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Socio-Technological Dilemmas of Using Artificial Intelligence in Arabic Language Learning: The Experiences of Cambodian International Students in Indonesia

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ABSTRACT

The increasing integration of Artificial Intelligence (AI) into higher education presents additional challenges for international students, including dependence on technology, adaptation to another culture, and the need to be ethically prepared to learn a foreign language. This research explores the social and technological dilemma created using AI in Arabic language learning and how international students in Indonesia adapt to it. The research employed a qualitative approach using digital ethnography, i.e., digital observation, in-depth interviews, and documentation. Data were analyzed using thematic analysis and verified through source triangulation, methodological triangulation, and member checking. Results suggest that the use of AI in Arabic language learning is contradictory. While AI offers increased access to materials, flexibility in learning, and academic efficiency, it also creates dilemmas in cognitive-academic, socio-cultural, and ethical-technological areas. Dependence on AI may reduce critical thinking and independent learning. It may also lead to fewer opportunities for cross-cultural social interactions and create greater ethical dilemmas due to limited digital literacy and/or a lack of established standards for AI use. To address these challenges, students developed adaptive strategies through selective use of AI, strengthening direct communication, and enhancing ethical awareness regarding digital technology. However, this strategy is not yet optimal because it remains constrained by low self-confidence in cross-cultural interactions, limited ability to evaluate AI outputs, and weak institutional support. These findings indicate that the integration of AI in language learning is a complex socio-technological process influenced by cultural and institutional contexts

Keywords: artificial intelligence, Arabic language learning, Cambodian international students, cross-cultural adaptation.

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INTRODUCTION

The increasing presence of Artificial Intelligence (AI) in higher education has dramatically changed how languages are taught globally. This includes how Arabic is learned in diverse and transnational academic settings. The expanding use of AI in education is part of a larger trend toward technological modernization and changes to educational institutions. Digital technologies are being used to enhance student learning experiences and to facilitate interaction with other students and faculty. According to recent studies, about 86% of students globally use AI in some form of learning activity. It is also estimated that by 2025, the global market for educational AI will be worth $7.57 billion (Essien, Bekeh & Anam, 2024). In terms of teaching Arabic, AI is becoming increasingly important as both a teaching method and as a way to create a socio-technological framework that impacts learner independence, self-regulated learning and learner involvement with the language (Almelhes, 2025). Although there is a great deal of potential for AI as a teaching tool, there are also serious issues surrounding its rapid adoption. Issues include the dependence upon technology, varying levels of digital literacy among students and decreasing levels of student involvement with the material (Zawacki-Richter et al., 2019).

Among the many socio-technical issues related to the use of Artificial Intelligence (AI) for teaching and learning, none are more apparent than those experienced by Cambodian International Students studying Arabic in Indonesia. Unlike their local counterparts, these international students go through a multi-faceted adaptation process. They must adapt to using Arabic as the language of instruction and to using Indonesian as the language of the community they live in, and to using AI as a tool that will help them learn. Therefore, AI is not just another instructional resource; it has become a major influence on how students adapt to society, interact with people from other cultures, and produce knowledge in higher education. According to Frater and Mushininga (2025), although AI can assist with adapting to different forms of learning, differences in technological skills, access, and cultural backgrounds could result in uneven curricula and, therefore, unequal learning opportunities. Also, AI-assisted learning environments can enhance learning efficiency; however, they also create a higher level of cognitive dependence and reduce the amount of face-to-face interaction between students (Holmes et al., 2021). Thus, we can see there are some very clear tensions created when we consider integrating AI into Arabic learning programs. Thus, we should look at AI integration into Arabic learning programs as being a socio-cultural process that is part of the larger educational transformation and cross-cultural academic mobility.

While much research exists regarding AI's role in language education, cognitive dependency, and student adaptation to technology, there have been few attempts to bridge the gaps between the different analytical perspectives that have emerged from this body of work. For example, Ayesha et.al (2026) suggests that AI promotes individualized learning; however, excessive reliance on AI could diminish learner autonomy unless educators provide students with additional instructional support to help them become independent learners. Similarly, Karman (2024) indicates that AI enhances students' ability to comprehend language faster than ever before; however, AI can also foster cognitive dependency on the part of students. In addition, research conducted in Arabic learning environments indicates that although AI can

promote vocabulary acquisition, grammatical understanding, and learner engagement, it does not fully address the intercultural adaptation and psychosocial experiences of international students (Mulyani et al., 2025). Additionally, research conducted in Indonesia indicates that international students commonly experience difficulty in balancing AI-mediated learning with direct social and academic interaction (Muthohar et al., 2024). Furthermore, Wijaya et.al (2025) discusses the dual challenges of linguistic and technological adaptation experienced by Cambodian students without discussing how AI-related dilemmas affect their Arabic learning practices and cross-cultural adaptation.

The purpose of this research is to develop an understanding of the ways in which AI-related dilemmas arise, how they are negotiated, and what factors contribute to them when Cambodian international students learn Arabic in Indonesia. While many researchers address issues related to AI, cognitive dependence, and international student adjustment individually; this research will examine how these issues relate to each other based upon the experiences of Cambodian international students enrolled in Arabic education programs at Universitas Islam Negeri Walisongo Semarang and Universitas Wahid Hasyim Semarang. Using socio-technological theories and theories of social adaptation, the study will view AI as a social system that is influenced by both the technology itself and by the needs of the students (linguistic requirements, cultural background, social relationships, etc.) and by the educational environment (Hanifah & Habibullah, 2026). The research questions being addressed include: (1) Why does the use of AI create socio-technological dilemmas for Cambodian international students in their adjustment to learning Arabic in Indonesia? (2) How do Cambodian international students deal with those dilemmas in their Arabic learning activities and cross-cultural academic interaction? (3) What structural barriers exist that influence the methods used by Cambodian international students to adapt to learning Arabic through AI?.

The significance of this study lies not only in the integration of AI-assisted language learning, cognitive dependency, and cross-cultural adaptation into one conceptual model. It also provides a theoretical explanation of the ways in which each of these three aspects relate to each other, creating conflicts between technological effectiveness and student autonomy; AI-mediated language acquisition and social interaction; and individual adjustment techniques and institutional educational settings. Additionally, it offers a specific historical and geographical description of these interactions for Cambodian international students who were attempting to learn Arabic in Indonesian Islamic institutions of higher education. Here, the process of acquiring the target language, adapting to the surrounding linguistic environment, and interacting academically across cultures all occurred simultaneously. Thus, the context provided by this study illustrates why similar AI-based tools can lead to different learning experiences for students based upon their linguistic and cultural backgrounds and the types of institutions in which they utilize them (Selwyn, 2019; Luckin, 2018).

LITERATURE REVIEW

The Use of Artificial Intelligence in Arabic Language Learning

The incorporation of Artificial Intelligence (AI) into the field of Arabic language education has greatly improved both the efficiency of the educational process, as well as the ease with which learners can access the material being taught, and how individually tailored the education received can be. Tools developed using AI technology, including chatbots, machine translation programs and voice recognition software, provide students with the ability to acquire knowledge of vocabulary, grammar and pronunciation in a flexible learning environment on their own. Additionally, the same tools provide students with instant feedback, allowing them to correct their linguistic mistakes immediately. This results in AI serving as a supportive facilitator that minimizes the complexity of acquiring the Arabic language — particularly for those who are not native speakers — and promotes student-driven learning and participation in the digital learning world (Yusof et al., 2025; Alhariri et al., 2023). On the other hand, although AI offers numerous advantages to language learners, there remain significant obstacles to utilizing AI as a tool for language learning in the Arabic speaking community.

A primary concern is that many learners have come to rely upon output generated by AI in order to complete tasks such as translating texts and constructing sentences, which may negatively impact their ability to think critically and process information at a higher level than simply producing content. Another issue is that AI systems are limited in their capacity to understand the cultural significance of certain words or phrases, idiomatic expressions and contextual usage of language within the Arabic culture. These limitations can result in misunderstandings when utilizing AI as a tool for language learning. Research indicates that there exist large differences in the level of digital literacy demonstrated by students from different countries — especially international students — which may result in uneven success rates when using AI-assisted learning. Overall, while AI provides numerous opportunities for educators to provide enhanced educational experiences for students, integrating AI into the curriculum will require instructional designers and teachers to guide and monitor the usage of AI in order for students to experience meaningful and intellectually stimulating learning experiences (Abdelali et al., 2023).

The research uses a socio-technological approach and social adaptation theory as two complementary theoretical frameworks. The socio-technological approach looks at the relationship between AI technology and students' language use, social interactions and institutional learning environments, showing how the use of AI in education will be influenced by the interaction of technology with social context (Bourhil & El Younoussi, 2025). On the other hand, social adaptation theory shows how Cambodian international students deal with linguistic, cultural and academic difficulties while adapting to AI-mediated Arabic learning in Indonesia. These two theoretical frameworks together provide an analytical tool to see how AI-related problems develop, how students react to them, and how structural factors affect the way they adapt.

International Students' Adaptation to a Technology-Based Learning Environment

International students adapting to learning Arabic through AI-enabled systems is a complex process. This includes academic, linguistic, and cultural adjustments. International students typically struggle initially in understanding the instructional language or the AI-mediated instructions due to a lack of familiarity with either. AI tools such as translation apps, conversational chatbots, and speech recognition can be used to fill in the gaps for students. They provide immediate assistance to students and support their comprehension. Students will eventually learn how to adapt to the use of AI tools as well as other methods of learning (note-taking and collaborative discussions). This demonstrates that successfully adapting to the use of AI tools as a method of learning is based on using both technology-based learning tools and traditional methods of learning. (Zainal et al., 2024; Sidik et al., 2024).

Additionally, student's psychological state greatly impacts the success of adapting to AI-based learning environments. A student's motivation, self-confidence, and willingness to participate in using new technologies will affect whether they can effectively utilize AI tools. Many students will use AI tools to replace critical thinking and independent thought. Conversely, students who have good self-regulation skills will more likely use AI tools as a tool to enhance their knowledge instead of replacing the need for cognitive effort. Research shows that instructor preparation and pedagogical integration of AI tools greatly impact how well students adjust to the learning environment. Therefore, adapting to AI-based learning environments is not only about what the student does but also how the student interacts with the instructor and technological systems within a larger learning environment (Humairoh et al., 2024; Shao et al., 2022).

RESEARCH METHOD

This study investigates how Cambodian international students perceive the use of artificial intelligence (AI) to learn Arabic and how they culturally adapt to the academic setting. This study uses an interpretive paradigm with a constructivist view to understand how these students view the application of AI to learn Arabic and how they culturally adapt to the academic setting. Using critical qualitative inquiry, the study employed digital ethnography to examine lived experiences, digital interactions, and socio-

technical issues related to AI-based learning practices (Denzin & Lincoln, 2018; Pink et al., 2016; Maghfurin et al., 2025).

From January through April 2026, the research took place at UIN Walisongo Semarang and Wahid Hasyim University. Both universities were chosen through purposive sampling because they provide a multicultural Islamic educational atmosphere with the integration of digital technology and the ability to intensively study the Arabic language. The study's research participants consisted of five international students from Cambodia who were enrolled in the Arabic Language Education Program. These students were selected through purposive sampling because they had first-hand experience with AI, actively participated in the academic environment, and could reflect on their cross-cultural adaptation process (Patton, 2015). Although the number of participants is small, this is considered acceptable in interpretive qualitative research because the objective of the study is to focus on the depth of understanding provided by the participants' perspectives rather than provide statistical generalization. Furthermore, the data collected from the participants reached thematic saturation as shown by the consistency of patterns of experience, stories, and interpretations that appeared throughout the participants (Guest, Namey, & Chen, 2020).

Data collection utilized semi-structured in-depth interviews, participant observation, and documentary analysis. Of all methods employed, in-depth interviews were the most effective method for understanding each informant's personal experiences, ways that they adapted to utilizing AI for Arabic language learning, and any potential academic/social tensions that arose from doing so (Kvale & Brinkmann, 2015). Although there was a fairly small sample size, the selection of informants was based on how deeply and directly related their experiences were to the purpose of the study instead of whether or not the sample was representative statistically. There were three interview sessions per informant that lasted between 90 and 125 minutes, which allowed for multiple opportunities to discuss newly identified areas of interest and/or clarify what their experiences meant to them. The sufficiency of the sample was determined by reaching thematic saturation; i.e., when no additional substantive themes, categories, or understandings emerged from subsequent interviews regarding the research questions.

The saturation level was determined iteratively by comparing emerging codes/themes across interview transcripts with those found in observational notes and documentary evidence. Triangulation occurred due to the use of multiple data sources, which increased the validity of the results and the amount of contextual information available. All interviews took place in Indonesian, as it was the language the informants felt most comfortable using while attending school in Indonesia. To increase interpretative validity, all interviews were transcribed and collaboratively translated into English with the informants to ensure the translations were accurate both contextually and semantically (Temple & Young, 2004). Participant observation was conducted in classroom and out-of-classroom environments to observe how students interacted with AI technology, their instructors, and their broader academic social environments.

Table 1: Informant Profiles

No	Initials	Duration of study	Place	Nationality
1	M1	Year 2	Universitas Islam Negeri Walisongo	Cambodia
2	M2	Year 2	Universitas Islam Negeri Walisongo	Cambodia
3	M3	Year 2	Universitas Wahid Hasyim	Cambodia
4	M4	Year 2	Universitas Wahid Hasyim	Cambodia
5	M5	Year 2	Universitas Wahid Hasyim	Cambodia

We analyzed the data iteratively using Braun and Clarke's (2021) thematic analysis approach. This first step in analyzing the data involved open coding to find what emerged in the data regarding experience, response, and socio-technical dynamic. Next, the researcher used an ongoing coding process to create categories and themes such as dependence on technology, cognitive overload, adapting across cultures, ethical awareness of actions taken, and organizational limits. In order to make sure the results are reliable,

the researcher used multiple sources of information (source triangulation) and multiple methods to gather information (method triangulation), members were asked if they agreed with the results (member checking), and the researcher spent a significant amount of time engaged in the research setting (long-term involvement in the research setting) (Lincoln & Guba, 1985). Additionally, the researcher was aware of his/her own role in interpreting the data and attempted to reduce any bias that may have occurred due to the closeness of the researcher to the culture and institution being studied.

RESULTS

Cambodian International Students' Dilemmas in Using AI for Arabic Learning

Research findings indicate that using Artificial Intelligence (AI) in Arabic language learning poses at least three main dilemmas for Cambodian international students adapting to Indonesia. First is the cognitive-academic dilemma: AI offers conveniences such as personalized learning, instant feedback, and rapid access to information, but it can also reduce critical thinking and independent learning because students tend to rely on technology to understand the complex structure of the Arabic language. Second, there is the socio-cultural dilemma, where the individual and digital nature of AI can hinder direct interaction with the academic and social environment in Indonesia, which is crucial for international students' cultural and language adaptation. This creates a gap between technological convenience and the need for social integration. Third, there is the ethical and technological dilemma, arising from limited access, readiness for use, and the potential for misuse of AI, such as plagiarism or over-reliance. Research indicates obstacles such as lack of training, access to technology, and ethical issues in its implementation. While AI offers efficiency and innovation in Arabic language learning, for international students from Cambodia, this technology also presents a tension between ease of learning, the demands of cultural adaptation, and academic responsibilities that must be balanced.

While informants reported that while AI was an easy way to access information, they found that AI offered limited opportunities to gain a deeper understanding of the material. For example, M1 stated "AI helps me translate Arabic text faster; however, I typically am unable to comprehend the structural components of the translated material." M3 agreed with M1 saying, "I have become too dependent on AI and seldom think on my own." M2 also said, "I frequently take the word of AI as fact without verification." Finally, M4 said, "Learning is much faster with AI, however, I do not understand the rules of grammar." M5 said, "AI makes me comfortable; however, I would rather use AI than go through a book." M1 also said, "I realize that using AI as a tool for daily tasks isn't ideal; however, AI is useful for my day-to-day work." This information shows that technological convenience may provide a shift in the learning experience from a thoughtful one to one which is immediate and mechanical. Students relying on AI will be less skilled in performing independent analyses of the language.

The cognitive barriers to Cambodian students adapting to Indonesian higher education are just part of the picture. The social-cultural barriers create another layer of difficulty. AI as a learning method has many individualistic qualities and therefore reduces the frequency of interpersonal interactions that could serve as key tools for language development. M2 stated: "I often study alone with AI as opposed to studying with other students." M4 stated: "I don't have as much confidence when I talk face-to-face, so I choose to utilize AI instead." M3 stated: "AI allows me to ask fewer questions of my professors." M5 stated: "While I recognize how crucial interaction is in the learning process, AI is much simpler to use." M1 added: "Sometimes I find myself feeling isolated due to my emphasis on digital learning." M2 continued: "I infrequently participate in group discussions because I am comfortable with AI." This evidence demonstrates that extensive use of AI may result in a separation between students and the social environment within academia.

The other big problem with using AI as a student is the ethical and technical challenges. Many of the students we interviewed were confused about when it's okay to use AI in school. M3 stated, "Sometimes I

don't know if my use of AI would be seen as plagiarism." M5 stated, "We don't have any specific rules about using AI at our university." M1 stated, "I worry that if I rely too much on AI, other people will think I'm cheating." These statements show us that students' worries about ethics are related to both possible cases of academic dishonesty and to students' low levels of digital literacy and lack of clear rules. Also, technology being less available makes this even worse. The ethical and technical challenges of using AI show us that we need a better systematic regulatory and educational system in place for using AI to help students avoid confusion and the chance of being accused of academic dishonesty. On April 22nd, 2026, we made observations that showed us that Cambodian international students are experiencing ethical and technical challenges when using artificial intelligence (AI).

During the learning process, we saw many students using their laptops and/or cell phones to use AI applications to complete Arabic language assignments in class. We also saw that many times students copied translations/answers generated by the AI application without checking the language structure of the translation/answer or referencing other sources. M5 said, "I still struggle with understanding AI results deeply." M2 reinforced this statement saying, "Sometimes I still rely on AI because it's easier." M1 also said, "I want to be more active, but I'm still afraid." M3 said, "My culture makes it hard for me to learn fast." M4 said, "I need more help in learning how to use AI right." M5 repeated, "Without training, it's hard to use AI the best way possible." These findings tell us that students' problems with AI are not only technical but also include psychological and social problems. Students' low levels of digital literacy, lack of support from their universities, and cultural differences contribute to making these problems worse.

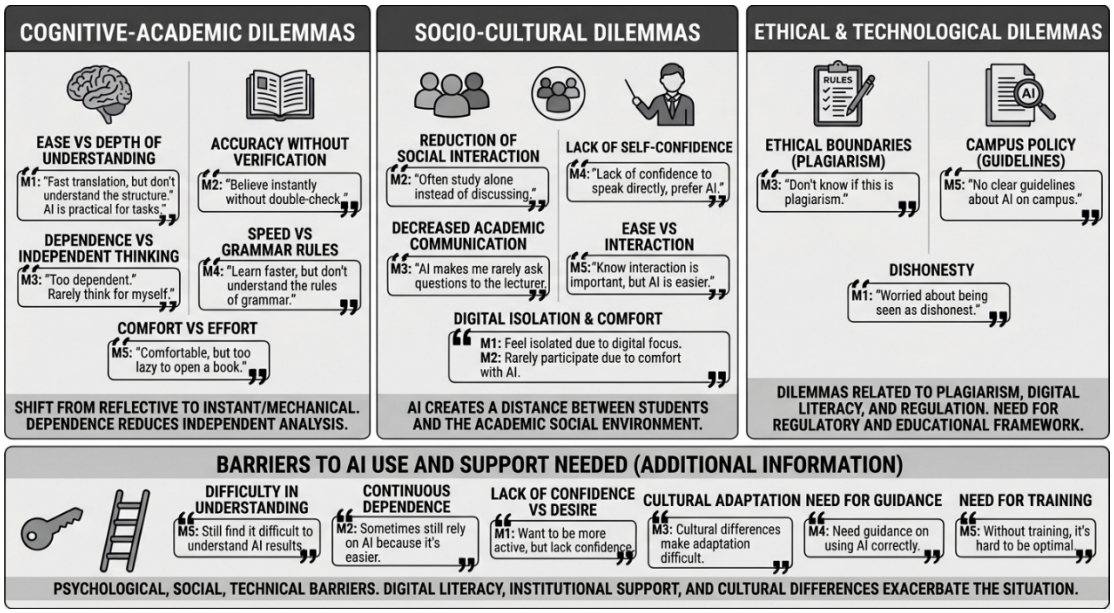


Fig. 1: Data coding for the first finding

Cambodian Students' Adaptive Strategies for Addressing the Dilemma of AI Use in Arabic Language Learning

In addition to the three strategies above, international students from Cambodia also managed to control their dependence on AI, avoiding over-dependence and using AI features only at specific points in their learning process, such as checking grammar or translating initially. These strategies demonstrate how international students from Cambodia are trying to balance using technology to support their learning while meeting the academic and social demands placed on them, to achieve maximum success in learning Arabic and adapting to the Indonesian educational and cultural context.

Students have also reported being actively involved with the use of AI. For example, M1 stated, "I only use AI at first, and then I will try to comprehend the material on my own," which indicates a conscious decision to develop self-reliance. M2 agreed with M1 saying, "If I simply copy it from AI, I do not acquire any knowledge," showing that students are intentionally taking charge of their own learning. According to M3, "I normally check what AI produced in either a textbook or in the lecture notes," which shows students making an attempt to confirm the accuracy of information produced by AI by utilizing other forms of educational resources. Additionally, M4 emphasized the necessity of understanding the mechanics of language saying, "AI assists, but occasionally there are errors in grammar that must be corrected." These findings show that students are not passive consumers of technology; rather they are active participants in managing their own learning processes and reflectively and critically evaluating their learning experiences.

Socio-cultural strategies were also important in this study's findings, as students actively balanced the use of AI with social interactions in academic settings. M1 stated, "In live discussions, I understand better than reading from AI," demonstrating the importance of human interaction in language learning. Another informant, M2, added, "I often ask my Indonesian friends if I don't understand," as a form of social adaptation that supports language comprehension. Furthermore, M3 stated, "Studying with friends is more fun and clearer," illustrating the emotional dimension of the learning process. In terms of culture. Statements by M5, such as "AI can't replace face-to-face conversations" and "If I only use AI, I feel less confident speaking," reinforce that social interaction remains a crucial element in the development of language skills and the academic integration of international students.

The research findings also demonstrate how Cambodian international students develop ethical-technological strategies when utilizing AI. For example, M1 stated, "I do not dared copy-paste directly because I fear it will be considered plagiarism." This comment demonstrates that Cambodian international students are aware of the ethics of utilizing technology in an academic setting. In addition, M2 stated, "The lecturer does not prohibit it; however, I understand that I need to exercise caution." Although M2 did not receive specific instructions from his/her lecturer regarding the proper use of AI, M2 demonstrated self-control. M3 also indicated limitations on the use of technology as part of the learning process by stating, "I use AI only to verify, not for the main answer." Additionally, M4 provided insight into the potentially negative impacts of over-utilizing AI in relation to students' ability to think critically when he/she commented, "If I use AI too frequently, I will lose motivation to think." Observation of students on April 23, 2026 supported the findings related to students' ethical-technological strategies for utilizing AI. Students M1 and M2 utilized the AI application initially during the completion of their assignments. Following the initial utilization of the AI application, students M1 and M2 referenced their notebooks and lecture materials to confirm their answers. Student M5 paused after receiving the AI-generated results, then modified the sentence structure before rewording the results.

The results of all students in the study indicated they verified, modified or reinterpreted the information provided by the AI application. Furthermore, the results of the research indicated that Cambodian international students utilized time management techniques to limit their reliance on AI. As M1 indicated "At the start I only use AI, after that I continue without it." This comment supports M1's restricted use of AI throughout the course. Like M1, M2 commented "If everyone is using AI, I will make no progress." M2's comments indicate student knowledge of the risk of being too dependent on technology. Also, M3 stated "I plan my day in such a way that I don't overuse AI." This comment represents M3 exercising self-control with regards to using digital technologies. Comments from M4, like "AI gives me fast answers, but it takes time to learn" and "I try to use AI only when needed", represent M4's conscious decision-making about when to use AI.

On the other hand, M5 said, “To acquire a language takes time, no matter how much AI you have.” This quote from M5 demonstrates that Cambodian international students recognize the need for continued practice and active mental processing to learn a new language. Cambodian international students find a way to manage their time by balancing using technology to be efficient and learning in-depth.

Overall, the study results show that Cambodian international students can adaptively, socially and ethically use AI while they are learning Arabic in Indonesia. M1 stated, “AI is useful, but it cannot do everything.” M1's quote shows how Cambodian international students critically perceive technology. Together, the quotes from Cambodian international students show that Cambodian international students see AI as an additional tool to help them in their main goal of getting an education and not as something that will replace their main educational goal. Lastly, M5 stated, “I learn better when there is a mix of technology and interaction” and “We need to make good use of AI and not rely on AI.”

Cognitive, Socio-Cultural, and Ethical Barriers to the Implementation of AI Strategies for Cambodian International Students

The research results show that Cambodian international students have three main problems with how to solve the problem of using Artificial Intelligence (AI) in learning Arabic in Indonesia. One is a cognitive-technological problem; i.e., it is difficult for Cambodian international students to completely understand the information given by AI. Therefore, although some Cambodian international students try to select and use AI, they still have problems verifying whether the translation or Arabic grammar analysis made by AI is correct. This is especially true for the more complicated parts of Arabic grammar and grammar. Two is a socio-cultural problem; i.e., many times Cambodian international students’ efforts to combine the use of AI with direct interaction with others are restricted due to language and cultural differences, as well as a lack of self-confidence. As a result, many Cambodian international students prefer to rely on AI instead of taking part in classroom discussions or other academic social activities. Three is an ethical and regulatory problem; i.e., Cambodian international students do not know much about the limitations of using AI in academics. Specifically, Cambodian international students do not know the risks of plagiarism and violations of academic integrity related to using AI in academics. Additionally, Cambodian international students do not know what rules and regulations their institution has set concerning the use of AI in learning. Additionally, there were other factors that made it harder for Cambodian international students to implement the strategy. These factors included: a lack of access to a stable internet connection; different educational backgrounds; and a lack of digital literacy training.

Despite the fact that students have tried to utilize AI in a selective manner, they continue to be unable to understand what the AI produces. As examples: M1 stated, "I am unsure if the AI produces correct results," expressing doubt as to whether the data produced by the AI was accurate. M2 stated, "I am able to employ AI, but the explanations are difficult to comprehend," illustrating a lack of comprehension of the AI's results. M3 stated, "Nahwu is difficult and at times the AI does not produce explanations clearly," illustrating that because of its complexity, it is difficult to employ the technology for learning Arabic grammar. Lastly, M4 stated, "If I do not verify, I am concerned that I will commit mistakes," illustrating that the verification process has not reached a point of full autonomy.

These findings show that while AI provides easier access to learning, students require stronger cognitive skills and digital literacy to critically evaluate and validate AI results. In addition to cognitive-technological barriers, students face sociocultural barriers that affect how effectively they implement their learning strategies. Language and cultural barriers and low self-confidence often prevent students from balancing direct interactions with the technology. This is demonstrated by M1's statement, "I am too shy to speak in class," demonstrating a psychological barrier to academic interaction. M2 said, "I prefer to use AI over asking my friends," demonstrating a tendency to avoid direct communication.

M5 said, "Class discussions occur at a rapid pace, and I have trouble keeping up," and "AI is easier because I don't have to talk," demonstrating a preference for technology over social interaction. Regulatory and ethical issues are also relevant factors that influence students' choices concerning implementing AI strategies. Students are unsure about the limits of using AI within the academic setting; therefore, students are placed in an ambiguous position regarding acceptable and unacceptable practices.

This ambiguity is shown in M1's statement, "I don't know what the limits are for using AI," demonstrating a lack of clarity in understanding ethical issues related to technology usage. M2 said, "The

lecturer didn't explain AI in detail," demonstrating weak institutional guidance concerning technology usage in academics. M3 said, "I am afraid of being accused of cheating, but there are no specific rules," demonstrating the dilemma of using technology for learning purposes. M4 also said, "Sometimes I don't know whether it is plagiarism or not," demonstrating low academic literacy concerning digital integrity and ethics. Observation on April 24, 2026, revealed behavioral patterns among international students (M1–M5) indicating regulatory and ethical issues related to using Artificial Intelligence (AI) during Arabic language learning.

M1 and M2 were observed using AI applications directly while completing assignments, transferring the results to their notebooks without citing sources or making significant modifications. M3 appeared to modify answers several times after comparing results between two different AI applications; however, no in-depth evaluation was conducted to assess the accuracy of content or language structure. M4 displayed similar behavior; however, he observed the results utilized by the student seated adjacent to him and modified his answers accordingly to maintain consistency. Lastly, M5 utilized AI frequently when encountering difficulty, with a tendency to continue attempting several times until he arrived at the most suitable answer without conducting further analysis.

In addition to internal factors, external challenges such as limited internet access also influence the implementation of AI strategies in learning. Students often face technical challenges that hinder their optimal use of technology. This is evident in M1's statement, "The internet is often slow when I use AI," which indicates a digital infrastructure barrier. M2 also stated, "Sometimes I can't access AI because the network is poor," reinforcing the limited access to technology. M4 stated, "I have to wait a long time for AI results," indicating inefficiencies in technology-based learning processes. These findings demonstrate that technical factors are a significant barrier to implementing AI-based learning strategies, preventing students from always relying on technology as a stable and consistent learning solution.

DISCUSSION

The results of the study show that using AI to teach Arabic to international students from Cambodia studying at Indonesian Islamic Higher Education Institutions has created a paradoxical situation that can be seen as both an opportunity and a risk. On one hand, AI has made many sources of information available, accelerated the translation process, and facilitated the development of flexible learning methods. However, the use of AI is creating a situation in which students are developing learning habits based on algorithms instead of reflection. Therefore, the use of AI is creating a situation in which the reproduction of symbolic power is taking place through institutionalized forms of knowledge. As technology is becoming a form of cultural capital, the reproduction of symbolic power is taking place through technology. However, in contrast to most assumptions in techno-optimistic educational discourses, the study also shows that although there are possibilities for all students to use AI, using AI does not guarantee that each student will develop epistemic empowerment. In fact, AI could potentially create new forms of inequality among students who have critical digital literacy skills and students who use AI as a quick replacement for thinking.

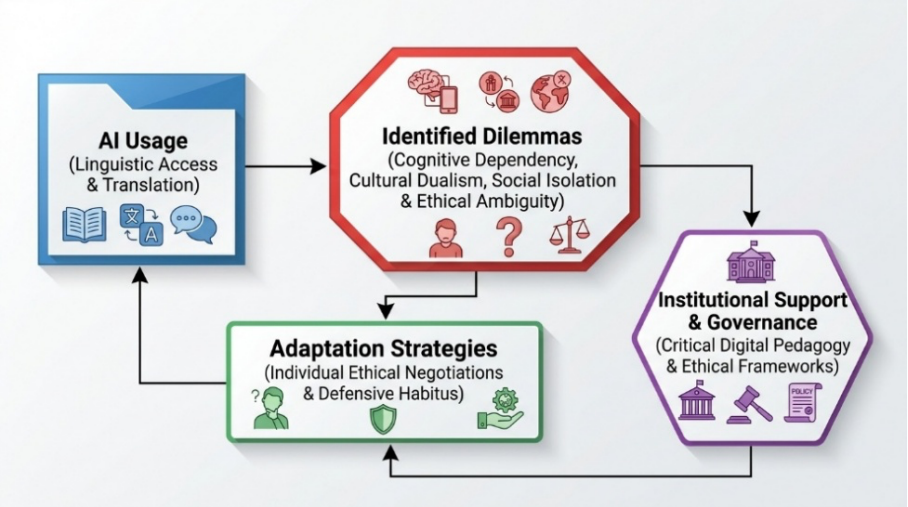


Fig.1: The relationship between AI usage, identified dilemmas, adaptation strategies, and institutional support

The cognitive-academic dilemma(s) found in this study show how AI changes the way students create knowledge, view authoritative figures and determine what is academically legitimate. Students' willingness to accept certain AI outputs as true and doubt others shows a conflict between technological rationalization and epistemic uncertainty. The results support the idea proposed by Wayne Holmes, Bialik, and Fadel (2019) that AI is mainly used as a tool to personalize learning; however, it was shown that while personalizing learning can be beneficial, it may also reduce the ability of students to think independently if they have limited abilities to analyze and interpret information. The situation is even more complicated for students who learn Arabic since Arabic is both a means of communication and a source of religious authority, written traditions, and symbolic authority in Islamic educational institutions. Therefore, the interpretation of AI generated content is often not viewed as objectively neutral. Students continually compare AI generated content with other sources of knowledge including lecturers, classical Islamic texts, and peer interactions. This supports the views presented by Phil Hubbard and Levy (2020), stating that language technologies do not only alter the methods used to teach/learn languages but also restructure pedagogical authority and learner autonomy within multi-lingual educational contexts.

The socio-cultural findings similarly reveal that technological adaptation cannot be separated from processes of social reproduction and intercultural negotiation. Although AI appears to reduce linguistic barriers for international students, excessive dependence on AI simultaneously weakens opportunities for direct interaction, communicative risk-taking, and intercultural integration. This finding demonstrates a contradiction frequently overlooked in global educational transformation discourse: technologies designed to facilitate inclusion may paradoxically intensify social isolation. Students' preference for interacting with AI rather than engaging in direct communication reflects the formation of defensive learning habitus shaped by insecurity, linguistic anxiety, and unequal cultural positioning within host institutions. In Bourdieu's framework (1984), these students possess limited institutionalized cultural capital within Indonesian academic culture, causing them to rely more heavily on technological mediation to compensate for perceived social inadequacies. The findings therefore complicate dominant narratives of internationalization in higher education, which often assume that multicultural environments naturally foster intercultural competence. Instead, this study supports the argument of Simon Marginson (2014) that international students continuously negotiate symbolic legitimacy and academic belonging within structurally unequal educational environments. AI, in this context, functions simultaneously as a bridge and a barrier: it facilitates immediate academic survival while potentially delaying deeper social integration and intercultural confidence.

Another important contribution of this study lies in its identification of ethical-technological ambiguity within Islamic higher education institutions. Students demonstrated awareness regarding plagiarism, academic dishonesty, and excessive technological dependence, yet they operated within institutional environments that lacked explicit ethical guidelines concerning AI use. This finding suggests that institutional transformation in faith-based higher education has not fully kept pace with technological acceleration. Existing educational structures continue to emphasize moral instruction, yet often fail to provide operational ethical frameworks capable of addressing emerging digital dilemmas. Consequently, students develop individualized ethical negotiations based on peer influence, informal norms, and personal judgment rather than institutionally structured digital ethics. This condition reflects what Ulrich Beck (1992) conceptualizes as reflexive modernity, where individuals are increasingly required to independently negotiate risks produced by technological advancement. At the same time, the findings reinforce concerns raised by Karen E. Egan and Aksit (2023) that higher education institutions frequently adopt AI technologies faster than they develop ethical governance mechanisms capable of regulating academic integrity and responsible digital practices (Alsahafi & Shin, 2016).

The findings further reveal that institutional support plays a decisive role in shaping whether AI functions as a mechanism of empowerment or dependency. The absence of clear pedagogical frameworks, digital literacy training, and intercultural mentoring systems indicates that many Islamic higher education institutions remain positioned within reactive rather than transformative models of educational adaptation. This condition contributes to what may be conceptualized as institutional lag, where technological change develops faster than curricular, ethical, and pedagogical restructuring. The findings therefore broaden scholarly conversations on educational transformation by arguing that successful AI integration requires more than technological infrastructure; it demands institutional reconfiguration capable of balancing efficiency, critical literacy, ethical awareness, and intercultural engagement. Such transformation is particularly crucial within faith-based education because Islamic universities simultaneously carry responsibilities for academic modernization and moral-social formation. In this regard, the findings support Ben Williamson's (2021) argument that contemporary educational transformation increasingly involves processes of datafication, platformization, and digital governance that reshape institutional authority and pedagogical practice. Similarly, Michael Peters, Zhu, and Jandrić (2023) argue that AI integration in education requires developing critical digital pedagogy rather than purely instrumental technological adoption.

CONCLUSIONS

The findings of this study demonstrate that Artificial Intelligence (AI) has an ambiguous relationship with Cambodian international students' use of the Arabic language for learning purposes; AI is both beneficial for accelerating translation, enhancing vocabulary comprehension, and enabling completion of academic assignments, and potentially detrimental to the development of independent thinking skills, the enhancement of social interactions, and the creation of ethical dilemmas. Instead of being passive consumers of technology, the students demonstrated individual agency through adaptive strategies such as selectively using AI, limiting the time spent using AI, and combining AI-assisted learning with direct interaction. While these strategies did not alleviate all of the challenges associated with critically evaluating AI-produced content, developing in-depth understanding, and adhering to ethical standards, the main contribution of this study to the international student literature is its explanation of how AI-mediated learning interacts with the process of linguistic and cultural adjustment, student autonomy, and social engagement in Indonesian Islamic higher education.

In addition, the study expands our knowledge about how international students adjust to new environments. Specifically, the study indicates that adjustment is not limited to adjusting to a new language and culture, but also includes adjusting to the opportunities and constraints provided by AI-mediated learning. However, there are limitations to the interpretation of the results of this study. Due to the limited

size of the sample, the focus on Cambodian students attending two universities located in Semarang, and the use of participants' self-reported experiences, the generalizability of the findings to other international student populations and educational settings is limited. Also, the analysis of interview and observational data inevitably involves the researchers' analytical decisions, which can impact the way we perceive participants' experiences and behaviors. Therefore, future research should investigate larger and more varied international student populations and institutional environments, utilize mixed-methods and longitudinal designs, and consider alternative viewpoints regarding the long-term impact of AI on students' learning outcomes, social adjustment, and educational behaviors.

IMPLICATIONS

This research has theoretical implications at a macro-level because it positions Artificial Intelligence (AI) as a socio-cultural/institutional phenomenon rather than a neutral teaching device. The results indicate that AI use among international students is influenced by the interaction of several factors including cultural capital, habitus formation, institutional legitimacy, and the postcolonial educational inequities. This study extends Bourdieu's theory of cultural capital by showing how digital literacy functions as a new symbolic form of capital within transnational higher education settings; however, it continues to create unequal relationships between the technologically confident learner and the structurally vulnerable student. From a structural perspective, the results suggest that educational change within Islamic higher education needs to move beyond adopting technology as an end in itself to developing critical digital pedagogy, intercultural mentoring, and ethical governance of AI. These arguments support those put forth by Mark Brown et al. (2020), who argue that digital transformation within higher education must occur through institutional readiness at the technological, pedagogical, ethical, and socio-cultural levels. Without institutional readiness to adapt to new technologies, AI will continue to reinforce social reproduction and educational stratification under the guise of innovation and modernization.

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