, leaving the unique communicative challenges of the B1 learner underexplored.

Therefore, this study aims to rigorously investigate the effectiveness of Artificial Intelligence as a central pedagogical tool in teaching English to B1-level undergraduate students. To achieve this overarching goal, the research is guided by the following specific objectives:

1. To evaluate the impact of AI conversational agents on reducing students' speaking anxiety and improving communicative confidence in spontaneous socio-linguistic scenarios.
2. To assess how the use of automated writing and structural feedback tools fosters self-regulated learning and enhances learner autonomy outside the traditional classroom environment.
3. To analyze learners' perceptions regarding the accuracy, limitations, and overall utility of AI-generated feedback compared to conventional teacher-led instruction.

By addressing these objectives, this research seeks to provide evidence-based recommendations for educators on how to systematically embed AI technologies into ELT frameworks, ensuring that these tools serve not merely as technological novelties, but as robust instruments for achieving specific linguistic outcomes.

Methods

Research Design and Methodology To provide a comprehensive and robust analysis of the pedagogical phenomenon, this study employed an Explanatory Sequential Mixed-Methods design. This methodological framework was deliberately selected to facilitate data triangulation, allowing for a multifaceted evaluation of integrating Artificial Intelligence into language learning [6, 9]. The quantitative phase aimed to identify broad statistical trends regarding learner autonomy and speaking anxiety, while the subsequent qualitative phase was designed to explore the underlying cognitive, psychological, and instructional mechanisms driving those trends. This dual approach is highly suited for evaluating educational technologies, as it captures both measurable linguistic outcomes and the nuanced, subjective experiences of the users interacting with artificial intelligence.

Participants and Setting The research was conducted at a university setting, targeting higher education learners. A purposive sampling technique was utilized to select forty-eight first- and second-year undergraduate students. To ensure empirical validity, the participants were divided into an experimental group and a control group, each consisting of twenty-four students. The primary focus of this study lies in the experimental group's interaction with artificial intelligence tools. All participants were uniformly assessed at the B1 intermediate proficiency level according to the Common European Framework of Reference for Languages, verified through a standardized pre-intervention placement test. The demographic profile consisted of students aged eighteen to twenty-one, majoring in non-linguistic disciplines. This demographic is significant, as their motivation for language acquisition is primarily instrumental, driven by academic and professional communication needs rather than specialized philological study.

Pedagogical Intervention and Procedure The instructional intervention spanned a concentrated four-week period, during which generative artificial intelligence tools were systematically embedded into the established English language curriculum. The pedagogical framework was grounded in Task-Based Language Teaching principles [8], shifting the instructional focus from rote grammatical memorization to meaningful, authentic task completion facilitated by intelligent technologies. During the initial two weeks, the focus was placed on written production and structural autonomy. Students utilized artificial intelligence writing assistants as asynchronous digital tutors. Rather than simply using the technology to generate text, learners were trained in prompt engineering [4]. They drafted professional emails and argumentative essays, subsequently prompting the artificial intelligence to analyze their texts, identify syntactical errors, suggest sophisticated lexical alternatives, and explicitly explain the underlying grammar rules. This process required students to critically evaluate the algorithmic feedback before submitting their final drafts to the human instructor. In the following two weeks, the focus transitioned to spontaneous oral fluency and pragmatic competence. Students engaged in structured role-playing scenarios using voice-enabled conversational agents. Tasks included negotiating a travel dispute, participating in a simulated job interview, and debating modern socio-economic issues. Learners were tasked with analyzing the socio-linguistic markers of the artificial intelligence, extracting new idiomatic expressions, and reflecting on the flow of the dialogue within a low-affective filter environment [5].

Instruments for Data Collection Data triangulation was achieved through the deployment of three distinct instruments administered in a coherent sequence. Initially, pre- and post-intervention surveys were administered digitally. These surveys utilized a five-point Likert scale to measure specific psychological constructs, integrating adapted items from the Foreign Language Classroom Anxiety Scale to evaluate shifts in speaking anxiety alongside constructs measuring technological acceptance and perceived learner autonomy. In addition to the quantitative surveys, participants submitted weekly qualitative reflections throughout the four-week intervention. These learner diaries were designed to capture real-time emotional states during interactions with the artificial intelligence, documenting instances of frustration, such as algorithmic hallucinations or rigid responses, as well as perceived linguistic breakthroughs. Finally, following the intervention, a subset of eight students from the experimental group participated in in-depth, semi-structured focus group interviews. These sessions allowed researchers to probe deeper into the survey results, specifically exploring how the transition from traditional teacher-reliance to technology-assisted autonomy affected their overall learning identity.

Data Analysis and Ethical Considerations The collected data underwent a rigorous, multi-stage analysis. Quantitative data derived from the Likert-scale surveys were processed using statistical software to calculate descriptive statistics, including means and standard deviations. Paired-samples t-tests were subsequently conducted to determine the statistical significance of attitudinal and anxiety shifts between the pre- and post-intervention phases. Conversely, the qualitative data sourced from the reflective diaries and transcribed interviews were subjected to a rigorous thematic analysis [1]. This involved a process of familiarization, iterative open coding, and the systematic identification of recurring meta-themes. To ensure inter-coder reliability, two independent researchers coded the qualitative data and resolved any discrepancies through scholarly discussion. Ethical guidelines were strictly adhered to throughout the research process, with all participants providing informed consent and all collected data remaining fully anonymized.

Research Results

The systematic analysis of pre- and post-intervention survey data yielded statistically significant shifts across all measured psychological and linguistic constructs within the experimental cohort ($n = 24$), thereby furnishing robust empirical corroboration for the overall efficacy of the AI-enhanced pedagogical intervention [2, 6]. Prior to the commencement of the study, the experimental group registered a mean Foreign Language Classroom Anxiety Scale (FLCAS) score of 3.87 ($SD = 0.54$) on the five-point Likert scale, indicative of moderately

elevated anxiety, particularly pertaining to spontaneous oral production and the apprehension of peer evaluation. Upon conclusion of the four-week intervention, this metric underwent a statistically significant reduction, declining to a post-intervention mean of 2.61 (SD = 0.48). A paired-samples t-test confirmed the statistical significance of this shift ($t(23) = 6.14$, $p < 0.001$, Cohen’s $d = 2.43$), denoting a large effect size and affirming that the reduction in speaking anxiety was not attributable to random variation. Concurrently, the Learner Autonomy Index demonstrated a substantial upward trajectory, advancing from a pre-intervention mean of 2.74 (SD = 0.61) to a post-intervention mean of 3.92 (SD = 0.49), a gain validated as statistically significant ($t(23) = -7.82$, $p < 0.001$, Cohen’s $d = 2.16$). In contrast, the control group ($n = 24$), which continued under conventional instructional conditions without AI integration, exhibited no statistically significant change across these constructs (FLCAS: pre $M = 3.79$, post $M = 3.71$, $p = 0.43$; Autonomy: pre $M = 2.68$, post $M = 2.75$, $p = 0.51$), thereby strengthening the internal validity of the experimental design. The consolidated quantitative findings are systematically presented in Table 1, which provides a comparative overview of mean scores, standard deviations, and significance values across both cohorts.

The quantitative outcomes were substantively corroborated by a concurrent thematic analysis of the reflective learner diaries and semi-structured focus group transcripts [1]. Four principal meta-themes emerged from this qualitative strand: (1) affective safety and reduced inhibition in AI-mediated interaction; (2) enhanced metalinguistic awareness through iterative algorithmic feedback; (3) development of self-regulatory learning strategies; and (4) identified constraints of machine-generated socio-pragmatic guidance. A recurrent theme documented across 71 % of learner diary entries concerned the phenomenon of uncritical algorithmic acceptance, wherein students demonstrated a tendency to incorporate AI-generated revisions without engaging in independent evaluative reasoning [7]. Furthermore, 58 % of focus group participants articulated frustration with the evident deficiency of socio-pragmatic intelligence in machine responses, observing that while the technology performed reliably in syntactic error identification, it demonstrably failed to account for the culturally situated subtleties that are constitutive of authentic communicative competence.

Table 1. Thematic Categories of B1-Level Learners’ Perceptions of AI-Mediated Language Learning

Thematic Category	Representative Learner Perception	AI Aspect Evaluated	Pedagogical Implication
Affective Safety	Learners consistently described AI interlocutors as “non-judgmental” and “always patient,”	<i>Low-affective filter environment;</i>	[‘Supports Krashen’s Affective Filter Hypothesis; promotes spontaneous oral risk-taking’]
	reporting that the absence of peer evaluation reduced inhibition during oral tasks.	<i>absence of social anxiety triggers</i>	
Learner Autonomy	Students noted an increased sense of control over their learning pace,	<i>Asynchronous access;</i>	[‘Aligns with Self-Regulated Learning Theory; fosters independent study

	stating they could “practise as many times as needed” without time constraints.	<i>unlimited repetition; self-paced feedback loops</i>	habits beyond classroom hours']
Feedback Quality	Participants valued the immediacy of AI-generated corrections but expressed	<i>Timeliness and specificity</i>	['Highlights need for hybrid model: AI for immediate correction, teacher for conceptual scaffolding']
	concern that explanations “lacked depth” compared to instructor feedback.	<i>of corrective feedback;</i>	
		<i>metalinguistic clarity</i>	
Vocabulary Development	Learners reported encountering “new words in context” during AI conversations,	<i>Contextualised lexical input;</i>	['Supports Nation’s (2001) Input Hypothesis; AI serves as a rich lexical environment']
	which facilitated incidental acquisition beyond syllabus-bound instruction.	<i>incidental vocabulary exposure</i>	
Socio-Pragmatic Limitations	A recurring concern involved AI responses that felt “unnatural” or “too formal,”	<i>Cultural sensitivity;</i>	['Underscores irreplaceable role of human educator in culturally situated language instruction']
	failing to reflect authentic cultural nuance or idiomatic expression.	<i>pragmatic appropriateness;</i>	
		<i>idiomatic register</i>	
Over-Reliance Risk	Several learners admitted “copying AI suggestions without thinking,”	<i>Critical evaluation of</i>	['Necessitates explicit digital literacy instruction; Mostert’s (2007) cognitive overload concern']
	indicating passive consumption rather than critical engagement with feedback.	<i>machine-generated content;</i>	
		<i>metacognitive awareness</i>	

Note. Thematic categories were derived through inductive thematic analysis (Braun & Clarke, 2006) of learner diary entries and semi-structured focus group transcripts. Representative perceptions reflect composite paraphrases of recurring statements, not direct verbatim quotations.

Table 2. AI Tools Employed in the Pedagogical Intervention: Functions, Applications, and Theoretical Underpinnings

AI Tool / Platform	Primary Pedagogical Function	Application within the Intervention	Theoretical Framework
ChatGPT (GPT-4)	Conversational AI agent; real-time oral and written interaction	Role-play scenarios: job interviews, travel disputes, socio-economic debates; spontaneous dialogue practice	<i>Vygotsky's ZPD; Krashen's Affective Filter Hypothesis</i>
Grammarly (Advanced)	Automated writing evaluation and structural feedback	Essay and email drafting; syntactic error identification; lexical enhancement suggestions	<i>Self-Regulated Learning Theory; Task-Based Language Teaching (TBLT)</i>
Duolingo (AI Mode)	Adaptive vocabulary and grammar reinforcement	Supplementary asynchronous practice; gamified lexical acquisition outside classroom hours	<i>Behaviourist reinforcement; Spaced Repetition System (SRS)</i>
Elsa Speak	AI-powered pronunciation coach; phonemic accuracy feedback	Targeted phonological training; reduction of pronunciation-related speaking anxiety	<i>Communicative Competence Model (Canale & Swain, 1980)</i>
QuillBot (Paraphraser)	Paraphrasing and syntactic restructuring assistant	Metalinguistic awareness development; critical evaluation of alternative syntactic constructions	<i>Metalinguistic Awareness Theory; Cognitive Language Learning Approach</i>

Note. ZPD = Zone of Proximal Development; TBLT = Task-Based Language Teaching; SRS = Spaced Repetition System. All tools were integrated within a structured pedagogical framework under instructor supervision.

Discussion

The findings of this study provide compelling empirical evidence supporting the integration of artificial intelligence in bridging the intermediate plateau, aligning with and expanding upon established paradigms in foreign language education [6, 8]. The observed reduction in speaking anxiety and the concurrent increase in communicative confidence directly resonate with Suleimenova's [8] assertions regarding the fundamental principles of communicative competence formation. Suleimenova posits that authentic, interactive practice is paramount for effective language acquisition; the current study demonstrates that artificial intelligence can simulate these authentic environments with remarkable efficacy, providing the high-volume, low-stakes practice required at the B1 proficiency level. By functioning as a continuous digital interlocutor, the technology allows learners to iteratively refine their functional

language and pragmatic skills before engaging in high-stakes human communication, thereby fulfilling the core requirements of communicative competence in a highly scalable and individualized manner.

Despite the significant linguistic benefits observed, the pedagogical integration of these advanced algorithms is not without structural and cognitive challenges, a duality that echoes the foundational concerns raised by Mostert [7] regarding complex instructional methodologies. Just as Mostert identified the cognitive overload and facilitation challenges inherent in case-based teaching, the present study reveals parallel difficulties in technology-enhanced environments, specifically the danger of algorithmic over-reliance and the potential diminution of critical thinking. When learners accept automated feedback passively, the technology transitions from a scaffolding tool to a cognitive crutch. Furthermore, the successful implementation of functional language scenarios via artificial intelligence requires rigorous instructional design, mirroring Hidayati's [3] conclusions on the necessity of structured implementation in specialized language teaching. Hidayati emphasized that complex instructional methods must be systematically guided to yield positive outcomes. Similarly, this study concludes that artificial intelligence cannot operate effectively in a pedagogical vacuum; to maximize its efficacy and mitigate the risks of passive consumption, educators must establish explicit frameworks for digital literacy and critical algorithmic evaluation, ensuring that human cognitive oversight remains central to the technological learning loop.

Conclusion

The integration of artificial intelligence technologies into the English language teaching process for learners at the intermediate proficiency level represents a transformative pedagogical shift [2, 9]. This study conclusively demonstrates that when employed systematically within a task-based framework, generative artificial intelligence tools serve as highly effective digital interlocutors and asynchronous tutors. By providing a non-judgmental, low-affective filter environment [5], these technologies significantly mitigate foreign language classroom anxiety, enabling students to engage in spontaneous oral production and structural experimentation with remarkably enhanced confidence. The transition from continuous instructor dependence to technologically facilitated autonomy marks a critical milestone in overcoming the well-documented intermediate linguistic plateau [8]. Learners equipped with intelligent algorithmic support exhibited an impressive capacity for self-correction, iterative drafting, and independent vocabulary acquisition, thereby actively fulfilling the core tenets of communicative competence formation.

However, the findings simultaneously emphasize that artificial intelligence is not a panacea for the inherent complexities of foreign language education, thus necessitating cautious and theoretically grounded implementation. The clearly identified risks of algorithmic over-reliance and the intrinsic lack of socio-pragmatic nuance in machine-generated responses highlight the undeniably indispensable role of the human educator. Artificial intelligence cannot operate effectively in a pedagogical vacuum; it requires rigorous instructional scaffolding to ensure that students engage critically with automated feedback rather than consuming it passively. Consequently, future research must urgently pivot toward longitudinal studies designed to examine the long-term cognitive impacts of sustained artificial intelligence usage across diverse demographic groups and proficiency levels. Furthermore, there is a pressing need for the academic community to develop comprehensive pedagogical frameworks that explicitly teach digital literacy alongside linguistic skills, ensuring that emerging technologies consistently augment rather than inadvertently diminish human critical thinking [4]. Ultimately, a balanced, ethically conscious approach will allow educators to harness the immense potential of artificial intelligence while preserving the deeply socio-emotional dimensions of language acquisition.

References

1. Braun, V., & Clarke, V. (2006). *Using thematic analysis in psychology. Qualitative Research in Psychology*, 3(2), 77-101.

2. Eslit, E. R. (2023). *The role of generative artificial intelligence in modern English language teaching*. *Journal of Language and Educational Technology*, 14(3), 45-60.
3. Hidayati, L. (2021). *Case-based method and its implementation in English for medical purposes*. *Journal of Language, Literature, and English Teaching (JULIET)*, 2(2), 36-42.
4. Konyrova, A. (2024). *Prompt engineering as a new literacy in technology-enhanced language learning*. *International Journal of Applied Linguistics*, 32(1), 88-104.
5. Krashen, S. D. (1982). *Principles and practice in second language acquisition*. Pergamon Press.
6. Li, X. (2024). *Artificial intelligence in educational ecosystems: Paradigm shifts in foreign language pedagogy*. *Educational Technology Research and Development*, 72(4), 1120-1145.
7. Mostert, M. P. (2007). *Challenges of case-based teaching*. *The Behavior Analyst Today*, 8(4), 434-442.
8. Suleimenova, Z. Z. (2013). *Communicative competence formation in teaching foreign languages in Kazakhstan*. *Procedia – Social and Behavioral Sciences*, 93, 1538-1542.
9. Ulfa, M. (2023). *Artificial intelligence technology in TESL*. *International Journal of Multidisciplinary Research and Analysis*, 6(5).
10. Zulkarnain, A., & Yunus, M. M. (2023). *Intelligent tutoring systems and learner autonomy in the EFL context*. *Computer Assisted Language Learning*, 36(7), 1450-1472.