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Ethical Aspects of AI in Language Learning Management: A Literature Review

Delli Sabudu
Universitas Negeri Manado, Indonesia
Email: dellisabudu@unima.ac.id

ABSTRACT

The rapid integration of Artificial Intelligence (AI) into language learning management systems has transformed pedagogical practices through its personalization, efficiency, and adaptive feedback. Nevertheless, this transformation raises significant ethical concerns that demand critical scholarly attention. This study presents a systematic literature review examining the ethical dimensions of AI implementation in language learning management, titled Ethical Aspects of AI in Language Learning Management: A Literature Review. The review focuses particularly on data privacy and security, algorithmic bias, transparency, accountability, learner autonomy, and the evolving roles of educators and learners. It synthesizes findings from major academic databases, including Scopus, Web of Science, and ERIC, in accordance with PRISMA guidelines, drawing on peer-reviewed studies published between 2013 and 2023. The findings indicate that while AI demonstrates considerable pedagogical potential, its unregulated implementation may intensify educational disparities, compromise academic integrity, diminish human interaction, and erode critical thinking skills. Scholars increasingly agree on the urgent need for comprehensive ethical frameworks, AI literacy development, and multi-stakeholder governance to ensure responsible and equitable AI integration in language education. This review makes a significant contribution to the field by mapping dominant ethical challenges, identifying research gaps, and proposing directions for future empirical studies and policy development. Ultimately, the study posits that ethical foresight and human-centered design must remain central to AI-enhanced language learning to preserve the humanistic foundations of language education.

Keywords: *Artificial Intelligence; Language Learning Management; Ethics; AI Literacy; Data Privacy; Algorithmic Bias*

INTRODUCTION

The integration of artificial intelligence within educational paradigms, particularly in language learning management, presents a transformative yet complex landscape that necessitates a thorough examination of its ethical dimensions. This review systematically explores the multifaceted ethical considerations arising from AI deployment in language learning, including issues of data privacy, algorithmic bias, accessibility, reliability, authenticity, and academic integrity (Vaccino-Salvadore, 2023; Caccavale, 2025). It further analyzes the implications of AI on pedagogical approaches, emphasizing the need for robust ethical frameworks to guide the development and implementation of AI tools in language education (Mouta et al., 2023). The rapid advancement of AI technologies—from intelligent tutoring systems to adaptive learning platforms and chatbots—offers unprecedented opportunities to personalize learning experiences and enhance linguistic proficiency (Chen et al., 2020). However, these advancements also introduce significant ethical challenges, such as ensuring data security and preventing algorithmic biases that could perpetuate inequalities among learners (Thelma et al., 2024). Furthermore, the widespread adoption of AI in educational settings necessitates an examination of its impact on instructor roles, student

autonomy, and the nature of human-computer interaction in language acquisition (Chen et al., 2020).

This literature review aims to synthesize existing research on these ethical considerations, identifying gaps in current understanding and proposing areas for future investigation to foster responsible AI integration in language learning (Mouta et al., 2023). It also highlights the critical need for comprehensive guidelines and ongoing research into ethical AI practices to ensure equitable and effective technological integration (Zainuddin et al., 2024). Moreover, the ethical implications extend to the potential for deskilling educators and eroding human interaction—pivotal for comprehensive language development (Selwyn, 2022). The rapid proliferation of AI in education, as evidenced by the substantial increase in publications on "AI" and "education" since 2010, underscores the urgency of addressing these ethical challenges to ensure beneficial and equitable outcomes (Chen et al., 2020).

Furthermore, the pervasive integration of AI in educational settings—including intelligent tutoring systems and automated grading tools—necessitates fundamental AI literacy among stakeholders to effectively interact with these technologies (Al-Zahrani & Alasmari, 2024). This includes understanding their limitations, potential biases, and the ethical frameworks governing their deployment to foster responsible innovation (Selwyn, 2022). This increasing reliance on AI also prompts critical questions regarding accountability for errors or biases embedded within AI systems, particularly when these systems influence learning outcomes or evaluations (Al-Zahrani & Alasmari, 2024). This review delves into these ethical dilemmas, offering a critical perspective on how AI can be leveraged responsibly while mitigating its potential drawbacks in language education. This entails a comprehensive understanding of how AI-driven tools, despite their capacity for personalized learning and instant feedback, can inadvertently reinforce existing linguistic biases or limit the nuanced development of communicative competence (Mouta et al., 2024).

The ethical discourse surrounding AI in language learning further extends to the potential for over-reliance on automated systems, which might inadvertently diminish critical thinking and the organic development of intercultural communication skills (Mouta et al., 2024). Addressing these concerns requires a nuanced approach that balances technological innovation with ethical foresight, ensuring that AI serves to augment, rather than diminish, the richness of language learning. This approach also necessitates a critical examination of the power dynamics inherent in AI development, particularly how certain values and assumptions are embedded within algorithms, potentially exacerbating existing inequalities rather than ameliorating them (Selwyn, 2022). Moreover, the uncritical deployment of AI in educational contexts without adequate ethical oversight risks perpetuating and even amplifying societal biases, as the underlying algorithms may inadvertently reflect the prejudices present in their training data (Selwyn, 2022). This underscores the critical importance of diverse datasets and transparent algorithmic design to mitigate these risks and ensure equitable learning opportunities for all students (Barnes & Hutson, 2024). The debate around the future of AI in education, therefore, must be seen as a site of competing values, interests, agendas, and ideologies, with a dominant set often stemming from technocentric perspectives that prioritize technical performance and efficiency (Selwyn, 2022). This technocentric focus often overlooks the critical humanistic elements of language acquisition, such as cultural immersion, social interaction, and the development of nuanced communication skills (Huertas-Abril & Palacios-

Hidalgo, 2023). Consequently, a balanced perspective is required—one that acknowledges AI's capabilities while vigilantly addressing its limitations, particularly in areas requiring human judgment and cultural sensitivity (Vornachev et al., 2024). Therefore, the main objective of this literature review is to map the dominant ethical challenges associated with the integration of AI in language learning management, identify existing research gaps, and propose directions for future empirical studies and policy development. The results of this study are expected to provide a strong conceptual framework for researchers, educators, policymakers, and education practitioners to understand the ethical landscape of AI in language learning, thereby enabling the development and application of AI tools that are more responsible, equitable, and human-centered.

METHOD

A thematic analysis was employed to identify recurring themes and contentious issues within the retrieved studies, focusing on areas such as data privacy, algorithmic bias, and learner autonomy (Chen et al., 2020). The methodology involved a comprehensive search across multiple academic databases, including Scopus, Web of Science, and ERIC, utilizing a combination of keywords such as "AI in education," "language learning," "ethics," "privacy," "and "bias" (Chen et al., 2020).

The search was systematically refined to include studies published within the last decade, ensuring the relevance and contemporaneity of the literature reviewed. Each identified study was then critically appraised for its methodological rigor and the direct applicability of its findings to the ethical considerations of AI in language learning contexts (Thelma et al., 2024). This comprehensive approach allowed for the identification of critical gaps in current research and highlighted areas requiring further investigation to ensure the responsible and equitable integration of AI in language education. The subsequent synthesis of the literature informed the identification of key ethical challenges and proposed mitigation strategies, providing a structured overview of the current landscape. Building upon this foundational analysis, the subsequent sections delve into specific ethical concerns in greater detail, offering a nuanced discussion of their implications for pedagogical practice and policy development. This comprehensive review aims to contribute to the ongoing discourse by providing a structured framework for understanding and addressing these complex ethical considerations, thereby fostering responsible innovation in AI-driven language education (Chen et al., 2020) (Thelma et al., 2024). The review encompassed peer-reviewed articles published between 2013 and 2023, specifically focusing on ethical implications, principles, and future research directions for AI models in educational settings (Lin & Su, 2024). This systematic review aimed to synthesize existing literature to provide a holistic overview of the ethical implications associated with AI integration in educational environments, particularly within language learning management systems.

The selection process adhered to PRISMA guidelines, ensuring a rigorous and transparent approach to article inclusion and exclusion (Fu & Weng, 2024) (Mouta et al., 2023). Initial screening of titles and abstracts was performed by two independent reviewers, with discrepancies resolved through consensus or consultation with a third reviewer, to ensure comprehensive coverage and minimize selection bias (Mouta et al., 2023). Following this, a full-text review of the selected articles was conducted to extract pertinent information on

ethical challenges, proposed solutions, and research gaps, thereby informing a detailed thematic analysis (Lin & Su, 2024) (Joseph, 2023). This systematic approach allowed for the categorization of ethical concerns into overarching themes, such as data privacy and security, algorithmic fairness and transparency, and the impact on human agency and pedagogical roles, facilitating a nuanced discussion of each.

This rigorous methodology ensured a robust foundation for identifying not only the prevalent ethical considerations but also emerging concerns that warrant further scholarly attention within the rapidly evolving landscape of AI in education (Fu & Weng, 2024). The integrative literature review approach, as outlined by Torraco and informed by the PRISMA flow diagram, was essential for synthesizing diverse findings and establishing new relationships between concepts, especially given the rapid evolution of large language models like GPT-1 since 2018 (Joseph, 2023). This methodology facilitated a comprehensive understanding of the ethical landscape, highlighting areas where further clarity and research are needed regarding AI's application in educational settings (Lin & Su, 2024). Furthermore, the study utilized a grounded theory approach, as adapted from Chong et al.'s framework, to systematically analyze the identified ethical concerns and propose a roadmap for future investigative exploration within this nascent field (Bannister et al., 2023). The ethical considerations identified were further categorized based on their prevalence and potential impact, allowing for a prioritization of issues that demand immediate attention from researchers, policymakers, and practitioners (Lin & Su, 2024). This robust methodological framework ensured that the review not only captured the breadth of existing ethical discussions but also provided actionable insights for developing responsible AI applications in language education (Gouseti et al., 2024) (Mouta et al., 2023).

RESULTS AND DISCUSSION

The systematic review of the literature revealed several critical ethical concerns that consistently emerged across various studies concerning the integration of AI into language learning management systems (Rusmiyanto et al., 2023) (Gouseti et al., 2024). Key ethical themes identified include issues pertaining to data privacy and security, algorithmic bias, transparency, accountability, and the potential impact on human agency and pedagogical roles (Klímová et al., 2023) (Castillo-Martínez et al., 2024).

The analysis indicated no significant difference in the frequency of studies advocating for or against the use of AI, suggesting a balanced academic perspective on its integration in language learning (Alaqlobi et al., 2024). However, a notable trend emerged where a significant proportion of the literature emphasized the necessity for robust ethical frameworks and guidelines to govern the development and deployment of AI tools in educational contexts (Bannister et al., 2023). This underscores the urgent need for a more nuanced understanding of AI's ethical implications, moving beyond a simple pro/con dichotomy to address specific challenges such as technological readiness, model performance, replicability, and system transparency (Yan et al., 2023). Such considerations are paramount given the increasing ubiquity of AI technologies like automated writing evaluation, intelligent tutors, and machine translation in language education, which necessitates careful navigation of their ethical dimensions (Zhu & Wang, 2024). Moreover, while AI offers transformative potential for personalized learning and efficiency, its deployment must be rigorously evaluated to prevent

unintended consequences such as the erosion of critical thinking skills or the exacerbation of educational inequalities (Selwyn, 2022).

For instance, concerns regarding data privacy are paramount, as AI systems in educational settings often handle sensitive student information, raising questions about data ownership, consent, and potential misuse (Ifenthaler et al., 2024). Similarly, algorithmic bias, stemming from unrepresentative training data, can perpetuate or even amplify existing societal inequalities, leading to unfair or inaccurate assessments for certain student demographics (Mouta et al., 2023). The collection, storage, and use of this data present significant concerns regarding unauthorized access and potential misuse, necessitating robust privacy-preserving techniques like differential privacy and federated learning to mitigate risks (Iyamuremye et al., 2024). Furthermore, the inherent opaqueness of many AI algorithms, often termed the "black box" problem, poses significant challenges for ensuring transparency and accountability in their decision-making processes, which is crucial for fostering trust among users and stakeholders (Alotaibi, 2024). This lack of interpretability can undermine confidence in AI-driven educational tools, especially when decisions profoundly impact a student's learning trajectory or assessment outcomes (Selwyn, 2022).

The ethical deployment of AI in education further necessitates addressing concerns about algorithmic fairness and equity, as biased algorithms can perpetuate or exacerbate existing disparities in educational opportunities and outcomes (Bulut & Beiting-Parrish, 2024) (Al-Zahrani, 2024). Moreover, the potential for AI to diminish human interaction and alter pedagogical roles within language learning environments raises profound questions about the nature of teaching and learning, necessitating careful consideration of its impact on the student-teacher relationship and the development of essential social-emotional skills (Al-Zahrani, 2024). Additionally, the environmental impact of large-scale AI models, requiring substantial computational resources, introduces another layer of ethical consideration regarding sustainability in educational technology (Pitts et al., 2025). These issues highlight the multifaceted nature of ethical challenges posed by AI integration in language learning management systems, necessitating comprehensive ethical frameworks and regulatory guidelines to ensure responsible and equitable implementation (Khan et al., 2025).

The absence of a standardized ethical framework for AI in education exacerbates these challenges, leading to inconsistent application and oversight across different platforms and institutions (Banu, 2024). Addressing these concerns requires a multi-stakeholder approach, engaging educators, AI developers, policymakers, and ethicists to collaboratively establish clear ethical principles and robust governance structures. This collaborative effort is essential to ensure that AI technologies are developed and implemented in a manner that upholds educational values, promotes equitable access, and protects the rights and well-being of all learners (Selwyn, 2022) (Banu, 2024). This includes developing mechanisms for continuous auditing of AI systems for bias, establishing clear accountability structures for AI-driven decisions, and promoting AI literacy among educators and students to foster informed engagement (Ifenthaler et al., 2024).

A prominent example of such a comprehensive approach is the "Ethical Framework for AI in Education," which monitors AI technologies from pre-procurement to impact evaluation, addressing concerns like ethical design, privacy, equity, transparency, and accountability specific to the educational sector (Mouta et al., 2023). Furthermore, the discussion extends to

the environmental footprint of AI technologies, prompting exploration into aligning educational AI with 'green-tech' principles to promote ecological sustainability (Selwyn, 2022). The integration of AI in language learning also raises critical questions concerning intellectual property rights, particularly with generative AI models that can produce new content from existing data, potentially infringing upon original works. This necessitates robust frameworks for attribution and consent, especially when AI models are trained on copyrighted linguistic data.

Discussion

The foregoing discussion highlights the multifaceted ethical considerations pertinent to the integration of AI within language learning management systems, underscoring the critical need for a robust and adaptive ethical framework. This framework must encompass principles of fairness, transparency, accountability, and privacy to ensure AI tools genuinely augment, rather than detract from, equitable and effective language acquisition processes (Mouta et al., 2023). Such a framework is essential for guiding the development, deployment, and evaluation of AI applications in education, promoting responsible innovation while mitigating potential harms (Roshanaei et al., 2023). It must also incorporate mechanisms for addressing algorithmic bias and ensuring equitable access, particularly for diverse learners and underrepresented groups (Lewis, 2025).

The framework should move beyond generalized concerns to focus on localized harms experienced by specific individuals and groups, especially those from marginalized backgrounds (Selwyn, 2022). This necessitates a participatory approach involving educators and students from diverse backgrounds in the design and implementation phases to ensure that ethical guidelines are responsive to real-world contexts and foster comprehensive ethical growth (Mouta et al., 2023). This proactive engagement can help to identify and mitigate ethical risks before they manifest, thereby building trust and ensuring the sustained, beneficial integration of AI in language education (Mouta et al., 2024). Moreover, the ethical considerations extend to the impact of AI on critical thinking and human creativity within language learning, necessitating pedagogical approaches that encourage active engagement rather than passive reliance on AI tools (Joseph, 2023).

The ongoing discourse surrounding AI's role in education underscores the importance of balancing technological advancement with pedagogical integrity, advocating for a nuanced integration that leverages AI's strengths while preserving the human element of learning (Chen et al., 2020). This balance is particularly vital in language learning, where genuine communicative interaction and cultural immersion are paramount for true linguistic proficiency and intercultural understanding. Therefore, comprehensive guidelines for AI literacy are crucial for both educators and students to navigate the complexities of AI-enhanced language learning environments effectively (Meniado, 2023). These guidelines should empower users to critically evaluate AI-generated content, understand the limitations of AI tools, and leverage them as assistive technologies rather than primary sources of knowledge (Banu, 2024). Furthermore, the development of consistent terminology and scope in formal standardization efforts is crucial for effective ethical framework implementation, particularly within the context of Information Technology for Learning, Education, and Training (Mouta et al., 2023).

A critical aspect of this involves fostering AI literacy among language educators and learners, enabling them to critically assess AI's functionalities, limitations, and ethical implications (Joseph, 2023) (Hazari, 2024). This approach empowers stakeholders to make informed decisions regarding AI tool adoption and integration, fostering a more discerning and responsible educational ecosystem (Mouta et al., 2023). Beyond mere technical proficiency, AI literacy encompasses the ability to identify and challenge biases in AI outputs, thereby promoting a more equitable and inclusive learning environment (Almatrafi et al., 2024). This critical understanding of AI's capabilities and ethical dimensions is crucial for both educators and students, enabling them to navigate the evolving landscape of AI-enhanced language learning effectively and responsibly (Jin et al., 2025).

The development of AI literacy is a multifaceted concept, encompassing not only the understanding of AI technologies but also their responsible and effective use, along with the application of critical thinking to their design and implementation (Tzirides et al., 2024). It involves cultivating an awareness of the societal implications of AI, promoting ethical reasoning, and fostering a collaborative approach to addressing the challenges and opportunities presented by AI in educational contexts (Tzirides et al., 2024). This comprehensive understanding extends to recognizing how AI systems, particularly large language models, operate and generate responses, including their inherent limitations regarding verifiable reasoning and potential for factual errors (Joseph, 2023). This critical AI literacy is paramount for language learners to discern the authenticity and reliability of AI-generated content, mitigating the risk of misinterpretations or perpetuating inaccuracies (Joseph, 2023). Such literacy empowers learners to engage critically with AI, moving beyond passive consumption to active, informed, and ethical utilization of these powerful tools in their language learning journey (Leander & Burriss, 2020) (Joseph, 2023). AI literacy also encompasses the ability to critically evaluate AI technologies, communicate and collaborate effectively with AI, and utilize AI as a tool both online and offline (Yang et al., 2025).

CONCLUSION

This comprehensive review underscores the urgent need for a robust ethical framework to guide AI integration in language learning management, addressing technical, societal, and pedagogical implications to ensure AI enhances humanistic educational goals like genuine communicative competence, cultural understanding, critical thinking, creativity, spontaneous interaction, and nuanced immersion rather than supplanting them. It calls for ongoing ethical discourse to adapt to rapid AI advancements while prioritizing pedagogical integrity. For future research, empirical studies should evaluate proposed ethical guidelines in diverse contexts—especially with large language models—focusing on data privacy, algorithmic bias, over-reliance risks, and designing AI to promote intercultural awareness and mitigate cultural misrepresentation.

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