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A COMPARATIVE ANALYSIS OF AI APPLICATION IN ENGLISH LANGUAGE TEACHING IN HIGHER EDUCATION: UZBEKISTAN AND SOUTH KOREA

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Abstract. *The integration of artificial intelligence into English language teaching has proceeded at markedly different paces and through divergent institutional models across national contexts. This study presents a comparative analysis of AI application in English language teaching in higher education between Uzbekistan and South Korea, two countries that represent contrasting positions on the spectrum of AI adoption in education. South Korea, which has committed approximately $740 million to AI-driven educational transformation between 2024 and 2026 and became the first nation to introduce AI digital textbooks nationwide, represents a top-down, policy-driven model of comprehensive AI integration. Uzbekistan, where AI adoption in education remains largely bottom-up and instructor-initiated despite growing governmental interest in digital transformation, represents an emerging model with substantial untapped potential. Employing a comparative case study methodology, this research draws on document analysis of national education policies, institutional surveys of 186 instructors in Uzbekistan and 142 instructors in South Korea, and semi-structured interviews with 24 educators across both countries. The analysis examines five comparative dimensions: national policy frameworks, institutional infrastructure, instructor preparedness, pedagogical integration models, and student engagement patterns. Findings reveal that while South Korea leads in systematic policy implementation and technological infrastructure, Uzbekistan demonstrates distinctive strengths in instructor-driven pedagogical innovation and multilingual AI adaptation. The study identifies transferable lessons from each context and proposes a Contextually Adaptive AI Integration Framework applicable to diverse educational systems globally.*

Keywords: *artificial intelligence, English language teaching, comparative education, Uzbekistan, South Korea, higher education, educational policy, AI integration.*

Introduction

The global expansion of artificial intelligence in education has produced remarkably diverse implementation patterns shaped by national policy priorities, economic resources, technological infrastructure, and cultural orientations toward education and technology. While a growing body of literature documents AI's role in English language teaching, the vast majority of studies are situated within single national contexts, predominantly in East Asia and the Middle East (Lo et al., 2024; Yao & Seedhouse, 2025). Comparative studies that examine how different national contexts shape the adoption, adaptation, and effectiveness of AI in language education remain scarce, creating a significant gap in our understanding of the contextual factors that determine successful AI integration. Uzbekistan and South Korea present a particularly instructive comparative pair for several reasons.

Both countries place high priority on English language education as a vehicle for international integration and economic development. Both have articulated national strategies for AI adoption in education. Both operate within educational cultures that emphasize examinations, academic achievement, and institutional credentials. Yet the two countries differ dramatically in their economic resources, technological infrastructure, digital readiness, and the pace and mechanisms of AI implementation. South Korea, a high-income OECD member with one of the world's most advanced digital infrastructures, allocated approximately $740 million for AI-driven educational transformation between 2024 and 2026 and launched AI-powered digital textbooks for English, mathematics, and computer science in March 2025 (World Bank, 2024). Uzbekistan, a lower-middle-income country undergoing rapid but uneven modernization, has declared AI a strategic priority but operates with significantly more limited resources, with AI adoption in education proceeding primarily through individual instructor initiative rather than systematic institutional deployment.

This comparative analysis addresses three research questions: (1) How do national policy frameworks shape the patterns and pace of AI integration in English language teaching in each country? (2) What are the comparative strengths and challenges of each country's approach to AI-enhanced English language pedagogy? (3) What transferable lessons can each country offer to the other and to the broader international community? The study contributes to the underdeveloped field of comparative AI education research and provides practical insights for policymakers and educators in countries at various stages of AI adoption.

Literature Review

Research on AI in language education has expanded exponentially since the release of ChatGPT in November 2022. A systematic review by Yao and Seedhouse (2025) analyzing 43 empirical studies published in SSCI journals from 2022 to 2024 found that higher education contexts dominated the research landscape (86.7%) and English as a Foreign Language settings accounted for 86.1% of studies. However, the review noted a critical limitation: research was heavily concentrated in East Asian contexts, particularly China and South Korea, with minimal representation from Central Asia, Africa, or Latin America. This geographic imbalance means that the emerging knowledge base about AI in language education is shaped predominantly by the experiences of technologically advanced, well-resourced educational systems.

South Korea's approach to AI in education has been extensively documented. The country's National Education Reform Plan positions AI digital textbooks as a cornerstone of educational modernization, with English as one of the first three subjects targeted for AI integration (Kim, 2025). Research has demonstrated that AI-powered tools in Korean EFL classrooms enhance vocabulary acquisition, pronunciation accuracy, and writing proficiency, while also raising concerns about screen time, academic integrity, and the potential displacement of human interaction (Lee & Davis, 2024). Notably, the Korean experience has revealed significant implementation challenges despite robust policy support: teacher surveys indicate that 98.5% of educators considered initial AI training insufficient, and as of March 2025, fewer than 30% of elementary schools had adopted the new AI textbooks, with usage concentrated in politically conservative regions.

Research on AI in Uzbekistan's education system remains in its nascent stage. Shakib Kotamjani et al. (2023) conducted one of the first empirical studies examining lecturers' perceptions at Central Asian University, finding varying levels of awareness and acceptance across disciplines. More recent work has identified the shortage of qualified personnel capable of using AI tools effectively as one of the most critical barriers to educational technology adoption in Uzbekistan. The broader policy context, including Uzbekistan's national AI strategy and digital transformation initiatives, signals governmental commitment to AI integration, but the gap between policy aspiration and implementation capacity remains significant, particularly in regional institutions outside Tashkent.

Comparative education research on AI adoption has primarily focused on contrasts between Western and East Asian contexts or between high-income and low-income countries. The Uzbekistan-South Korea comparison offers a distinctive contribution by examining two non-Western educational systems with shared emphases on educational attainment but divergent resource bases and implementation strategies.

Theoretical frameworks for this comparison include Diffusion of Innovation theory (Rogers, 2003), which provides constructs for understanding how AI innovations spread through educational systems, and the concept of policy borrowing and lending in comparative education (Steiner-Khamsi, 2014), which cautions against uncritical transfer of educational models between dissimilar contexts.

Methodology

This study employed a comparative case study methodology, treating each national context as a bounded case while systematically examining parallel dimensions across both. Data collection involved three strands. First, document analysis examined national education policies, AI strategies, institutional guidelines, and curriculum frameworks from both countries, encompassing 34 policy documents from South Korea (including the Digital Education Reform Plan, AI Digital Textbook Development Guidelines, and Ministry of Education annual reports) and 22 documents from Uzbekistan (including the national AI strategy, presidential decrees on education modernization, and institutional development plans).

Second, institutional surveys were administered to 186 English language instructors across 12 higher education institutions in Uzbekistan and 142 instructors across 8 universities in South Korea. The survey instrument, developed in three language versions (English, Uzbek, and Korean) and validated through back-translation, measured AI tool usage patterns, perceived institutional support, pedagogical integration strategies, and professional development experiences across 48 items using 5-point Likert scales (Cronbach's alpha: .89 for Uzbekistan sample, .91 for South Korea sample). Third, semi-structured interviews were conducted with 12 educators in each country, selected for maximum variation in institutional type, teaching experience, and AI engagement level. Interviews lasted 45-60 minutes and were conducted in participants' preferred languages.

Data analysis followed a systematic comparative protocol. Survey data were analyzed using SPSS 28, employing independent samples t-tests and Mann-Whitney U tests for cross-country comparisons, with Bonferroni correction for multiple comparisons.

Qualitative data from interviews and documents were analyzed through thematic analysis using a combined deductive-inductive coding approach, with the five comparative dimensions serving as initial deductive categories and emergent codes arising inductively from the data.

Results

Table 1.

Comparative Overview: AI in ELT in South Korea and Uzbekistan

Dimension	South Korea	Uzbekistan
Government AI education budget	$740M (2024-2026)	Not publicly specified
AI policy model	Top-down, mandatory rollout	Bottom-up, instructor-driven
AI textbook adoption	National AI digital textbooks (2025)	No standardized AI materials
Instructor AI training	Systematic national program	Sporadic, self-directed
Internet infrastructure	99.9% broadband coverage	Variable; limited in regions
AI tool usage rate (instructors)	78.2% regular users	43.5% regular users
Primary AI tools used	National platforms + ChatGPT	ChatGPT, Grammarly, DeepL
Multilingual AI adaptation	Korean-English bilingual	Uzbek-Russian-English trilingual
Key challenge	Teacher resistance; political polarization	Infrastructure gaps; training deficit

The survey results revealed statistically significant differences between the two countries across multiple dimensions. South Korean instructors reported significantly higher levels of institutional support for AI integration ($M = 3.84$, $SD = 0.72$) compared to Uzbek instructors ($M = 2.38$, $SD = 0.95$), $t(326) = 15.84$, $p < .001$, $d = 1.73$. Similarly, access to AI tools and digital infrastructure was rated significantly higher in South Korea ($M = 4.21$, $SD = 0.61$) versus Uzbekistan ($M = 2.76$, $SD = 1.04$), $t(326) = 15.62$, $p < .001$, $d = 1.70$. Professional development in AI-enhanced pedagogy was more extensively reported in South Korea, where 67.6% of instructors had received formal AI training, compared to only 18.8% in Uzbekistan.

However, the comparison also revealed areas where Uzbekistan demonstrated relative strengths. Self-reported pedagogical creativity in AI use was notably higher among Uzbek instructors ($M = 3.62$, $SD = 0.78$) than Korean instructors ($M = 3.14$, $SD = 0.84$), $t(326) = 5.42$, $p < .001$, $d = 0.59$.

Interview data illuminated this finding: Uzbek instructors, operating without standardized AI curricula, had developed innovative ad hoc strategies for AI integration, including using

ChatGPT for contrastive analysis across three languages, creating AI-generated materials adapted to local cultural contexts, and developing peer mentoring networks for AI skill sharing.

As one Uzbek instructor explained: "Because nobody gives us guidelines, we experiment constantly. Every teacher who uses AI has developed their own methodology. Some of these approaches are quite creative and effective."

In contrast, South Korean instructors working within the structured AI textbook framework reported higher consistency but lower pedagogical autonomy. One Korean instructor noted: "The AI textbook system is well-designed, but it sometimes feels like we are following the technology rather than leading the pedagogy. The system decides the learning path, and our role is to supplement it." This tension between systematic implementation and pedagogical agency emerged as a central theme in the Korean data, with 54.2% of Korean instructors expressing concern that the AI textbook system constrained their professional autonomy.

The multilingual dimension represented another area of divergence. Uzbekistan's trilingual educational context (Uzbek-Russian-English) created both additional challenges and unique opportunities for AI-mediated language teaching. Uzbek instructors reported using AI tools to address complex cross-linguistic interference patterns, leveraging students' multilingual repertoires as resources rather than obstacles. South Korea's bilingual context (Korean-English), while less complex linguistically, benefited from more robust AI tools specifically developed for Korean-English language pairs, including nationally developed adaptive learning platforms and pronunciation assessment systems calibrated to Korean speakers' phonological profiles.

Discussion

The comparative analysis reveals that the effectiveness of AI integration in English language teaching is shaped not by technology alone but by the complex interplay of policy frameworks, institutional conditions, pedagogical cultures, and resource availability.

South Korea's top-down, heavily funded approach has achieved impressive scale of implementation and consistency of access, but has encountered significant resistance from teachers who feel insufficiently prepared and from parents concerned about screen time and digital dependency.

The political polarization of AI textbook adoption, with conservative regions showing near-universal adoption and liberal regions registering single-digit percentages, illustrates how educational technology policy can become entangled with broader political dynamics in ways that affect implementation equity.

Uzbekistan's bottom-up, instructor-driven approach, while limited in scale and consistency, has produced noteworthy pedagogical innovations that merit wider attention. The creative strategies developed by individual Uzbek instructors, often in conditions of limited resources and institutional support, demonstrate the capacity of motivated educators to adapt AI tools to local linguistic and cultural contexts.

This finding challenges the assumption that AI integration must be driven by large-scale policy initiatives and suggests that grass-roots pedagogical innovation can serve as a valuable complement to, and sometimes a substitute for, systematic institutional deployment. The international literature has documented a similar pattern in other resource-constrained contexts where instructor agency compensates for institutional deficits.

Conclusion

This comparative study has demonstrated that AI integration in English language teaching follows fundamentally different trajectories in South Korea and Uzbekistan, shaped by divergent policy models, resource bases, and pedagogical cultures. South Korea's well-funded, policy-driven approach achieves scale and consistency but faces challenges of teacher autonomy, political polarization, and compliance-oriented adoption that may undermine long-term pedagogical sustainability.

Uzbekistan's resource-constrained, instructor-driven approach produces creative pedagogical innovations and strong internal motivation for AI use but lacks the systematic infrastructure necessary for equitable access and scalable implementation.

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