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DIDACTIC OPPORTUNITIES OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN ORGANIZING INDEPENDENT LEARNING FOR KOREAN LANGUAGE STUDENTS

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Abstract. This article investigates the pedagogical and psychological foundations of integrating artificial intelligence (AI) technologies into the independent study framework of undergraduate students majoring in the Korean language. Given the shifting paradigms towards digital educational ecosystems, the study evaluates the efficacy of generative AI, large language models (LLMs), and intelligent tutoring systems in optimizing vocabulary acquisition, cultural-pragmatic accuracy, and speech proficiency. A pedagogical experiment involving 100 students split into experimental and control groups was conducted to measure the impact of an AI-mediated personalized learning model. The findings demonstrate that structured independent interaction with AI agents significantly reduces linguistic anxiety, automates corrective feedback loops, and enhances students' sociolinguistic competence. Methodological strategies and contextual didactic exercises are further proposed for practical application in modern higher education settings.
Key words: artificial intelligence, Korean language pedagogy, independent learning, digital transformation, generative AI, educational chatbots, personalized learning paths, speech recognition, educational technology.

КОРЕЙС ТИЛИ ЙЎНАЛИШИ ТАЛАБАЛАРИНИНГ МУСТАҚИЛ ТАЪЛИМИНИ ТАШКИЛ ЭТИШДА СУНЪИЙ ИНТЕЛЛЕКТ ТЕХНОЛОГИЯЛАРИНИНГ ДИДАКТИК ИМКОНИЯТЛАРИ

Аннотация. Ушбу мақолада корейс тили таълим йўналиши талабаларининг мустақил таълим жараёнига сунъий интеллект (СИ) технологияларини жорий этишнинг педагогик ва психологик асослари тадқиқ этилган. Рақамли таълим экотизимларига ўтиш шароитида генератив СИ, йирик тил моделлари (LLM) ва интеллектуал репетиторлик тизимларининг талабалар луғат бойлигини ошириш, маданий-прагматик кўникмаларни шакллантириш ва оғзаки нутқ оқимини ривожлантиришдаги самарадорлиги баҳоланган. 100 нафар талабадан иборат эксперимental ва назорат гуруҳлари иштирокидаги педагогик тажриба-синов ишлари СИ воситасида шакллантирилган шахсийлаштирилган таълим моделининг ижобий таъсирини кўрсатди. Натижалар шуни исботлайдики, СИ агентлари билан тизимли мустақил мулоқот тил ўрганишдаги психологик тўсиқларни камайтиради ва социолингвистик компетентликни оширади. Олий таълимда қўллаш учун методик тавсиялар ишлаб чиқилган.
Калит сўзлар: сунъий интеллект, корейс тили методикаси, мустақил таълим, рақамли трансформация, генератив СИ, таълимий чат-ботлар, шахсийлаштирилган таълим траекторияси, нутқни таниш.

Introduction

The rapid evolution of artificial intelligence (AI) technologies has radically reconfigured the modern pedagogical landscape, shifting the educational paradigm from traditional, teacher-led knowledge transmission toward autonomous, data-driven personalized learning processes [1 b. 12].

In the context of foreign language acquisition in higher education, optimizing independent learning remains a primary pedagogical objective, as classroom hours are inherently insufficient for achieving advanced communicative fluency [4 b. 7]. For Uzbek students learning Korean, this task presents distinct morpho-syntactic and socio-pragmatic challenges, particularly in mastering complex honorific systems (jondehmat) and contextual speech registers [2 b. 88].

Domestic higher education institutions, such as the Kimyo International University in Tashkent, are heavily invested in pedagogical digital transformation to meet the surging demand for highly proficient foreign language specialists [3 b. 104]. While traditional web resources and digitized audio-visual tools provide access to linguistic data, they lack the interactive, adaptive capability required to cultivate productive speaking and writing competencies without a human instructor present [12 b. 85]. Consequently, evaluating the didactic opportunities offered by generative AI conversational agents and intelligent recommendation systems (IRSs) for structured independent learning has become an area of vital empirical inquiry [5 b. 75; 16 b. 24]. The objective of this study is to formulate and empirically validate a methodological framework for AI-assisted independent Korean language learning in higher education.

Research Object and Methods

The object of this research is the process of independent Korean language learning among undergraduate university students, specifically focusing on the deployment of AI technologies as cognitive scaffolds. To evaluate the educational outcome of AI integration, a multi-methodological approach was adopted:

- A systematic literature review analyzing foundational second language acquisition (SLA) theories, technology-enhanced learning (TEL) concepts, and recent studies on generative AI in education [11 b. 198].
- Pedagogical modeling to construct a systematic digital architecture for autonomous language practice.
- A controlled pedagogical experiment conducted over a semester involving 100 undergraduate students majoring in Korean philology. The participants were equally distributed into an experimental group (\(n=50\)) and a control group (\(n=50\)).
- Quantitative data collection using language proficiency metrics and qualitative evaluations analyzed via mathematical-statistical methods.

Literature Review

The incorporation of technology in language pedagogy is conceptually rooted in constructivist learning theories, Vygotsky's Zone of Proximal Development (ZPD), and connectivism, which underscore the value of adaptive scaffolding and authentic communication [15 b. 142]. Early software tools primarily offered static, gamified repetitions [14 b. 45]. However, recent advancements have shifted the focus toward large language models (LLMs) and conversational chatbots capable of deep, open-ended context simulation [10 b. 80].

Emerging international scholarship demonstrates that AI application significantly improves foreign language performance by generating customized learning paths and facilitating real-time automated feedback loops [7 b. 54]. Scholars specialized in Korean linguistics emphasize that generative AI models are uniquely useful for specialized training tasks, including Test of Proficiency in Korean (TOPIK) preparation, business negotiations, and academic writing, provided they are explicitly aligned with Korean phonology and morphology [8 b. 215]. Regionally, researchers have heavily advocated for integrative digital tools in university curricula to optimize individual resource allocation and lessen the instructional burden on educators [5 b. 78]. Despite these insights, a generalized structural model delineating how students should interact with generative AI tools independently during self-study hours remains significantly underdeveloped.

Discussion

Independent language learning through conventional methodologies often fails due to a lack of authentic feedback, leading to fossilized grammatical errors and high language anxiety during spontaneous production [16 b. 32]. AI conversational technologies address these gaps by acting as persistent, low-stakes simulation partners [9 b. 110]. In our proposed independent learning model, AI applications are leveraged across three core didactic dimensions:

1. **Conversational Scaffolding and Anxiety Reduction:** Unlike human interlocutors, AI platforms provide a non-judgmental environment, allowing students to experiment with complex sentence structures and honorific markers without social friction [13 b. 315].
2. **Contextual Vocabulary and Grammar Acquisition:** Instead of relying on static bilingual word lists, students use generative AI prompts to synthesize dynamic text variants, adjusting the lexical difficulty on demand to enforce active linguistic retrieval [12 b. 87].
3. **Productive Skill Simulation:** Following structured frameworks like targeted contextual simulations, AI models prompt open-ended real-world situations, such as job interviews or corporate discussions, requiring the student to formulate unscripted responses [11 b. 202].

However, pedagogical observation indicates that unsupervised or excessive reliance on AI platforms introduces systemic risks, such as linguistic hallucinations, pragmatic inaccuracies regarding cultural nuances, and diminished learner autonomy [1 b. 15]. Therefore, optimal outcomes are achieved when independent AI interactions are scaffolded by teacher-curated prompt matrices and clear learning pathways [6 b. 120].

Results and Data Analysis

During the empirical phase of the study, the control group pursued their independent study hours utilizing conventional university workbooks and static digital audio materials. Meanwhile, the experimental group interacted regularly with an LLM-powered conversational agent developed using structured prompts tailored for Korean pragmatic acquisition [3 b. 106]. The students utilized voice-to-text inputs for speaking practice and requested contextual syntax analysis during autonomous writing sessions [2 b. 90].

At the conclusion of the academic term, a comparative examination evaluating speaking fluency, writing accuracy, and socio-pragmatic comprehension was administered. The statistical data from this assessment is presented in Table 1.

Table 1.

Comparative linguistic performance indicators at the conclusion of the experiment

Target Groups	Number of Students	High Proficiency (%)	Intermediate Level (%)	Basic Level (%)	Average Academic Performance (%)
Experimental Group	50	46%	42%	12%	**85.4%**
Control Group	50	24%	46%	30%	**67.8%**

The data reveals that the experimental group achieved an average performance score of 85.4%, outperforming the control group by 17.6%. Crucially, the proportion of students achieving high proficiency doubled in the AI-assisted cohort (46% vs 24%). This statistical discrepancy validates the hypothesis that real-time automated correction, personalized resource adaptation, and interactive speech simulations collectively accelerate functional second language acquisition [7 b. 58; 10 b. 85].

Conclusion

The empirical findings and theoretical analysis of this study substantiate the following conclusions:

1. Artificial intelligence technologies present extensive didactic opportunities for higher education, effectively converting independent self-study from passive content consumption into an active, dialectical learning experience [3 b. 108].

2. The structured use of AI conversational platforms optimizes student performance in productive speech and writing, significantly mitigating psychological barriers and communication anxiety [16 b. 35].

3. To safeguard academic integrity and circumvent errors stemming from technological hallucinations, AI tools must not entirely supplant traditional methodologies; instead, they should be seamlessly integrated into a hybrid curriculum under teacher-guided architectural frameworks [5 b. 81].

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