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Integrating Artificial Intelligence in Arabic Language Pedagogy: Toward a Human - AI Collaborative Framework for Indonesian Higher Education

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Abstract
Advances in generative artificial intelligence (GenAI) have brought about significant changes in higher education practices, including in the teaching of Arabic. Technologies based on large language models (LLMs), such as ChatGPT, offer the ability to generate text, provide feedback, simulate conversations, assist with translation, develop learning materials, and support more personalised learning. This article aims to analyse the paradigm shift in Arabic language pedagogy within Indonesian higher education resulting from the development of artificial intelligence, and to formulate a pedagogical framework that positions AI as a cognitive and pedagogical partner, rather than a substitute for lecturers. The research employs an integrative literature review approach, examining scholarly literature on artificial intelligence in education, generative AI, AI-assisted language learning, ChatGPT in higher education, AI literacy, and Arabic language education. The literature was selected based on conceptual relevance, academic quality, the presence of a DOI, and its contribution to the discussion of Arabic language pedagogy. The findings of the study indicate that the integration of AI opens up opportunities in five key areas of transformation: personalised learning, enhanced interactivity and language practice, automated feedback, the development of adaptive materials and assessments, and the promotion of learner autonomy. This study contributes to the development of the discourse on Arabic language pedagogy by offering a conceptual framework for the integration of AI that is critical, ethical, human-centred, and relevant to the nature of higher education in Indonesia.

Keywords: Artificial intelligence; Arabic language pedagogy; generative AI; ChatGPT; higher education.

INTRODUCTION

Digital transformation has changed the way higher education institutions produce, access, distribute and evaluate knowledge. These changes have intensified following the emergence of generative artificial intelligence (GenAI), which is capable of generating text, images, audio, code and various forms of digital content based on user instructions. In the context of higher education, these developments present both opportunities and challenges for teaching practices, assessment, the curriculum and the role of lecturers (Zawacki-Richter et al., 2019; Jensen et al., 2025).

The arrival of ChatGPT in late 2022 marked a significant milestone in this transformation. Unlike previous educational technologies, which generally functioned as mere information delivery tools, GenAI systems can interact with users via natural language, provide immediate responses, generate materials, offer explanations, simulate conversations, and tailor responses based on user instructions. This potential means that AI is no longer merely an instructional technology, but is beginning to act as a cognitive partner in the learning process (Tlili et al., 2023; Bhullar et al., 2024).

These changes have significant implications for language learning. Language is, by its very nature, a system of communication that requires interaction, practice, feedback, context and meaningful use. Language-based AI technology can provide opportunities for practice that were previously limited by time, the number of teachrs and access to communication partners. In second-language learning, AI-based chatbots can provide simulated conversations, corrections, vocabulary exercises, grammar explanations and individualised writing activities (Godwin-Jones, 2023, 2024).

A systematic review of the integration of AI in language learning indicates that AI can support personalisation, the provision of feedback, the development of language competence, and an increase in opportunities for practice. Kussin et al. (2023), for example, demonstrate that research into AI in language learning is expanding, with a focus on language proficiency and personalised learning experiences. More recent reviews of NLP in language education also highlight the use of AI in teaching, literacy, assessment, and feedback provision (Murcia & Jaramillo-Calderón, 2026). Indeed, a systematic review of AI chatbots in second-language learning found that the use of chatbots has the potential to support the development of productive and receptive skills, particularly speaking and writing (Griche & Bennis, 2026). Indeed, a systematic review of AI chatbots in second-language learning found that the use of chatbots has the potential to support the development of productive and receptive skills, particularly speaking and writing (Griche & Bennis, 2026).

However, the integration of AI into Arabic language learning presents its own complexities. Arabic is not merely a linguistic system comprising vocabulary, morphology, syntax, phonology and semantics, but is also closely intertwined with history, culture, religion, rhetoric and Islamic intellectual traditions. Consequently, an AI's ability to generate Arabic text does not automatically imply that such text conforms to the linguistic, pragmatic, pedagogical and cultural norms of the Arabic language.

This issue is particularly significant because Arabic presents linguistic characteristics that make the pedagogical integration of AI different from its application in many other language-learning contexts. Arabic is characterized by a root-and-pattern morphological system, extensive inflectional variation, complex syntactic structures, and the interaction between grammatical form and meaning through phenomena such as i'rāb. In addition, Arabic language education is shaped by diglossia, involving the relationship between Modern Standard Arabic and

regional dialects, as well as by the distinctive role of Arabic in Islamic religious, academic, and cultural contexts. These characteristics mean that the quality of AI-generated Arabic cannot be evaluated solely in terms of grammatical correctness or fluency. Pedagogical use also requires attention to morphological accuracy, syntactic appropriateness, semantic interpretation, register, contextual relevance, and, in particular contexts, the accuracy of religious terminology and references. Recent developments in Arabic Large Language Models further indicate that Arabic continues to face challenges related to digital representation, data availability, model performance, and evaluation when compared with languages that have substantially larger digital resources (Al-Khalifa et al., 2025). Thus, the integration of AI into Arabic language pedagogy requires more than the transfer of general-purpose AI practices; it requires a pedagogical framework that explicitly accounts for the linguistic, contextual, and cultural characteristics of Arabic.

The need for such a framework becomes even more evident in the Indonesian higher education context. Arabic is taught across heterogeneous educational settings, including Arabic Language Education and Arabic Literature programmes, Islamic Religious Education programmes, pesantren-based institutions, and programmes in which Arabic is taught for Islamic or professional purposes. Students also enter higher education with substantially different linguistic backgrounds, ranging from graduates of madrasahs and pesantren to those from general secondary schools with limited prior exposure to Arabic. Differences in students' proficiency, familiarity with Arabic grammatical concepts, digital literacy, and experience with generative AI create pedagogical conditions that cannot be adequately addressed through a one-size-fits-all technological approach. Consequently, AI integration in Arabic education needs to be mediated by pedagogical principles that determine when AI should be used, for what linguistic purposes, how its outputs should be evaluated, and how students should remain intellectually and linguistically engaged.

Recent research provides evidence that AI has already begun to enter Arabic language education, including in the Indonesian higher education context. Studies have examined the use of AI for developing Arabic learning content, students' perceptions of ChatGPT, and the generation of Arabic texts, questions, dialogues, and other instructional materials (Albab et al., 2025; Fredlina et al., 2025; Nasaruddin, 2024). These studies suggest that generative AI can expand access to learning materials, provide linguistic input, facilitate content generation, and potentially support more flexible learning experiences. However, the findings of these studies need to be interpreted in relation to what they actually investigate. Much of the emerging literature has concentrated on the availability, usability, acceptance, perceptions, or immediate learning benefits of AI**,** rather than on the pedagogical principles that should govern sustained human–AI collaboration in Arabic language learning.

A closer synthesis of this emerging literature reveals at least three limitations. First, studies that examine students' perceptions or acceptance of ChatGPT primarily address whether learners are willing or able to use AI, but they do not necessarily explain how AI use should be aligned with Arabic language learning objectives (Fredlina et al., 2025). Second, studies focusing on AI-assisted content generation demonstrate the technological capacity of AI to produce instructional materials, but content generation alone does not establish how learners should critically engage with, verify, revise, and transform AI-generated language (Albab et al., 2025; Nasaruddin, 2024). Third, broader research on generative AI in higher education has highlighted concerns regarding academic integrity, misinformation, overreliance, and the changing roles of teachers and students, yet these concerns are generally formulated at the level of higher education rather than translated into the specific linguistic and pedagogical requirements of Arabic language learning (Cotton et al., 2024; Lo, 2023). Taken together, these studies demonstrate that AI is becoming increasingly visible in Arabic education, but they do not yet provide a sufficiently

integrated model explaining how AI should reshape the pedagogical relationship among the lecturer, learner, Arabic language, learning tasks, and AI system.

This gap is particularly important because the educational value of AI depends not simply on the sophistication of the technology but on the pedagogical activity surrounding its use. The same AI system may produce very different educational outcomes depending on whether students passively consume its outputs or actively interrogate and transform them. For example, asking ChatGPT to generate an Arabic dialogue may provide useful linguistic input, but asking students to identify morphological and syntactic problems in that dialogue, evaluate the appropriateness of its vocabulary and register, compare alternative formulations, revise the text, and justify their revisions creates a substantially different learning experience. In the latter case, AI becomes an object of linguistic inquiry and a partner in knowledge construction rather than merely a replacement for the lecturer or a shortcut for completing assignments.

This distinction is consistent with the broader argument that technological innovation does not automatically constitute pedagogical transformation. The adoption of AI may simply reproduce conventional teacher-centred practices in digital form if learning activities, assessment strategies, and learner roles remain unchanged. Díaz and Nussbaum (2024) argue that advances in AI in education do not automatically establish a new pedagogical paradigm because technological development can occur much faster than the pedagogical frameworks needed to guide its educational use. Therefore, the central issue is not whether AI should be incorporated into Arabic language education, but under what pedagogical conditions AI can contribute to meaningful language learning.

Arabic language pedagogy requires a specific AI framework precisely because language learning involves processes that cannot be reduced to information retrieval or content generation. Students need to develop integrated competencies in listening, speaking, reading, and writing, while simultaneously developing

vocabulary, morphology, syntax, pronunciation, pragmatic awareness, and the ability to interpret meaning in context. AI can potentially support each of these dimensions, but each also involves different forms of human oversight and pedagogical design. For example, AI-generated speaking prompts may stimulate interaction, but speaking competence requires authentic production and feedback; AI-generated grammatical explanations may support learning, but students must be able to verify their accuracy; and AI-generated translations may facilitate comparison, but students need to analyse differences in syntax, semantics, register, and contextual meaning. Consequently, an Arabic-specific framework should not merely identify AI tools but should establish pedagogical processes through which AI outputs become objects of analysis, evaluation, revision, and communicative production.

Another critical dimension is the relationship between Arabic and Islamic knowledge. In many Indonesian higher education institutions, Arabic is not taught exclusively as a foreign language but is also used as a medium for accessing Islamic texts and scholarly traditions. AI-generated explanations or translations of Qur'anic verses, prophetic traditions, classical Arabic texts, and Islamic terminology therefore require a higher degree of contextual and scholarly verification. Errors that might be relatively minor in general language-learning contexts can become pedagogically or interpretively significant when they affect religious texts or concepts. This reinforces the need for human-centred validation and for a framework that places linguistic accuracy, contextual interpretation, ethical responsibility, and scholarly judgment alongside technological efficiency.

Academic integrity represents another major concern. Generative AI can produce essays, translations, examination responses, and other academic assignments that may appear linguistically sophisticated, making it increasingly difficult to determine whether students have genuinely developed the competencies being assessed. Cotton et al. (2024) identify academic integrity as one of the major

challenges associated with ChatGPT in higher education, while Lo (2023) notes that generative AI can provide useful educational assistance but may also generate inaccurate information and facilitate inappropriate academic practices. For Arabic language education, these concerns are particularly relevant because the apparent linguistic quality of AI-generated Arabic may conceal inaccuracies in morphology, syntax, meaning, or contextual usage. Assessment therefore needs to move beyond evaluating only the final product toward evaluating the processes of analysis, revision, explanation, and authentic language production.

Accordingly, the appropriate response is not necessarily to prohibit AI but to develop students' capacity to use it critically and responsibly. AI literacy in Arabic language education should encompass not only knowledge of how to operate generative AI tools but also the ability to evaluate their linguistic accuracy, recognize hallucinations and bias, verify information, protect academic integrity, and make informed decisions about when human judgment must override AI-generated suggestions. Such competencies are increasingly relevant to broader conceptions of twenty-first-century learning and AI literacy in higher education (Jones, 2026).

The synthesis above therefore identifies a clear conceptual gap in the current literature. Existing studies have established that AI can generate Arabic learning materials, influence students' perceptions and engagement, and support selected learning activities. However, there remains limited theoretical and pedagogical guidance concerning how AI should be integrated into Arabic language pedagogy as a structured human–AI collaboration. In particular, insufficient attention has been given to the interaction among Arabic linguistic complexity, learner agency, lecturer mediation, AI literacy, academic integrity, assessment, and the contextual use of Arabic for Islamic and academic purposes. This gap indicates the need to move the research agenda from the question of whether AI can be used in Arabic education toward the more fundamental question of how AI can transform the pedagogical architecture of Arabic language learning.

In response to this gap, this article proposes the concept of Human–AI Collaborative Arabic Pedagogy (HAI-CAP)**.** The framework conceptualizes AI not as a substitute for lecturers or students, but as a mediated pedagogical partner whose outputs must be critically evaluated, linguistically verified, contextually interpreted, and transformed through human learning activities. HAI-CAP therefore places five interrelated principles at the centre of AI integration: human agency, Arabic linguistic accuracy, contextual and cultural relevance, critical AI literacy, and ethical academic practice**.** Through this framework, AI integration is conceptualized not as technological substitution but as a shift toward collaborative, reflective, and human-centred Arabic language pedagogy.

In light of these issues, this article addresses the following research question: How can the integration of artificial intelligence shift the paradigm of Arabic language pedagogy in Indonesian higher education from the use of technology as a tool toward a model of human–AI collaboration that is critical, ethical, linguistically grounded, and human-centred?

This article aims to: (1) analyse the development of AI in language pedagogy and higher education; (2) synthesize the opportunities and challenges associated with integrating AI into Arabic language learning; (3) examine the implications of AI for the roles of lecturers and students, curriculum design, learning activities, and assessment; and (4) formulate a Human–AI Collaborative Arabic Pedagogy (HAI-CAP) framework that responds specifically to the linguistic, pedagogical, contextual, and ethical requirements of Arabic language education in Indonesian higher education.

The contribution of this article lies in its effort to integrate the perspectives of AI in education, second language pedagogy, and Arabic language education into a single conceptual framework. Thus, the article does not merely discuss technology, but positions AI as part of a pedagogical transformation that preserves

academic authority, human interaction, linguistic validity, and Islamic educational values.

METHOD

Research Design

This study employs an integrative literature review approach. This approach was chosen because the aim of the study is not to measure the impact of a specific AI application, but to integrate findings from various fields of research to build a conceptual understanding of the paradigm shift in Arabic language pedagogy.

An integrative review enables the researcher to combine empirical studies, systematic reviews, conceptual articles and critical reviews relevant to the topics of AI, higher education, language learning and Arabic language education.

Literature Search Strategy

The literature was searched using academic databases and search engines covering publications from international publishers and scientific journals with a DOI. The keywords used included the combinations “artificial intelligence” AND education, “generative AI” AND higher education, “ChatGPT” AND higher education, “AI” AND language learning, “AI-assisted language learning” and “Arabic language” AND artificial intelligence, and “ChatGPT” AND Arabic language.

Inclusion and Exclusion Criteria

Literature is included if it meets the following criteria:

1. Discusses AI, GenAI, ChatGPT, AI-assisted learning, or AI in language learning;
2. Relates to higher education or language pedagogy
3. Have a verifiable DOI;
4. Be published in a relevant scientific journal or academic publication;

5. Make a conceptual or empirical contribution to the research question.

Literature is excluded if it is purely popular in nature, lacks adequate bibliographic information, is irrelevant to language education or learning, or does not contribute to the research focus.

Analysis Techniques

The analysis was conducted in four stages:first, identification of key themes in the literature, second, categorisation based on the functions of AI in learning; third, critical analysis of the benefits, risks and pedagogical implications; fourth, conceptual synthesis to produce the HAI-CAP model.

The main themes identified include:personalisation of learning, language practice and interaction, feedback and assessment, material development, student autonomy, AI literacy, academic integrity, linguistic and cultural validation, the role of lecturers and institutional governance.

RESULT AND DISCUSSION

From AI as a Technology to AI as a Pedagogical Partner

A review of previous studies suggests that the role of artificial intelligence in education has gradually expanded from task-oriented assistance toward more interactive forms of learning support. Earlier research largely conceptualised AI as a technological tool for recommendation, automation, feedback, and content delivery (Zawacki-Richter et al., 2019). More recent research on Generative AI indicates that systems such as ChatGPT can interact through natural language, generate context-sensitive responses, simulate dialogue, provide feedback, and support the creation of learning materials (Tlili et al., 2023; Bhullar et al., 2024). However, the emergence of these capabilities should not automatically be interpreted as evidence that AI has become a pedagogical partner. The distinction lies in the pedagogical function assigned to AI and the degree of human agency retained during the learning process.

In this article, AI as a pedagogical partner refers to the use of AI as a mediated participant in learning activities that have been deliberately designed by lecturers to support specific learning objectives. A pedagogical partner does not independently determine what students should learn, replace teacher judgment, or become the final authority on knowledge. Instead, AI contributes through functions such as generating alternative examples, simulating interaction, providing formative feedback, suggesting revisions, posing questions, and offering alternative interpretations. The lecturer remains responsible for establishing the learning objectives, designing the task, determining the appropriate role of AI, and validating its outputs. Students, meanwhile, remain responsible for interpreting, evaluating, revising, and applying the information provided by AI.

This conceptualisation extends rather than contradicts previous research. Zawacki-Richter et al. (2019) emphasised the importance of the educator's role in the successful integration of AI in higher education, while Tlili et al. (2023) highlighted the interactive and generative capabilities of ChatGPT in educational environments. The present framework brings these two strands together by arguing that the educational contribution of AI depends on pedagogical mediation. In other words, AI becomes a pedagogical partner not simply because it can communicate with learners, but because its interaction is embedded within an intentional learning design in which lecturers and students retain responsibility for the learning process.

This distinction is particularly important in Arabic language education. Previous research on AI-supported language learning has demonstrated the potential of conversational AI to increase opportunities for language practice and provide flexible interaction (Godwin-Jones, 2023, 2024). However, the present analysis suggests that increased interaction alone is insufficient to establish effective language pedagogy. For Arabic, the outputs of AI need to be evaluated in relation to morphology, syntax, vocabulary, register, meaning, and cultural context. Therefore,

the role of AI as a pedagogical partner is necessarily more constrained and mediated than the notion of a general-purpose conversational partner might suggest.

For example, an AI system may simulate an Arabic conversation and respond immediately to a student's questions. From a technological perspective, this represents successful human–AI interaction. Pedagogically, however, the interaction becomes meaningful only when it serves a clearly defined objective, such as developing the ability to formulate questions, practise specific grammatical structures, expand vocabulary, or improve communicative fluency. The lecturer may therefore design the interaction so that AI does not immediately correct every error but instead encourages students to self-correct before receiving feedback. Such a design shifts AI from an answer-generating system to a resource for learner reflection.

AI as a Cognitive Partner: A More Specific Concept

The concept of AI as a cognitive partner should be distinguished from the broader concept of AI as a pedagogical partner. In this article, a cognitive partner refers specifically to the role of AI in stimulating, extending, or challenging students' cognitive processes, rather than performing those processes on behalf of students. These processes include generating alternatives, comparing interpretations, identifying inconsistencies, explaining reasoning, testing hypotheses, evaluating evidence, and revising conclusions.

This distinction is important because generative AI can either support or reduce cognitive engagement. When students ask AI to write an Arabic essay, translate a passage, provide the answer to a grammar exercise, or complete an assignment and then submit the output, the cognitive work is substantially delegated to the system. In such a situation, AI functions primarily as a substitute for student production rather than as a cognitive partner. Conversely, when students compare their own Arabic translation with an AI-generated translation, identify differences in

lexical choice and syntax, determine which version is more appropriate, and justify their decision, AI becomes a stimulus for higher-order cognitive activity. This principle is compatible with the SQ3R approach, in which reading is organised into sequential activities of surveying, questioning, reading, reciting, and reviewing, thereby encouraging learners to interact actively with information rather than merely receive it (Rohman, 2025, p. 8).

The distinction is consistent with concerns raised in previous studies. Lingard (2023) notes that the use of ChatGPT in academic writing may affect students' authorship, creativity, and academic integrity when the technology takes over substantial portions of the writing process. Similarly, Lo (2023) and Farrokhnia et al. (2024) highlight the risks of inaccurate AI-generated information and the need for critical evaluation. Rather than viewing these risks only as reasons to restrict AI, the present framework interprets them as reasons to redesign learning tasks so that students must verify, critique, and transform AI outputs.

This position also develops the argument concerning AI literacy in higher education. Jones (2026) emphasises that AI literacy involves more than knowing how to operate AI applications; students need to understand and evaluate AI outputs. In Arabic language pedagogy, this principle can be operationalised through activities in which students analyse the linguistic quality of AI-generated Arabic, identify morphological or syntactic errors, examine alternative translations, evaluate the appropriateness of vocabulary and register, and provide evidence for their corrections. In this sense, AI becomes a cognitive partner because it creates material that students must think with, think about, and think against.

From Description of Benefits to Pedagogical Differentiation

The comparison with previous studies therefore suggests that the central issue is not simply whether AI provides benefits, but what type of learning process those benefits produce. Godwin-Jones (2023, 2024), for example, highlights the potential

of AI chatbots to expand opportunities for language practice while also recognising limitations in social, cultural, and pragmatic dimensions of human–AI interaction. The implication for Arabic pedagogy is that AI-based conversation should supplement rather than replace human communication. Students may use AI for repeated individual practice, but classroom activities should subsequently require authentic interaction with lecturers and peers.

A similar distinction applies to writing. AI-assisted writing can support brainstorming, vocabulary selection, grammatical feedback, revision, and coherence checking when students remain the primary authors. By contrast, AI-generated writing may reduce opportunities for authentic language production when students submit AI-produced texts without substantial intellectual or linguistic contribution. This interpretation is consistent with concerns about authorship and academic integrity identified by Lingard (2023). Thus, the relevant pedagogical distinction is not between "using AI" and "not using AI," but between AI use that extends student cognition and AI use that substitutes for student cognition.

The same principle can be applied across the different Arabic language skills. For speaking, AI can function as a practice partner by providing repeated conversational opportunities, but human interaction remains important for pragmatic, cultural, and interpersonal competence (Godwin-Jones, 2024). For listening, AI can provide adaptable materials, transcripts, and comprehension tasks, but lecturers need to validate pronunciation, speech rate, authenticity, and contextual appropriateness. For reading, AI can provide scaffolding through vocabulary explanations, text adaptation, and comprehension questions, but students should continue to engage directly with authentic Arabic texts. For grammar and morphology, AI can generate examples and explanations, but students should verify these outputs against established grammatical principles because plausible AI responses may contain linguistic errors. For vocabulary, AI can provide contextualised examples and personalised exercises, while learning activities should

emphasise collocation, word formation, semantic relationships, and register. For translation, AI can provide alternative versions that enable comparative analysis, but students should evaluate lexical choice, syntax, semantic nuance, register, and cultural meaning rather than simply accepting the generated translation.

This differentiation extends the findings of previous research by shifting the analytical focus from AI capability to pedagogical function. The same AI system may therefore serve different roles depending on the learning objective: a conversational partner in speaking practice, a feedback provider in writing, a scaffold in reading and listening, an object of verification in grammar and morphology, a contextual practice resource in vocabulary development, and a comparative resource in translation. The term "pedagogical partner" consequently refers to the overall pedagogical relationship, whereas "cognitive partner" refers to a specific cognitive function within that relationship.

Implications for Human–AI Collaborative Arabic Pedagogy

The comparison with previous studies also clarifies the theoretical contribution of the proposed Human–AI Collaborative Arabic Pedagogy (HAI-CAP) framework. Existing literature has established the potential of AI for personalisation, interaction, content generation, feedback, and language practice (Godwin-Jones, 2023; Tlili et al., 2023). Other studies have drawn attention to limitations involving academic integrity, inaccurate information, educator preparedness, and changes in assessment (Lo, 2023; Farrokhnia et al., 2024; Bower et al., 2024; Bhullar et al., 2024). HAI-CAP connects these two strands by proposing that AI adoption should be organised around learning objectives, learner agency, human validation, linguistic accuracy, and ethical responsibility, rather than around technological capability alone.

This framework also responds to the educator-centred gap identified in earlier AI research. Zawacki-Richter et al. (2019) found that educators' perspectives were

comparatively underrepresented in the early literature on AI in higher education. More recent research indicates that GenAI is increasingly affecting teaching and assessment practices (Bower et al., 2024; Bhullar et al., 2024). Building on these findings, HAI-CAP positions lecturers as pedagogical designers, linguistic validators, facilitators, and ethical mentors. Students remain the primary agents of learning, while AI functions as a mediated resource that can expand opportunities for practice, feedback, comparison, and reflection.

The resulting relationship can therefore be conceptualised as human-led rather than AI-led collaboration. The lecturer determines the pedagogical purpose; the student performs the primary learning and cognitive work; AI provides structured assistance, alternatives, feedback, or challenges; and human participants evaluate the quality and relevance of AI outputs. This configuration differs from both traditional technology-assisted instruction, in which AI is merely a tool for delivering predetermined materials, and AI-substitution models, in which students delegate substantial learning tasks to the system.

Accordingly, the contribution of HAI-CAP is not the claim that AI has already produced a new paradigm in Arabic language education. Rather, the framework provides a conceptual basis for distinguishing productive human–AI collaboration from technological substitution. Its central proposition is that AI becomes educationally meaningful when it strengthens rather than displaces the linguistic, cognitive, communicative, and ethical agency of learners and lecturers. This proposition requires further empirical examination across different Arabic language skills, learner populations, institutional settings, and levels of AI literacy.

CONCLUSION

The integration of artificial intelligence into Arabic language pedagogy presents promising opportunities to extend learning beyond conventional forms of digital instruction. Findings from the literature reviewed in this article indicate that

generative AI and large language models can potentially support a range of Arabic language learning activities, including speaking practice, writing, grammar and morphology learning, translation, vocabulary development, instructional material generation, and selected forms of assessment. However, these possibilities should be understood as pedagogical opportunities rather than evidence that AI has already transformed Arabic language education.

The literature also indicates that the educational value of AI depends substantially on how the technology is pedagogically mediated. Generative AI cannot be regarded as a substitute for lecturers or as an infallible source of linguistic and academic knowledge. Concerns regarding hallucinations, linguistic inaccuracies, cultural and contextual bias, student dependency, privacy, and academic integrity remain important considerations. These concerns are particularly relevant to Arabic language education because of the language's morphological and syntactic complexity, variation in register and use, and its connection with cultural, religious, and scholarly contexts. Human validation therefore remains an essential component of responsible AI-supported Arabic language learning.

In response to these considerations, this article proposes Human–AI Collaborative Arabic Pedagogy (HAI-CAP) as a conceptual framework for guiding the integration of AI into Arabic language education in Indonesian higher education. The framework is organised around five interrelated principles: pedagogical intentionality, human oversight, critical AI literacy, Arabic linguistic-cultural validation, and ethical assessment. Rather than presenting AI as a replacement for established pedagogical practices, HAI-CAP conceptualises AI as a mediated resource whose educational value depends on learning objectives, lecturer guidance, learner agency, linguistic verification, and ethical use.

The proposed framework also suggests a reconsideration of the roles of lecturers and students. Within an AI-supported learning environment, lecturers may increasingly function as pedagogical designers, linguistic validators, learning

facilitators, and ethical mentors, while students may be encouraged to become critical evaluators and active users of AI-generated information. Such role changes should not be interpreted as empirically established consequences of AI adoption, but as pedagogical directions that can be explored and evaluated through future research.

Accordingly, this article does not claim that AI has already produced a paradigm shift in Arabic language pedagogy. Instead, it argues that the growing availability of generative AI creates a need to reconsider how Arabic language learning activities, assessment practices, lecturer roles, and student engagement are designed. The HAI-CAP framework provides a conceptual basis for this reconsideration by placing human agency, Arabic linguistic and contextual accuracy, critical AI literacy, and ethical responsibility at the centre of AI integration.

Future empirical research is needed to examine the applicability and effectiveness of HAI-CAP across different Arabic learning contexts. Experimental and quasi-experimental studies could investigate its effects on specific language skills and learning outcomes, while qualitative and mixed-methods research could examine student agency, lecturer practices, AI literacy, academic integrity, and the quality of human–AI interaction. Comparative studies across different types of Indonesian higher education institutions would also be valuable for determining how differences in students' backgrounds, institutional contexts, and Arabic learning objectives influence the implementation of the framework. Such evidence will be necessary to determine whether the proposed framework can contribute to meaningful and sustainable improvements in Arabic language pedagogy.

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