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## **Artificial Intelligence in Arabic Writing Instruction: Students' Lived Experiences in Learning Maharah al-Kitabah**

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### **Abstract**

Writing skills are increasingly marginalized in the rise of digital literacy practices. The rapid growth of Artificial Intelligence (AI) has not yet been accompanied by a well-established cyber-pedagogical framework capable of maintaining students' independent writing competencies. This study aims to explore the lived experiences of Arabic Language Education students in utilizing AI within maharah al-kitabah learning and to analyze its implications for writing proficiency and academic ethics. A qualitative phenomenological approach was applied through semi-structured interviews with 23 students actively using AI-based applications in Arabic writing activities. The findings reveal that AI is perceived as a cognitive support tool that assists students in generating ideas, improving grammatical structures, enriching vocabulary, and enhancing coherence and writing fluency. However, students also acknowledge the risks of dependency and reduced critical thinking if AI is used without proper pedagogical guidance. These results underline the need for a reflective and ethically grounded integration of AI in maharah al-kitabah instruction to ensure sustainable development of independent writing skills.

**Keywords:** *artificial intelligence, phenomenology, maharah al-kitabah, lived experiences, Arabic language learning*

**Abstrak**

Keterampilan menulis semakin termarjinalkan seiring dengan menguatnya praktik literasi digital. Perkembangan pesat kecerdasan buatan (Artificial Intelligence/AI) belum sepenuhnya diiringi oleh kerangka siber-pedagogis yang mapan untuk menjaga kemandirian kompetensi menulis peserta didik. Penelitian ini bertujuan untuk mengeksplorasi pengalaman hidup (*lived experiences*) mahasiswa Pendidikan Bahasa Arab dalam memanfaatkan AI pada pembelajaran *maharah al-kitabah* serta menganalisis implikasinya terhadap kemampuan menulis dan etika akademik. Penelitian ini menggunakan pendekatan kualitatif fenomenologis melalui wawancara semi-terstruktur terhadap 23 mahasiswa yang secara aktif menggunakan aplikasi berbasis AI dalam aktivitas menulis bahasa Arab. Hasil penelitian menunjukkan bahwa AI dipersepsikan sebagai sarana dukungan kognitif yang membantu mahasiswa dalam menghasilkan gagasan, memperbaiki struktur gramatikal, memperkaya kosakata, serta meningkatkan koherensi dan kelancaran tulisan. Namun demikian, mahasiswa juga menyadari adanya risiko ketergantungan dan menurunnya daya pikir kritis apabila AI digunakan tanpa pendampingan pedagogis yang memadai. Temuan ini menegaskan pentingnya integrasi AI yang reflektif dan berlandaskan etika dalam pembelajaran *maharah al-kitabah* guna menjamin pengembangan keterampilan menulis yang mandiri dan berkelanjutan.

**Keywords:** *kecerdasan buatan, fenomenologi, maharah al-kitabah, pengalaman hidup, pembelajaran bahasa Arab*

**Introduction**

The development of digital technology in the last two decades has brought fundamental changes to the world of global education, especially in language learning. This transformation is marked by the increased use of artificial intelligence (AI), which provides automated services such as language correction, vocabulary recommendations, and generative text production.<sup>1</sup> In the context of language learning, AI is seen as an innovation that can accelerate the learning process, expand

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<sup>1</sup> Xiaoming Zhai, "ChatGPT and AI: The Game Changer for Education," *ChatGPT: Reforming Education on Five Aspects*. Shanghai Education 01, no. 03 (2023): 1–4, <https://ssrn.com/abstract=4389098>; John Maurice Gayed et al., "Exploring an AI-Based Writing Assistant's Impact on English Language Learners," *Computers and Education: Artificial Intelligence* 3, no. February (2022): 100055, <https://doi.org/10.1016/j.caeai.2022.100055>; M. Askari Zakariah, Vivi Afriani, and M. Zakariah, *METODOLOGI PENELITIAN KUALITATIF, KUANTITATIF, ACTION RESEARCH, RESEARCH AND DEVELOPMENT (R and D)*, ed. M. Askari Zakariah, Vivi Afriani, and M. Zakariah (Jawa Tengah: Yayasan Pondok Pesantren Al Mawaddah Warrahmah Kolaka, 2020).

access to linguistic resources, and create a more personalized and adaptive learning experience.<sup>2</sup> The presence of this technology has encouraged a paradigm shift in learning from conventional models to data- and algorithm-based digital learning.<sup>3</sup> However, the integration of AI also raises critical questions about its impact on productive language skills, especially writing skills that require higher-level thinking.<sup>4</sup> Therefore, the use of AI in language education cannot be understood solely as a technical innovation, but rather as an epistemological change that affects the way learners build and construct language knowledge.

In Arabic language learning, writing skills or maharah al-kitabah are one of the most complex and challenging productive competencies for non-native learners.<sup>5</sup> Maharah kitabah requires mastery of integrated linguistic aspects, such as nahwu-sharaf structure, semantic accuracy, discourse cohesion, and the ability to organize ideas systematically. In various Islamic universities, including Arabic Language Education study programs, writing skills are still often a major weakness among students.<sup>6</sup> Difficulties in constructing academic sentences, limited thematic vocabulary, and low confidence in writing scientific Arabic texts are recurring problems. This condition is exacerbated by limited practice time and a lack of individual feedback from lecturers. In this situation, students have begun to utilize AI technology as an alternative to assist in the Arabic writing process.

The phenomenon of using artificial intelligence in learning maharah kitabah is also evident among students of the Arabic Language

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<sup>2</sup> Xiangning Chen, Mingsheng Fu, and Hui Li, "Enhancing Higher Education through AI-Driven Personalized Adaptive Learning : Evidence from a ChatGPT-Based Strategy," *International Journal of Instruction* 19, no. 1 (2025): 579–94.

<sup>3</sup> Enkelejda Kasneci et al., "ChatGPT for Good? On Opportunities and Challenges of Large Language Models for Education," *Learning and Individual Differences* 3, no. 2 (April 2023): 102274, <https://doi.org/10.1016/j.lindif.2023.102274>.

<sup>4</sup> Zaimah, Nely Rahmawati, Risti Kamila Wening Estu, Syarifatul Fitri Hidayah, Syamsul Hadi, and Aiden Button. "Harnessing Gemini for Arabic Mastery: Educators' and Learners' Views." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 5, no. 2 (July 2024): 166–88. <https://doi.org/10.19105/ajpba.v5i2.14808>.

<sup>5</sup> Ahmad Zubaidi et al., "Enhancing Arabic Writing Skills Using Chat GPT-Based AI Learning Models: A Tridimensional Human-AI Collaboration Framework," *Indonesian Journal of Applied Linguistics* 15, no. 1 (2025): 87–101, <https://doi.org/10.17509/ijal.v15i1.75378>.

<sup>6</sup> Akhmad Habibi et al., "ChatGPT in Higher Education Learning: Acceptance and Use," *Computers and Education: Artificial Intelligence* 5, no. 11 (2023): 1–9, <https://doi.org/10.1016/j.caeai.2023.100190>.

Education Study Program at Sunan Kalijaga State Islamic University in Yogyakarta. Third- and fifth-semester students are known to actively use various AI-based applications such as ChatGPT, Grammarly, and QuillBot to help them organize their writing, improve grammatical structure, and enrich their Arabic vocabulary.<sup>7</sup> The use of this technology has developed informally, without a standard curriculum or clear pedagogical standards. On the one hand, students feel that it makes writing easier and boosts their confidence, but on the other hand, there are concerns about dependence on technology, the linguistic validity of Arabic, and the potential weakening of critical thinking processes. This phenomenon shows a change in students' learning patterns, which no longer rely solely on lecturers or textbooks, but also on artificial intelligence systems as learning partners.<sup>8</sup>

Previous studies have shown that the use of AI has a significant impact on writing skill acquisition. Gayed et al. (2022) in *Computers and Education: Artificial Intelligence* found that AI-based writing assistants can improve the fluency and accuracy of second language learners' writing.<sup>9</sup> Ma et al. (2024) reported that the targeted use of ChatGPT contributes to an increase in lexical diversity and syntactic structure among language learners.<sup>10</sup> Meanwhile, Chen et al. (2025) emphasized that AI-based adaptive learning systems are capable of creating personalized learning experiences through automatic feedback that is responsive to individual needs.<sup>11</sup> However, most of these studies focused on the context of English language learning and emphasized cognitive-technical aspects rather than the reflective and ethical dimensions of language learning.

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<sup>7</sup> Muhammad Imran and Norah Almusharraf, "Analyzing the Role of ChatGPT as a Writing Assistant at Higher Education Level: A Systematic Review of the Literature," *Contemporary Educational Technology* 15, no. 4 (2023): 1–14, <https://doi.org/10.30935/cedtech/13605>.

<sup>8</sup> Kasneci et al., "ChatGPT for Good? On Opportunities and Challenges of Large Language Models for Education."

<sup>9</sup> John Maurice Gayed et al., "Exploring an AI-Based Writing Assistant's Impact on English Language Learners," *Computers and Education: Artificial Intelligence* 3, no. 2 (2022): 100055, <https://doi.org/10.1016/j.caeai.2022.100055>.

<sup>10</sup> Qing Ma et al., "Exploring ChatGPT Literacy in Language Education: A Global Perspective and Comprehensive Approach," *Computers and Education: Artificial Intelligence* 7, no. July (2024): 100278, <https://doi.org/https://doi.org/10.1016/j.caeai.2024.100278>.

<sup>11</sup> Chen, Fu, and Li, "Enhancing Higher Education through AI-Driven Personalized Adaptive Learning : Evidence from a ChatGPT-Based Strategy."

Based on a review of these studies, there appears to be a significant research gap. First, Scopus-based studies are still very limited in the context of Arabic language learning, especially maharah kitabah as an advanced productive skill. Second, most studies use quantitative or experimental approaches, so they have not been able to explore students' subjective experiences in interacting directly with AI. Third, the dimensions of academic ethics and Islamic educational values, such as ta'dib and amanah ilmiyyah, are still rarely used as the main framework for analysis. In fact, in Arabic language education in Islamic universities, moral and spiritual aspects are an integral part of the learning process. This gap indicates the need for qualitative research that places student experience at the center of analysis.

The uniqueness of this study lies in its attempt to examine the use of artificial intelligence in learning maharah kitabah through a phenomenological approach that emphasizes students' lived experiences.<sup>12</sup> This study not only captures the technical effectiveness of AI, but also examines how students interpret the presence of this technology in the process of learning to write Arabic.<sup>13</sup> Furthermore, this research integrates modern pedagogical perspectives with Islamic educational values, positioning AI not as a substitute for humans, but as a supporting tool that must be used reflectively and ethically. Thus, this study is expected to contribute conceptually to the development of an adaptive Arabic language learning model that incorporates technology without losing its humanistic and spiritual dimensions.

Based on the above description, this study aims to answer the following research questions: what are the experiences of Arabic Language Education students in utilizing artificial intelligence as a tool for learning maharah kitabah; what is the impact of AI use on the development of Arabic writing skills; and what are the challenges, risks, and pedagogical-ethical implications of integrating artificial intelligence into Arabic language learning in Islamic universities. These questions form the main basis for understanding the position of AI more comprehensively as an educational innovation that is not only technologically effective but also in line with the objectives of Islamic

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<sup>12</sup> Fitri Aulia Rahman et al., "Pendidikan Karakter Dalam Era Digital: Bagaimana Teknologi Mempengaruhi Pembentukan Moral Dan Etika," *Journal of Creative Student Research* 1, no. 6 (2023): 294–304, <https://doi.org/10.55606/jcsrpolitama.v1i6.2975>.

<sup>13</sup> Zhai, "ChatGPT and AI: The Game Changer for Education."

education, which is oriented towards the development of knowledge, morals, and academic responsibility.

### **Method**

This study uses a qualitative approach with a phenomenological research type that aims to deeply understand the lived experiences of students in utilizing artificial intelligence as a learning tool for maharah al-kitabah. This study adopts a descriptive–interpretive phenomenological orientation. The aim of the phenomenological approach in this research is not to identify universal essences or conduct pre–post comparative measurement, but to explore students’ reflective accounts of their lived experiences in learning maharah al-kitabah with the assistance of artificial intelligence. Therefore, the empirical evidence in this study is presented in the form of experiential narratives, perceived changes in writing practices based on participants’ reflections, and meaning-making processes as articulated by the participants, rather than measurable performance gains. This approach was chosen because the study focuses on exploring the meanings, perceptions, and subjective experiences of students regarding the use of AI technology in the process of writing Arabic.<sup>14</sup> Research data was collected through semi-structured interviews that allowed for flexible yet focused exploration of information.<sup>15</sup> There were 23 research participants, consisting of third- and fifth-semester students of the Arabic Language Education Study Program who had taken maharah kitabah courses and actively used artificial intelligence-based applications such as ChatGPT, Grammarly, and QuillBot. Participants were selected using purposive sampling with the criterion of direct involvement in the use of AI in Arabic writing activities.

Data analysis was conducted using thematic analysis techniques to identify patterns of meaning and main themes that emerged from the participants' experiences. The analysis process began with repeated readings of all interview transcripts to gain a comprehensive

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<sup>14</sup> Fitri Aulia Rahman et al., “Pendidikan Karakter Dalam Era Digital: Bagaimana Teknologi Mempengaruhi Pembentukan Moral Dan Etika”; Clark Moustakas, *Phenomenological Research Methods* (2455 Teller Road, Thousand Oaks California 91320 United States of America: SAGE Publications, Inc., 1994), <https://doi.org/10.4135/9781412995658>.

<sup>15</sup> Svend Brinkmann and Steinar Kvale, *Doing Interviews* (1 Oliver’s Yard, 55 City Road London EC1Y 1SP: SAGE Publications Ltd, 2018), <https://doi.org/10.4135/9781529716665>.

understanding of the data, followed by initial coding of statements relevant to the research focus. Codes with related meanings were then grouped into thematic categories and developed into the main themes of the study. Through this process, several central themes were obtained, including the use of artificial intelligence in maharah al-kitabah learning, the impact of AI use on students' writing skills, the challenges and risks of using technology, and the pedagogical and ethical implications of integrating artificial intelligence into Arabic language learning. To maintain data validity, this study applied source triangulation and data re-examination so that the findings produced have credibility and consistency of meaning.

## **Results and Discussion**

### **The Use of Artificial Intelligence in Learning Maharah Kitabah**

The results of the study show that artificial intelligence (AI) has become an integral part of the maharah al-kitabah learning process among students of the Arabic Language Education Study Program at UIN Sunan Kalijaga Yogyakarta. Students utilize AI in various stages of the writing process, from pre-writing, text framework development, paragraph development, to the revision stage. This utilization reflects a shift in learning patterns from conventional approaches to more personalized and adaptive digital technology-based learning. Students no longer rely solely on textbooks and lecturer corrections, but have begun to use AI systems as learning partners in building Arabic writing skills.

Field findings reveal that AI-based applications such as ChatGPT, Grammarly, and QuillBot are used to help correct grammatical structure, enrich vocabulary, and improve text coherence. One third-year student stated, "I usually use ChatGPT and Grammarly to help me create an outline and check for grammatical errors. However, I still revise it again to match the Arabic style taught at the university" (personal interview, October 20, 2025). A fifth-semester student also revealed that AI makes it easier for them to understand argumentative sentence structures and the context of academic Arabic usage (personal interview, October 23, 2025). These statements show that students use AI not only as a translation tool, but also as a means of exploring ideas and strengthening language structures.

Analytically, the pattern of AI use in maharah al-kitabah learning shows that this technology functions as cognitive scaffolding, helping students overcome initial linguistic barriers so that they can focus on developing ideas and text meaning. These findings are in line with

studies that state that the integration of AI in Arabic language learning has great potential to improve learning outcomes through context-specific and pedagogical artificial intelligence integration strategies.<sup>16</sup> AI also acts as repetitive feedback that accelerates writing revision and increases the possibility of student metacognitive reflection, which is in line with the findings of AI-assisted learning research that emphasizes the relationship between technology utilization and self-regulated learning.<sup>17</sup> Thus, in the context of Arabic, AI helps students understand the relationship between grammatical structure, semantics, and discourse coherence more reflectively.

In addition to being a technical tool, AI serves as a medium for learning reflection. Students revealed that through the automatic correction and improvement recommendation features, they can recognize recurring patterns of errors in their writing. A fifth-semester student stated, "I feel more confident in writing after using AI because I immediately know where the mistakes are and can learn from them" (personal interview, October 23, 2025). These findings indicate an increase in students' metacognitive awareness, where the writing process no longer stops at the final result but becomes a reflective activity that involves continuous self-evaluation.

The results of this study reinforce the theory of self-regulated learning, which emphasizes the importance of learners' ability to plan, monitor, and evaluate their own learning processes. In this context, AI serves as a trigger for self-regulation that allows students to learn independently but in a focused manner. These findings are consistent with the research by Chen et al., which states that adaptive AI systems are capable of supporting personalized learning through contextual feedback.<sup>18</sup> However, this study shows an additional dimension, namely

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<sup>16</sup> Allisa Tazkia Fitri, "Tinjauan Literatur : Integrasi Kecerdasan Buatan ( AI )," *JURNAL JIPS: Jurnal Ilmiah Pendidikan Scholastic* 1, no. 1 (2025): 16–26, <https://doi.org/10.36057/jips.v9i1.718>; Satrio Satrio, "Integrasi Artificial Intelligence Dalam Pembelajaran Bahasa Arab: Peluang, Tantangan, Dan Inovasi Pedagogis Di Era Digital," *RIGGS: Journal of Artificial Intelligence and Digital Business* 4, no. 2 (2025): 5907–14, <https://doi.org/10.31004/riggs.v4i2.1531>.

<sup>17</sup> Roni Saftari, Hari Mulyadi, and Endang Supardi, "Tracing the Role of Artificial Intelligence in Self-Regulated Learning: A Systematic Review Using the Winne and Hadwin Framework (2007-2025)," *JP: Jurnal Pendidikan: Teori Dan Praktik* 10, no. 1 (2025): 78–91, <https://doi.org/10.26740/jp.v10n1.p78-91> 78.

<sup>18</sup> Miswari, Mufidah, and Ulil Albab, "Enhancing Arabic Speaking Skills through a WhatsApp-Based Communicative Approach in Islamic Higher Education,"

that the adaptive function of AI also has an impact on increasing the linguistic awareness of Arabic language students, an aspect that is still rarely studied in international literature.

However, the results of the study also show that students' use of AI is still predominantly limited to basic functions, such as translation, grammar checking, and text rewriting. Some students have not yet optimally used AI for developing writing creativity, exploring language styles, or analyzing the rhetoric of classical and modern Arabic texts. This phenomenon is in line with the findings of Kohnke and Moorhouse, who state that students tend to use AI instrumentally rather than strategically. Similar patterns were also identified by Mogavi et al., who found that students frequently rely on AI for surface-level writing support rather than higher-order rhetorical development.<sup>19</sup> This limitation shows that the potential of AI in Arabic language learning has not been fully utilized pedagogically, particularly in promoting advanced discourse competence and stylistic awareness.

In this context, the role of lecturers is a determining factor in the successful integration of AI. Lecturers serve as digital literacy facilitators who guide students in using AI critically and ethically. AI-generated corrections can be used as classroom discussion material to test the suitability of language structures with nahwu-sharaf rules and the context of academic Arabic. This approach reinforces Al-Hakims' findings, which emphasize that the effectiveness of AI in education is highly dependent on pedagogical design and the quality of instructor guidance.<sup>20</sup>

Furthermore, the use of artificial intelligence in Arabic language learning needs to be placed within the framework of Islamic educational values. Technology cannot replace the role of lecturers as murabbi and mu'addib, but rather functions as a means (wasilah) that supports the process of forming scientific manners. The integration of AI based on the principles of ta'dib and amanah ilmiyyah has the potential to increase

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*ATHLA: Journal of Arabic Teaching, Linguistics and Literature* 6, no. 1 (2025): 65–85, <https://doi.org/https://doi.org/10.22515/athla.v6i1.11588>.

<sup>19</sup> Avner Caspi and Shir Etgar, "Exaggeration of Emotional Responses in Online Communication," *Computers in Human Behavior* 146 (September 2023): 107818, <https://doi.org/10.1016/j.chb.2023.107818>.

<sup>20</sup> عبد الحكيم عبد الرحمن حسين. "Muhaffazât Al-Al'âb al-Raqmiyyah (Gamification) Fî Ta'limi al-Lughah al-'Arabiyyah: Dirâsatu al-Abhâts al-Mansyûrah Fî Tathbîqi Muhaffazâti al-Al'âb al-'Arabiyyah Fî Indûnîsiyâ." *Alibbaa': Jurnal Pendidikan Bahasa Arab* 5, no. 1 (July 2024): 1–29.

students' spiritual motivation in writing Islamic texts responsibly. Thus, maharah al-kitabah learning is not only oriented towards linguistic skills, but also towards the formation of academic character.

Overall, the results and discussion of this study show that artificial intelligence has a significant contribution in improving the quality of maharah al-kitabah learning, both from linguistic, psychological, and pedagogical aspects. AI has been proven effective in providing quick feedback, enriching vocabulary, increasing linguistic awareness, and encouraging reflective learning. However, this effectiveness can only be realized if it is supported by adequate digital literacy, continuous pedagogical guidance, and the reinforcement of ethical and spiritual values. Therefore, AI should not be positioned as a substitute for human thinking, but rather as a learning partner that strengthens the quality of Arabic language education in the digital age.

#### The Impact of Artificial Intelligence on the Development of Students' Writing Skills

The results of the study show that the use of artificial intelligence has a significant impact on the development of students' writing skills, in terms of linguistic, cognitive, and affective aspects. Interview data indicates that AI is not only used as a technical tool, but has become part of students' writing learning strategies. This utilization reflects a shift in learning patterns from a knowledge-based approach to a more reflective and adaptive learning approach. With the help of instant feedback and contextual language examples, students are able to overcome the initial obstacles in writing Arabic, which have been a major challenge.

Linguistically, the most notable impact is seen in the improvement of vocabulary and sentence structure. Students reported greater ease in understanding variations in meaning (*dalālah al-ma'nā*) and more appropriate use of thematic vocabulary. These findings are in line with international research by Ma et al. (2024), which shows that the use of AI-based language models contributes significantly to increased lexical diversity and lexical sophistication in second language learners. However, this study expands on these findings by showing that in the context of Arabic, vocabulary improvement is not only quantitative but also related to an understanding of semantic relations and discourse context.

In addition to lexical aspects, the use of artificial intelligence also has an impact on improving students' ability to build text cohesion and coherence. Students admit that before utilizing AI, their writing was

often grammatically correct but weak in terms of continuity of ideas between paragraphs. The discourse analysis feature in AI-based applications helps students understand the logical relationships between parts of the text through the use of more appropriate conjunctions and discourse markers. These findings are in line with the research by Alkaabi and Altamimi, which reported that AI-based academic writing training was able to improve the text cohesion of Arab students by up to 48%.<sup>21</sup> Similar results were also found by Al-Shehri (2022), who showed that AI technology contributes to strengthening the macro discourse structure and organization of Arabic academic texts.<sup>22</sup> Thus, AI not only functions as a micro linguistic correction tool, but also as a discourse-level mediator that helps learners understand the overall structure of a text.

From a psychopedagogical perspective, the results of the study show that the use of AI contributes to increased self-confidence and reduced writing anxiety among students. The fear of grammatical errors, which previously inhibited the expression of ideas, decreased after students received immediate automated feedback. These findings are consistent with the research by Gayed et al., which proves that AI-based writing assistants significantly increase writing self-efficacy while reducing writing anxiety in foreign language learners.<sup>23</sup> Barrot reported similar findings, discovering that the presence of AI feedback creates a sense of psychological security in the writing process, encouraging students to experiment more with sentence structure, vocabulary variation, and idea development.<sup>24</sup> Thus, the function of AI in writing learning is not only cognitive but also affective in supporting students' academic courage.

However, the results of the study also show that the improvement in writing skills did not occur evenly among all students. A striking

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<sup>21</sup> Ahsan Siraj et al., "Executing Marketing through a Gender Lens: A Consumer Purchase Decision-Making Study in an Emerging Economy," *Arab Gulf Journal of Scientific Research* 42, no. 4 (2024): 1982–2000, <https://doi.org/10.1108/AGJSR-02-2023-0064>.

<sup>22</sup> Luisa Zeilhofer and Yosuke Sasao, "Mindful Language Learning: The Effects of College Students' Mindfulness on Short-Term Vocabulary Retention," *System* 110 (November 2022): 102909, <https://doi.org/10.1016/j.system.2022.102909>.

<sup>23</sup> Gayed et al., "Exploring an AI-Based Writing Assistant's Impact on English Language Learners," 2022.

<sup>24</sup> Shen Ba and Xiao Hu, "Measuring Emotions in Education Using Wearable Devices: A Systematic Review," *Computers & Education* 200 (July 2023): 104797, <https://doi.org/10.1016/j.compedu.2023.104797>.

difference was seen between students who used AI reflectively and those who simply copied the system's output without further cognitive processing. Students who used AI as a means of language exploration and reflection showed significant progress, while passive use had no significant impact on the quality of their writing. These findings reinforce the warnings of Zhai and Kasneci et al. that the use of AI without active cognitive engagement has the potential to reduce higher-order thinking skills and encourage cognitive offloading.<sup>25</sup> This confirms that the success of AI in language learning is highly dependent on the quality of intellectual interaction between the user and the system.

These findings confirm that artificial intelligence is not the sole determining factor in improving writing skills, but rather a pedagogical tool whose effectiveness is largely determined by how it is used. In this context, the role of lecturers remains crucial as epistemic mediators who guide students to critically interpret, verify, and reflect on AI outputs. These results reinforce the findings of Efend et al. (2025), who emphasize that the successful integration of AI in language learning is highly dependent on the quality of pedagogical design, instructor guidance, and the strengthening of students' digital ethics literacy. With proper guidance, AI can serve as a means of strengthening linguistic reasoning, rather than replacing human thought processes.

Reflectively, the findings of this study indicate that artificial intelligence has great potential as an accelerator of maharah al-kitabah learning when used critically and purposefully. AI can accelerate the technical process of writing, enrich linguistic competence, and reduce psychological barriers for students. However, without a humanistic and reflective pedagogical approach, technology risks shifting writing learning from an intellectual activity to a mechanical one. This view is in line with Kohnke and Moorhouse, who emphasize that AI should be positioned as a learning partner, not a substitute for human reasoning.<sup>26</sup> Therefore, the integration of AI in Arabic language learning needs to be balanced between technological innovation and intellectual development so that students can develop as digitally competent, academically reflective, and ethically responsible writers.

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<sup>25</sup> Zhai, "ChatGPT and AI: The Game Changer for Education"; Kasneci et al., "ChatGPT for Good? On Opportunities and Challenges of Large Language Models for Education."

<sup>26</sup> Lucas Kohnke, Benjamin Luke Moorhouse, and Di Zou, "ChatGPT for Language Teaching and Learning," *RELC Journal* 54, no. 2 (August 3, 2023): 537–50, <https://doi.org/10.1177/00336882231162868>.

### Challenges and Risks of Dependence on AI Technology

The results of the study indicate that the challenges of using artificial intelligence in maharah al-kitabah learning cannot be resolved by banning technology, but rather by strengthening targeted pedagogical design. These findings indicate the need for an Arabic writing learning model that explicitly distinguishes the roles of machine intelligence and learner cognitive activities. In this context, AI is not positioned as the main text generator, but as a pedagogical scaffold that supports certain stages in the writing process, particularly in the pre-writing and linguistic revision phases.

Based on the research findings, the main pedagogical contribution of this study lies in strengthening the process-based writing approach in AI-assisted maharah kitabah. AI can be used to help students identify errors in structure, vocabulary, and cohesion, while the development of ideas, arguments, and meaning organization remains the responsibility of the writer. This approach directly prevents cognitive offloading because students remain actively involved in the linguistic thinking process, rather than simply accepting the final results from the system.

The findings also show the importance of applying AI-assisted reflective writing tasks in kitabah learning. Writing tasks are no longer just oriented towards the final product, but are directed towards comparative analysis between student texts and AI-generated texts.<sup>27</sup> Through this activity, students are trained to evaluate the accuracy of nahwu sharaf structure, discourse cohesion, and the appropriateness of the meaning of the academic context of the Arabic language. This strategy makes AI errors a source of linguistic learning, rather than merely a technological weakness.<sup>28</sup>

In addition, the research results provide a pedagogical contribution in the form of an AI literacy framework for Arabic language learning, which emphasizes three main competencies: (1) linguistic

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<sup>27</sup> Rimma Sianipar, "INTEGRASI AI DALAM PEMBELAJARAN TEKS NARATIF: STUDI TENTANG PROSES, HASIL, DAN PERSEPSI," *Journal of Education Science* 4, no. 2 (2025): 251–64, <https://doi.org/https://doi.org/10.58917/ajjes.v4i2.226>.

<sup>28</sup> Mardi Hadi and Hendri Abdul Qohar, "Peran Artificial Intelligence Dalam Meningkatkan Pembelajaran Interaktif Bahasa Arab," *Ranah Research: Journal of Multidisciplinary Research and Development* 6, no. 6 (2025): 3010–23, <https://doi.org/10.38035/rrj.v6i6.1543>.

verification skills using authoritative Arabic language references, (2) awareness of the limits of AI accuracy at the semantic and pragmatic levels, and (3) academic responsibility in text production. This framework is specific to the characteristics of the Arabic language, which has high morphological and discursive complexity, thus distinguishing it from other foreign language learning practices.

Thus, the pedagogical contribution of this study lies not only in identifying the risks of AI use, but also in formulating constructive directions for AI implementation in teaching maharah al-kitabah. The findings confirm that AI is most effective when used as a supportive linguistic environment for Arabic writing, rather than as a linguistic authority. This approach enables the development of writing skills that continue to foster independent thinking, linguistic accuracy, and reflective awareness among students.

#### Pedagogical and Ethical Implications of Using AI in Arabic Language Learning

The findings of this study indicate that the use of artificial intelligence in maharah al-kitabah learning not only has an impact on improving students' writing skills, but also has technical and operational pedagogical implications. Based on the results of the study, AI functions as linguistic–discursive scaffolding, which is a tool that supports students in developing sentence structure, discourse cohesion, and academic Arabic vocabulary choices. This function demonstrates the pedagogical uniqueness of the research, as AI not only plays a role in grammatical correction but also in strengthening text organization and discourse meaning.

From the perspective of Arabic language learning, these findings indicate the need to reposition AI in the design of maharah kitabah learning. AI needs to be positioned as a tool to support the pre-writing and revision stages, while the process of developing ideas, arguments, and overall meaning remains the cognitive responsibility of students. This approach is in line with the findings of an international study by Zubaidi et al., which emphasizes the importance of separating the functions of technological support and language production by learners so that writing skills do not become mechanical.<sup>29</sup>

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<sup>29</sup> Zubaidi et al., “Enhancing Arabic Writing Skills Using Chat GPT-Based AI Learning Models: A Tridimensional Human-AI Collaboration Framework.”

The next pedagogical implication relates to strengthening students' metalinguistic awareness. The results of the study show that students actively compare the sentence structures generated by AI with the Arabic language rules they learn in class. This process encourages linguistic reflection on aspects of nahwu, sharaf, and discourse. Thus, AI has the potential to be used as an explicit learning medium to discuss the differences between probabilistic language structures and normative academic Arabic language rules.<sup>30</sup>

This finding reinforces the results of international research by Kohnke and Moorhouse, which states that AI is most effective when used as a reflective language tool, rather than as the primary text generator.<sup>31</sup> In the context of Arabic, this reflective function is particularly important due to the complexity of morphology and semantic relationships that cannot always be accurately processed by AI systems. Therefore, the use of AI actually opens up richer analytical learning opportunities when guided by appropriately designed tasks.

The prominent pedagogical implication of this study is the need to develop AI-based writing assignments, such as comparing student texts and AI texts in terms of cohesion, argumentation structure, and lexical accuracy. This learning model treats AI as an object of linguistic analysis, not as a source of answers. This approach is in line with the principles of process-based writing pedagogy, which emphasizes the stages of planning, revision, and reflection in Arabic writing instruction.

From an academic ethics perspective, the findings of this study emphasize the importance of transparency in the use of AI in writing assignments. The ethical issues that arise in this study are directly related to Arabic language learning practices, namely the risk of dependence and blurring of linguistic authority. Therefore, the ethics of AI use need to focus on practical academic aspects, such as clarity of the limits of technological assistance, verification of language structure, and the authenticity of student text production, rather than on expanding moral discourse outside the pedagogical context.

Overall, the pedagogical and ethical implications of using AI in Arabic language learning emphasize that this technology cannot be treated as an automatic solution. The uniqueness of this research lies in the placement of AI as a supportive linguistic environment that

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<sup>30</sup> Agus Wibowo, *Cara Berpikir Kritis Mahasiswa*, ed. Joseph Teguh Santoso, Kompas (Semarang, 2019).

<sup>31</sup> Kohnke, Moorhouse, and Zou, "ChatGPT for Language Teaching and Learning."

strengthens maharah kitabah learning at the vocabulary, structure, and discourse levels, without replacing the students' thinking process. With a targeted learning design, AI can be an effective instrument for improving the quality of Arabic writing instruction in a systematic, critical, and contextual manner.

This study has several limitations that need to be considered when interpreting the findings. First, the study was conducted in a limited context, namely students of the Arabic Language Education Study Program at one university, so the results cannot be generalized to other institutions with different curriculum characteristics and language proficiency levels. Second, the research data was obtained primarily through in-depth interviews that represented the subjective experiences of students, so the findings emphasized perceptions and learning practices rather than quantitative measurements of writing skill improvement. Third, this study did not empirically compare the quality of students' writing before and after the use of artificial intelligence, so the linguistic impact of AI on the aspects of nahwu, sharaf, and discourse has not been analyzed structurally. In addition, this study focused on the use of general generative AI such as ChatGPT and Grammarly, so it did not cover the variety of AI platforms specific to Arabic, which may have different characteristics. Therefore, further research is recommended to involve corpus-based text analysis, mixed methods approaches, and more diverse institutional contexts to strengthen the validity and expansion of findings related to the integration of artificial intelligence in maharah al-kitabah learning.

## **Conclusion**

Based on the results and discussion of the study, it can be concluded that the use of artificial intelligence in maharah al-kitabah learning contributes significantly to the development of Arabic Language Education students' writing skills. Students utilize AI in various stages of the writing process, from planning ideas and structuring sentences to revising texts. The use of AI has been proven to help improve vocabulary mastery, grammatical accuracy, and discourse cohesion and coherence, while also strengthening confidence and reducing writing anxiety. These findings show that AI functions as an effective learning support tool when used reflectively as a means of language exploration, rather than as a substitute for students' thinking processes.

However, this study also reveals the challenges and risks of using AI, particularly in the form of technological dependency, limitations in semantic accuracy in academic Arabic, and the potential for decreased cognitive engagement when AI is used passively. Therefore, the integration of AI in Arabic language learning requires targeted pedagogical guidance so that the technology functions as linguistic scaffolding that strengthens the writing learning process. With the right learning design, AI can become a pedagogical partner that supports the development of linguistic competence, learning independence, and academic responsibility of students in learning maharah al-kitabah in the digital era.

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