



Artificial Intelligence in Arabic Language Learning: Exploring Students' Usage Patterns, Purposes, Benefits, and Perceptions

الذكاء الاصطناعي في تعلم اللغة العربية: استكشاف أنماط استخدام الطلاب، وأغراضه،

وفوائده، وتصوراتهم

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ABSTRACT

This study examines how students in Arabic Language Education program uses Artificial Intelligence (AI) to support Arabic language learning. Specifically, it explores students' AI usage patterns, learning purposes, perceived benefits, and overall perceptions of AI-assisted Arabic language learning. This study employed a descriptive quantitative approach involving 89 students from several universities in Indonesia. Data were collected through an online questionnaire using a Likert-scale instrument and analyzed using descriptive statistics, including percentages and mean scores. The findings reveal that students reported a moderate level of AI use in Arabic language learning ($M = 3.20$), particularly for information searching ($M = 3.53$), text translation ($M = 3.43$), and vocabulary comprehension ($M = 3.44$). Students also perceived AI as useful, practical, and easy to use in supporting learning activities. Furthermore, AI was considered beneficial in improving learning efficiency, facilitating independent learning, and helping students understand difficult materials. However, students expressed concerns regarding the accuracy of AI-generated information and the potential risk of overdependence on technology. The findings indicate that AI has become an important supporting tool in Arabic language learning, although its use still requires critical awareness and academic supervision. While previous studies have mainly focused on AI effectiveness, technology acceptance, or specific applications in language learning, this study provides a comprehensive examination of students' AI usage patterns, learning purposes, perceived benefits, and perceptions within Arabic language education. The findings contribute to the growing body of literature on AI-assisted language learning and offer practical insights for educators and institutions seeking to integrate AI responsibly into Arabic language instruction.

Keywords: Artificial Intelligence, Arabic Language Learning, Students' Perceptions, AI-Assisted Learning, Arabic Education.

مستخلص البحث

يهدف هذا البحث إلى استكشاف استخدام الذكاء الاصطناعي في تعلم اللغة العربية لدى طلاب برامج تعليم اللغة العربية، من خلال تحليل أنماط الاستخدام، وأهدافه، والفوائد المدركة، وتصورات الطلاب تجاه هذه التقنية في عملية التعلم. اعتمدت الدراسة المنهج الكمي الوصفي، وشارك فيها ٨٩ طالبًا من عدة جامعات في إندونيسيا. وتم جمع البيانات باستخدام استبانة إلكترونية وفق مقياس ليكرت، ثم تحليلها باستخدام الإحصاء الوصفي مثل المتوسطات والنسب المئوية. أظهرت نتائج الدراسة أن الطلاب يستخدمون الذكاء الاصطناعي بدرجة متوسطة في تعلم اللغة العربية، خاصة في ترجمة النصوص، وفهم المفردات، والبحث عن المعلومات، وإنجاز الواجبات الأكاديمية. كما يرى الطلاب أن الذكاء الاصطناعي أداة مفيدة وعملية وسهلة الاستخدام في دعم عملية التعلم. بالإضافة إلى ذلك، يساعد الذكاء الاصطناعي في تحسين كفاءة التعلم، ودعم التعلم الذاتي، وتسهيل فهم الموضوعات الصعبة. ومع ذلك، أبدى بعض الطلاب مخاوف تتعلق بدقة المعلومات التي يقدمها الذكاء الاصطناعي واحتمالية الاعتماد المفرط عليه. وتؤكد الدراسة أن الذكاء الاصطناعي أصبح أداة داعمة مهمة في تعلم اللغة العربية، إلا أن استخدامه لا يزال يحتاج إلى وعي

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نقدي وإشراف أكاديمي مناسب. وتتمثل جودة هذه الدراسة في تناولها الشامل لأنماط استخدام الذكاء الاصطناعي وفوائده وتصورات الطلاب في سياق تعليم اللغة العربية، وهو مجال لا يزال محدودًا في الدراسات السابقة. كما تسهم نتائج الدراسة نظرًا في تطوير الدراسات المتعلقة بالتعلم اللغوي المدعوم بالذكاء الاصطناعي، وعمليًا في تقديم رؤى تساعد المعلمين والمؤسسات التعليمية على دمج الذكاء الاصطناعي بصورة مسؤولة في تعليم اللغة العربية.

الكلمات المفتاحية: الذكاء الاصطناعي، تعلم اللغة العربية، تصورات الطلاب، التعلم المدعوم بالذكاء الاصطناعي، تعليم اللغة العربية.

INTRODUCTION

The rapid development of digital technology has significantly transformed various aspects of human life, including the field of education. One of the most influential technological innovations in recent years is the emergence of Artificial Intelligence (AI), which has increasingly been integrated into teaching and learning processes. AI is no longer viewed merely as a technological tool, but rather as an intelligent learning assistant capable of providing instant feedback, facilitating knowledge construction, and supporting autonomous learning among students (Firdaus, Putri, & Rachman, 2025; Holmes, Bialik, & Fadel, 2019). In language education, the emergence of AI-based applications such as ChatGPT, Google Translate, and other intelligent learning platforms has changed how students access information, practice language skills, and complete academic tasks more efficiently (Gutiérrez, 2023; Sabaruddin et al., 2024; Wang et al., 2024)

The rapid advancement of generative AI technologies, particularly tools such as ChatGPT, has significantly influenced higher education practices worldwide. Beyond information retrieval and academic writing assistance, generative AI provides personalized feedback and interactive learning experiences that support learner-centered and technology-enhanced education. These capabilities are particularly valuable in language learning contexts, where continuous interaction, timely feedback, and extensive language exposure play essential roles in developing learners' linguistic competence (Chiu, 2024; Crompton & Burke, 2023; Kasneci et al., 2023; Kohnke, Moorhouse, & Zou, 2023).

In the context of Arabic language learning, the integration of AI has become increasingly relevant due to the linguistic complexity of Arabic itself. The linguistic structure of Arabic involves complex morphological, syntactic, and semantic features, particularly in the areas of *ṣarf* (morphology) and *naḥwu* (syntax), which may pose challenges for students in developing language proficiency (Azhar et al., 2025). These challenges often affect students' ability to comprehend texts, construct grammatically

accurate sentences, and master Arabic language skills effectively. Consequently, many students utilize AI technologies to support their learning activities, particularly for text translation, grammatical analysis, vocabulary development, and academic task completion.

The growing accessibility of AI technologies has also shifted students' learning behaviors toward more technology-oriented and flexible learning practices. As a result, AI has become an increasingly common learning resource in higher education, particularly in language learning contexts where students seek immediate access to information, explanations, and learning support. (Kharis et al., 2024; Lestarinigrum, Ausat, Wanof, & Pramono, 2024).

Students increasingly use AI as an alternative learning resource because it provides instant access to information, practical assistance, and interactive explanations. This trend reflects the shift from conventional learning approaches toward more digital and autonomous learning environments, where students can manage their learning activities beyond classroom settings. In higher education, AI technologies are increasingly viewed as cognitive support systems that facilitate flexible and self-directed learning processes (Ouyang, Luyi, & Jiao, 2022). Although previous studies have reported positive contributions of AI-assisted language learning to learner autonomy, engagement, and learning effectiveness (Apriliani, 2024; Hapshah, Salma, Tarigan, & Supriyono, 2026), less attention has been paid to understanding how students utilize AI in their everyday learning activities, particularly in Arabic language education.

Despite the growing body of literature highlighting the benefits of AI-assisted learning, existing studies have primarily focused on technology effectiveness, learning outcomes, user acceptance, or specific AI applications in language education (Lo, 2023; Tlili et al., 2023). Consequently, there remains a limited understanding of students' actual AI usage patterns, learning purposes, perceived benefits, and perceptions toward AI-assisted language learning. This gap is particularly evident in Arabic language education, where the linguistic characteristics of Arabic may influence how students interact with and utilize AI technologies in their learning processes.

Despite its potential benefits, the use of AI in education also raises several concerns. One major issue is the possibility of students becoming overly dependent on AI-generated answers, which may reduce critical thinking skills and independent problem-solving abilities. Furthermore, AI-generated content may not always provide

accurate or contextually appropriate information, particularly in Arabic language learning where linguistic and cultural nuances are highly important. The misuse of AI can also lead to academic integrity issues, including plagiarism and superficial learning practices. Therefore, the integration of AI into language learning should be critically examined to understand not only its benefits but also its implications for students' learning behaviors and academic development.

Several studies have explored the role of AI in language learning and education. (Rukmana, Agussalim, Baso, & Haeruddin, 2025) found that university students frequently use AI for translating Arabic texts and understanding grammar. Similarly, Azhar et al. (2025) argued that AI contributes to more personalized and interactive Arabic language learning experiences. Anwar & Mufidah (2024) further revealed that students commonly utilize AI applications such as ChatGPT for paraphrasing, translation, and searching for academic references. In addition, Amadi & Hikmah (2025) reported that students generally have positive perceptions toward AI because it helps simplify learning activities and improve learning efficiency.

Although previous studies have highlighted the effectiveness and perceptions of AI in Arabic language learning, most research tends to focus on specific aspects of AI usage, such as effectiveness, technological acceptance, or linguistic support. Comprehensive studies investigating students' usage patterns, purposes of use, perceived benefits, and perceptions simultaneously within the context of Arabic language education remain limited. Moreover, studies specifically involving students of Arabic Language Education programs in Indonesian higher education are still relatively underexplored.

Despite these advantages, scholars have also raised concerns regarding the ethical and pedagogical implications of AI in education. Issues such as overreliance on AI, academic dishonesty, plagiarism, and declining critical thinking skills have become major discussions in contemporary educational research (Dwivedi, Kshetri, Huger, Slade, & Jeyarad, 2023; Mhlanga, 2023). Therefore, understanding students' actual patterns of AI use and their perceptions toward AI becomes essential for developing responsible and effective AI integration in language learning environments.

To address this gap, the present study aims to explore the use of Artificial Intelligence in Arabic language learning among students of Arabic Language Education programs. Specifically, this research investigates students' usage patterns, purposes of AI utilization, perceived benefits, and perceptions toward AI in learning Arabic. This

study is expected to contribute theoretically to the growing discussion on AI-assisted language learning and practically provide insights for educators and educational institutions in integrating AI responsibly and effectively into Arabic language instruction.

RESEARCH METHOD

This study employed a quantitative approach with a descriptive research design to investigate the use of Artificial Intelligence (AI) in Arabic language learning among students of Arabic Language Education programs. The quantitative descriptive method was considered appropriate because the study aimed to describe and analyze students' usage patterns, purposes of AI utilization, perceived benefits, and perceptions toward AI in learning Arabic based on numerical data collected from respondents.

The population of this study consisted of students from Arabic Language Education programs at several Indonesian universities, namely Universitas Islam Ahmad Dahlan Sinjai, IAIN Manado, Universitas Negeri Makassar, and IAIN Bone. However, the exact population size could not be determined because a complete sampling frame of students who met the inclusion criteria across the participating universities was not available. Therefore, the questionnaire was distributed online through Google Forms and disseminated via Arabic language lecturers at each institution. The study employed convenience sampling, in which participants were selected based on accessibility and willingness to participate in the research (Makwana, Engineer, Dabhi, & Chudasama, 2023)). A total of 89 students voluntarily completed the questionnaire and became the respondents of this study.

Data were collected using an online questionnaire designed in Google Forms. The instrument consisted of several statements related to four major variables: (1) AI usage patterns, (2) purposes of AI use, (3) perceived benefits of AI, and (4) students' perceptions toward AI in Arabic language learning. The questionnaire used a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The indicators included frequency of AI use, types of AI applications, learning activities supported by AI, translation purposes, grammar learning, writing assistance, learning efficiency, usefulness, ease of use, trust in AI-generated results, and perceptions regarding dependency on AI.

The validity of the instrument was examined using Pearson Product Moment correlation analysis between item scores and total scores. All questionnaire items were

found to be valid, with correlation coefficients higher than 0.30, ranging from 0.494 to 0.755. Furthermore, the reliability of the instrument was tested using Cronbach's Alpha. The analysis showed a Cronbach's Alpha coefficient of 0.957, indicating that the instrument had a very high level of reliability and internal consistency.

The collected data were analyzed using descriptive statistics, including percentages, mean scores, and categorical interpretations. Mean scores were used to identify the general tendencies of respondents' answers regarding the use of AI in Arabic language learning. The interpretation of mean scores was categorized into five levels: very high (4.21–5.00), high (3.41–4.20), moderate (2.61–3.40), low (1.81–2.60), and very low (1.00–1.80). The results of the analysis were then interpreted to describe students' patterns of AI usage, learning purposes, perceived benefits, and perceptions toward the integration of AI in Arabic language learning.

RESULT AND DISCUSSION

Students' Patterns of AI Usage in Arabic Language Learning

The descriptive analysis revealed that students' overall use of Artificial Intelligence (AI) in Arabic language learning was at a moderate level ($M = 3.20$). This finding suggests that although AI has become a commonly utilized learning resource, its integration into students' daily learning routines remains limited. Students primarily employed AI to support text comprehension, assignment completion, translation activities, and information searching, highlighting its role as a complementary rather than primary learning tool.

Among the indicators examined, the highest mean score was found for using AI to search for information ($M = 3.53$), followed by vocabulary comprehension ($M = 3.44$) and text translation ($M = 3.43$). In contrast, the lowest mean score was observed for AI-assisted writing practice ($M = 2.88$), indicating that students were more likely to use AI for receptive and supportive learning activities than for productive language practice.

A closer examination of individual indicators further revealed that the use of AI in every Arabic language assignment obtained a mean score of 3.09, categorized as moderate. Most respondents (62.92%) selected neutral responses, while only 21.35% agreed that they consistently used AI in every assignment. Similarly, the frequency of AI use in Arabic language learning obtained a mean score of 3.19, suggesting that students used AI relatively often, although not intensively. These findings indicate that while AI is widely recognized as a useful learning aid, students continue to combine AI-supported

learning with conventional learning methods.

The use of various AI applications also fell within the moderate category, with a mean score of 3.22. This result suggests that students are familiar with multiple AI platforms, including ChatGPT and machine translation tools, to support their learning activities. Among all indicators, the use of AI to understand Arabic texts obtained the highest mean score ($M = 3.37$). This finding may be associated with the linguistic complexity of Arabic, particularly in terms of vocabulary, sentence structure, and text interpretation, which often present challenges for learners. Many students agreed that AI helped them understand vocabulary, sentence meanings, and text content more effectively. In addition, AI was frequently used to complete academic assignments ($M = 3.36$), indicating that students viewed AI as a practical tool for supporting their academic work and facilitating language learning tasks.

The findings are consistent with previous studies. Rukmana et al. (2025) reported that students of Arabic language programs actively use AI, especially for translation and grammar understanding. Similarly, Anwar & Mufidah (2024) found that students frequently use AI applications such as ChatGPT for translation, paraphrasing, and reference searching. Consistent with these studies, the present findings suggest that AI has become a commonly used supplementary learning resource among university students, particularly for supporting language-related learning activities.

Beyond their consistency with previous empirical findings, these usage patterns can also be explained through Technology Acceptance Model (TAM), which emphasizes perceived usefulness and perceived ease of use as key determinants of technology adoption (Davis, 1989). Students are more likely to adopt AI because they perceive it as useful in solving learning difficulties and easy to access through digital devices such as smartphones and laptops. The accessibility and practicality of AI tools encourage students to use them regularly in academic and language learning activities.

Taken together, these results suggest that students increasingly complement conventional learning with AI-supported learning practices. Rather than replacing traditional learning methods, AI serves as an additional resource that provides flexible, accessible, and immediate support for various learning activities.

Nevertheless, the findings also highlight the importance of critical and responsible AI use. Although AI offers various learning benefits, excessive reliance on AI-generated outputs may limit opportunities for students to engage in independent analysis,

reflection, and problem-solving (Kasneci et al., 2023). Therefore, educators should guide students in using AI critically, ethically, and responsibly, ensuring that AI functions as a learning support tool rather than a substitute for active learning and intellectual engagement in Arabic language learning contexts (Chiu, 2024).

Purposes of AI Use in Arabic Language Learning

The findings reveal that students use AI for various academic purposes related to Arabic language learning. The primary purposes include searching for information, translating Arabic texts, understanding vocabulary and sentence meanings, analyzing grammatical structures, and assisting with writing activities.

Among all indicators, the use of AI for searching information obtained the highest mean score ($M = 3.53$), categorized as high. This finding suggests that students perceive AI as an efficient and accessible source of academic information, which is consistent with previous studies highlighting AI's role in facilitating rapid access to learning resources and supporting self-directed learning (Chiu, 2024; Kasneci et al., 2023; Tlili et al., 2023).

The second-highest mean score was found for using AI to understand difficult words and sentences ($M = 3.44$). This result indicates that students frequently rely on AI to support text comprehension and vocabulary development, particularly when encountering unfamiliar linguistic structures in Arabic texts. AI-assisted explanations enable students to access immediate clarification, thereby supporting independent learning and improving reading comprehension.

Similarly, the use of AI for translating Arabic texts recorded a high mean score ($M = 3.43$), confirming that translation remains one of the primary reasons students utilize AI technologies. AI-assisted translation helps students understand words, phrases, and texts more efficiently, reducing linguistic barriers that often arise during Arabic language learning.

In terms of grammar learning, students moderately use AI for analyzing sentence structures, understanding *naḥwu*, and learning *ṣarf*. This pattern may be associated with the complexity of Arabic grammatical systems, which often require additional explanations, examples, and contextualized practice to facilitate learners' understanding. In this regard, AI appears to function as a supportive learning tool by simplifying grammatical explanations and providing immediate assistance when students encounter difficulties. Additionally, students use AI to support writing activities such as composing Arabic sentences and paragraphs, although the intensity of AI use for writing practice remains relatively moderate. This finding suggests that students tend to rely on AI more

for comprehension and learning support than for generating written language output.

These findings support previous studies showing that AI contributes significantly to language learning activities. Azhar et al. (2025) emphasized that AI enhances learning effectiveness through personalized support and real-time feedback, and easier access to learning resources. Likewise, Anwar & Mufidah (2024) found that students mainly use AI for translation, paraphrasing, and academic assistance. The prominence of information searching, text comprehension, and translation purposes observed in the present study further supports the growing role of AI as a practical learning aid in language education.

The dominance of information-searching, comprehension-support, and translation-related purposes reflects students' need for quick and practical academic assistance. Arabic language learning often requires extensive vocabulary knowledge and grammatical understanding, making AI a convenient tool for reducing learning difficulties. Furthermore, the increasing academic demands faced by students may encourage them to use AI as a time-saving strategy in completing assignments and accessing references. These patterns can be further explained through the Technology Acceptance Model (TAM), which emphasizes perceived usefulness as a key determinant of technology adoption (Davis, 1989). Students are more likely to use AI when they perceive that it enhances their academic performance and simplifies learning tasks. The ability of AI applications to provide instant responses, rapid information retrieval, and flexible access may therefore explain their widespread use among students in Arabic language learning contexts.

Nevertheless, the findings also indicate the importance of promoting digital literacy and academic ethics. Students should not rely entirely on AI-generated results without critical evaluation and understanding, as responsible AI use requires learners to verify information and engage actively in the learning process (Chiu, 2024). Therefore, higher education institutions need to encourage responsible AI use while maintaining students' analytical and reflective learning abilities.

Perceived Benefits of AI in Arabic Language Learning

The findings demonstrate that students perceive several benefits from using AI in Arabic language learning. AI is considered helpful in understanding difficult lessons, improving learning efficiency, supporting independent learning, and facilitating quick access to information and explanations.

The highest mean score in this aspect was found in the statement that AI helps students understand difficult lessons (3.47), categorized as high. Students also agreed that AI facilitates understanding of learning materials and accelerates the learning process. Furthermore, AI supports autonomous learning by enabling students to study independently outside classroom settings.

These findings indicate that AI contributes positively to learning flexibility and effectiveness. Students can access explanations, translations, and examples instantly without waiting for classroom instruction. Such flexibility aligns with the characteristics of modern digital learning environments, which emphasize learner-centered and self-directed learning.

From the TAM perspective, the perceived benefits of AI are closely related to perceived usefulness, which refers to the extent to which technology improves users' performance (Davis, 1989). The positive responses from students suggest that AI is accepted because it genuinely helps improve learning efficiency and academic productivity.

This interpretation is consistent with previous studies. Azhar et al. (2025) explained that AI enhances Arabic language learning through personalization and interactive learning support. Rukmana et al. (2025) also reported that students experience greater convenience in understanding Arabic grammar and texts through AI technologies.

Despite these benefits, students remain cautious about overdependence on AI. Excessive reliance on instant AI-generated answers may reduce opportunities for students to develop independent reasoning and critical analysis. However, the findings also support Muzaky & Kafi's (2026) argument that AI can function as a cognitive partner rather than merely a shortcut tool when used appropriately.

Therefore, AI should be integrated into Arabic language learning as a supportive educational technology that enhances learning experiences without replacing students' active cognitive engagement. Educators play a crucial role in ensuring that AI is used to support meaningful learning processes rather than superficial academic practices.

Students' Perceptions toward AI in Arabic Language Learning

The findings indicate that students generally have positive perceptions toward the use of AI in Arabic language learning. Students perceive AI as easy to use, practical, beneficial, and supportive of their academic activities.

The statement regarding the ease of AI use obtained the highest mean score (3.54),

categorized as high. Students also agreed that they could use AI without significant difficulties. Furthermore, the perception that AI is highly beneficial also achieved a high mean score (3.52). These findings indicate that students accept AI positively because it simplifies learning activities and provides practical academic assistance.

However, students' trust in the accuracy of AI-generated results remained moderate, with a mean score of 2.85. Most respondents selected neutral responses, suggesting that students still question the reliability and contextual accuracy of AI outputs, particularly in Arabic language learning where linguistic nuances and cultural meanings are highly significant.

Although students generally reported positive perceptions of AI, some respondents also expressed reservations about excessive reliance on AI-generated outputs. While most students disagreed with the statement that they use AI without understanding the results, the findings suggest an awareness of the potential risks associated with overreliance on AI in learning activities. This indicates that students tend to view AI as a supportive learning resource rather than a substitute for independent learning and critical engagement.

From the perspective of the Technology Acceptance Model (TAM), these findings can be explained through perceived usefulness and perceived ease of use (Davis, 1989). Students appear to value AI because it is accessible, practical, and capable of supporting their academic tasks efficiently. This interpretation is consistent with (Amadi & Hikmah, 2025), who found that students generally perceive AI positively while still recognizing the need for academic guidance in understanding deeper linguistic aspects of Arabic.

The findings imply that educational institutions should strengthen students' digital literacy and ethical awareness regarding AI use. Students need guidance in critically evaluating AI-generated information and using technology responsibly in academic contexts. Therefore, the integration of AI into Arabic language learning should focus not only on technological innovation but also on fostering students' critical, reflective, and independent learning capacities.

CONCLUSION

This study explored the use of Artificial Intelligence (AI) in Arabic language learning among students of Arabic Language Education programs. The findings indicate that AI has become an important supporting tool in students' academic activities, particularly for translating Arabic texts, understanding vocabulary and grammar,

searching for information, and completing assignments. Overall, students demonstrated moderate patterns of AI usage, while their perceptions toward AI were generally positive. Students considered AI useful, practical, and easy to use in supporting learning activities. In addition, AI was perceived to improve learning efficiency, facilitate independent learning, and help students understand difficult learning materials more effectively.

Despite these benefits, several concerns regarding the use of AI were also identified. Some students expressed doubts about the accuracy of AI-generated information, particularly in relation to the linguistic and cultural complexity of the Arabic language. Furthermore, excessive dependence on AI may limit opportunities for students to develop independent learning and critical evaluation skills if AI-generated outputs are accepted without reflection.

Therefore, the integration of AI into Arabic language learning should be accompanied by pedagogical strategies that promote critical engagement with AI-generated content. Educators should encourage students to verify translations, evaluate grammatical explanations, and critically assess information provided by AI tools, particularly when learning Arabic texts, vocabulary, and linguistic structures. In this way, AI can serve as a supportive learning resource while preserving students' active participation in the learning process.

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