

EXPLORING THE ROLE OF ARTIFICIAL INTELLIGENCE (AI) IN LEARNER-CENTERED KOREAN LANGUAGE EDUCATION AND ITS TRANSLATION CHALLENGES

학습자 중심의 한국어 교육에서 인공지능(AI)의 역할과 번역 문제

Toshboyeva Durdona Fayzi kizi

Uzbekistan State World Languages University, Tashkent, Uzbekistan
toshboyevadurdona657@gmail.com

Annotation: In recent years, the development of artificial intelligence (AI) has brought innovative changes to foreign language education, including Korean. In Korean language learning, AI-based systems analyze learners' pronunciation, grammar, and vocabulary use in real time, providing personalized feedback that enhances learning efficiency. However, despite the advancement of machine translation, it remains difficult to fully convey the cultural context and emotional nuances of a language. Therefore, AI technology should be used as a supplementary tool in Korean language education, alongside teachers' linguistic insight and cultural explanation. This study analyzes the significance of AI in Korean language education, examines the limitations observed in the translation process, and suggests directions for future educational development.

Keywords: Artificial Intelligence (AI), Korean Language Education, Machine Translation, Cultural Nuance, Learner-Centered Education

The rapid advancement of artificial intelligence (AI) in the 21st century is bringing innovative transformations to foreign language education, including Korean language teaching. In particular, AI-based systems analyze learners' pronunciation, grammar, and vocabulary usage in real time and provide personalized feedback, thereby significantly enhancing learning efficiency. However, despite the remarkable development of machine translation technologies, it remains challenging for AI to fully convey the cultural context and emotional nuances inherent in language. Therefore, AI should be utilized as a supportive tool in Korean language education, complemented by teachers' linguistic insights and cultural explanations.

This study aims to analyze the significance of AI-assisted Korean language education and the limitations observed in the translation process, while proposing future directions for language education in the AI era.

The 21st century is the era of technological innovation, with artificial intelligence at its core. AI technologies are being applied across diverse fields such as education, healthcare, and industry, marking a significant turning point in foreign language education as well. In particular, the global popularity of the Korean Wave (Hallyu) has led to a sharp increase in the demand for Korean language learning worldwide. This has heightened the need for new teaching methods and tools that can improve learning efficiency, and artificial intelligence is playing a pivotal role in meeting these demands.

AI-powered Korean language education can maximize learning efficiency by analyzing each learner's individual proficiency level and providing customized learning pathways. For instance, tools such as ChatGPT, Naver Clova, and Google AI Tutor can automatically correct grammatical errors and evaluate the naturalness of vocabulary usage. Moreover, AI-based learning platforms analyze learners' speech data to diagnose individual weaknesses and improve pronunciation accuracy through repeated practice and speech recognition systems. Such data-driven learning systems offer real-time feedback that is difficult to achieve in traditional

classroom settings, thereby increasing learner motivation and strengthening self-directed learning abilities. These features promote learner autonomy, reduce teachers' workload, and enhance the sustainability of learning.

AI-powered systems now offer real-time analysis of learners' pronunciation, grammar, vocabulary, and speech patterns, delivering personalized feedback and adaptive learning pathways. Tools such as ChatGPT, Naver Clova, Google AI Tutor, and specialized chatbots like **Sayromi** have demonstrated significant improvements in learners' willingness to communicate (WTC), speaking fluency, pronunciation accuracy, and self-directed learning. Multimodal AI platforms further enhance engagement by simulating real-life conversational scenarios, reducing anxiety, and providing immediate corrective feedback that is often unattainable in traditional classrooms.

However, despite these advancements, AI still faces notable limitations in fully capturing the cultural depth and emotional subtleties of the Korean language. Concepts such as **jeong** (정) — a complex sense of affection, attachment, and interconnectedness — and **han** (한) — a profound feeling of unresolved sorrow, resentment, and longing — embody layered emotional and cultural meanings that simple translations like “love” or “sorrow” fail to convey. Similarly, Korean honorifics (**jondeotmal** and **banmal**), context-dependent verb endings, and indirect communication styles rooted in social hierarchy and relational dynamics are frequently distorted or oversimplified by machine translation systems. These shortcomings highlight that AI cannot yet replicate the nuanced cultural empathy and pragmatic sensitivity essential to authentic language use.

South Korea itself is actively integrating AI into education, with the rollout of AI-supported digital textbooks beginning in March 2025 for subjects including English, mathematics, and informatics in selected grades. While these initiatives aim to personalize learning, challenges such as teacher readiness, digital dependency concerns, and uneven adoption have led to adjustments, underscoring the need for balanced implementation.

This study examines the significance of AI-assisted Korean language education, analyzes the persistent limitations in machine translation and cultural interpretation, and proposes future directions. Effective integration requires a **human-centered blended learning model** that combines the strengths of AI with teachers' linguistic insight and cultural expertise.

While the development of AI translators provides great convenience to learners, machine systems still struggle to perfectly interpret the unique cultural expressions and emotional nuances of the Korean language. For example, words such as “jeong (情)” and “han (恨)” carry complex emotional layers that cannot be adequately rendered simply as “love” or “sorrow.” Additionally, honorifics and informal speech levels, along with context-dependent verb endings, represent core characteristics of Korean culture, yet AI translations frequently distort or omit these elements. As a result, not only semantic accuracy but also cultural empathy is diminished. Therefore, AI must be employed only as an auxiliary means, always accompanied by human teachers' cultural guidance and linguistic sensitivity.

For AI-assisted Korean language education to be implemented effectively, the following approaches are essential:

1. **Blended Learning Model** — Combining AI systems with direct teacher instruction to improve the overall quality of learning.
2. **Culture-Integrated Education** — Teaching language and culture simultaneously so that learners can develop cultural understanding beyond mere grammatical knowledge.
3. **Improvement of AI Data Quality** — Diversifying Korean learner databases to enhance translation accuracy and the reliability of language models.

4. **Strengthening Critical Thinking** — Cultivating learners' ability to critically evaluate AI outputs rather than passively accepting them, enabling them to identify and correct errors independently.

Artificial intelligence serves as an innovative tool that maximizes the efficiency of Korean language education and creates personalized learning environments tailored to individual learner characteristics. However, the cultural essence of language embodies human emotions and thoughts, which machines cannot fully replace.

Consequently, future Korean language education should fully leverage the strengths of AI technology while advancing toward a **human-centered educational model** that integrates teachers' cultural insights with learners' creative thinking. This convergent approach represents the sustainable direction for language education befitting the AI era.

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