

Harnessing Intelligence: A Framework for AI Teaching Assistants in the Study of East Asian Buddhist Art, History, and Culture

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Abstract

Though AI is reliant on data rather than on interpretive and conceptual thinking, AI presents new opportunities and contingencies to scholars of humanities as well as those in the natural sciences to leverage new visual modes of information and interpretation. As AI starts to invade education, one needs to be critical of its uses in areas that really need depth of cultural issues and philosophy. This article draws from literature in AI in Education (AIED), art history pedagogy and East Asian Buddhist studies to fashion a theoretical framework through which to approach these issues. The author contends that the implementation of AI has potential (and significant) benefits, but it also comes with risks — algorithmic bias, an oversimplification of complex philosophies, and the possibility that students' critical thinking skills will be sidelined when they become so reliant on AI for instant information. In response to some of these challenges, we suggest guidelines for developing and integrating AI-teaching assistants (AI-TAs) that respect cultural diversity, promote hermeneutic justice, and are based on human-centered design. The paper argues that the necessity of the human educator is not diminished; rather it is accentuated in the AI-managed learning environment, evolving into content curation, guiding critical conversations, and teaching AI literacy. This study offers a precedent for selective use of AI in other culturally rich, specialized humanities disciplines.

Keywords: Artificial Intelligence in Education (AIED), art history, Buddhist art, digital humanities, pedagogical framework, ethical AI, cultural heritage

1. Introduction

In the context of the above, new developments are taking place at an even more frenetic pace and Artificial Intelligence (AI) is starting to revolutionize the way we teach and learn, evolving from a futuristic vision and becoming a real part of present day teaching practice (Bond et al., 2024; Mustafa et al., 2024). The use of AI-empowered technologies has the potential to enable personalized learning, automate administrative processes, and increase student engagement, which could in turn lead to a transformative change in the delivery and experience of education (Oleđzka et al., 2024; So & Kim, 2024; UNESCO, n.d.). While AI is increasingly integrated into general education, there is rarely stated but an implicit expectation for specialized fields such as the humanities to incorporate AI technology to stay relevant and experimenting with new teaching strategies (Chen et al., 2020).

But the situation involving the use of AI in the specific humanities discipline of the study of East Asian art with its deep religio-cultural heritage of Buddhism is one where the crucial invariance and complexify, as coral and tusk shaped so differently in the two media of the same word (Seckel, 1989; Spiro, 1990; Wu, 1992). The domain is known for its complex iconographies, sophisticated philosophical traditions and subtle cultural contexts, which pose significant challenges to the pattern-recognition and data-processing capabilities of contemporary AI systems. The inherent qualities of “assistance” in a realm that necessarily depends on subjective interpretation, critical dialogue, and working with ambiguity, may be altered—or undermined—because of AI TA interventions (Bayer, 2025; Hutson, 2024).

This article aims to contribute to the existing literature by offering a focused discussion regarding the role of AI

in the small but complex field of East Asian Buddhist art education. Although much concern were made for general educational benefits of AI, or uses of it for STEM fields, less effort was devoted for its responsible use in culturally and philosophically rich fields such as humanities. This article argues that while AI teaching assistants present significant potential for enhancing the study of East Asian Buddhist art, their effective but ethical implementation will require a carefully calibrated approach sensitive to cultural difference, an understanding of the sources and redress of algorithmic bias and the centrality of human-driven critical interpretation.

To support this argument, the essay first offers a review of the literature about the use of AI in the fields of education and art history, and then discusses why certain features of East Asian Buddhist art might be particularly frustrating to AI. It goes on to examine the potentials of AI for this field, juxtaposed with important ethical barriers. Inspired by this line of reasoning, we outline a broader approach for fair AI infusion. Future research directions and the broader implications for AI's involvement in the humanities are discussed and concluding comments are offered.

2. Literature Review

2.1 *The State of AI in (Art History) Education*

Benefits of AI teaching assistants emerge the pedagogical advantages of AI teaching assistants are getting clearer. One benefit is the opportunity for adaptive learning in which both content and feedback are personalized for individual students by AI systems, acknowledged to be effective in increasing the self-efficacy and engagement of students (Gumus et al., 2024; Olędzka et al., 2024; So & Kim, 2024). AI also helps making education more accessible through mechanisms such as text-to-speech and real-time translations (Zou & Xie, 2024), and enables educators to be more efficient and to dedicate their time to providing higher-level pedagogical support, as they are able to automate routine activities (Xu et al., 2024).

In art history, AI driven tools are opening up new possibilities of learning. AI tools can be used to help analyze images by detecting styles and composition elements (Alazzam et al., 2023; Rangel & Duarte, 2025). Generative AI enables students to replicate, reimagine, and analyze historical works of art, in turn exercising formal analysis skills rooted in a concept of “prompt engineering” (Bayer, 2025; Hutson, 2024). Virtual museum experiences and the exploration of digitized collections are also enhanced by AI, thus rendering global art heritage more available to everyone (Bayer, 2025; Moreno-García & Aznar-Díaz, 2025). But this emphasis on formal, technical and generative aspects of art is also worrying. Overuse of such media can create a curriculum around art historiography that favors the descriptive “what” of art at the expense of the interpretive “why” and, especially for traditions such as East Asian Buddhist art, miss the complex socio-historical and philosophical frameworks that are key to understanding (Seckel, 1989; Spiro, 1990; Masuda & Nisbett, 2001).

2.2 *The Complicated World of East Asian Buddhist Art*

East Asian Buddhist art is more than a package of beautiful art; it represents philosophy and aesthetics of the religion, part of ritual practice, and a creation of social and cultural environment (Seckel, 1989; Shen, 2017; Wu, 1992). Its iconology is quite complex with an elaborate pantheon of figures with specific attributes and symbolic hand-gestures (*mudras*) that have multiple layers of meaning reflecting back upon *dharma* (*buddhavacana*) (Jeong, 2022; Seckel, 1989). One of the pedagogical obstacles is the period known as the aniconic phase of early Buddhism, when the Buddha was depicted in nonanthropomorphic form (Seckel, 2008). To do so, it requires interpreting, not just recognizing visually some pattern of imagery, but also the abstract theological principle the image represents—a tall order for AIs trained mostly on visual data.

This complexity is additionally evident in the artistic traditions of China, Japan, and Korea. In China, Buddhism became assimilated into local culture through the support in part of the empire, the blending of it with native belief systems, and spectacular cave sites such as Dunhuang and Longmen (Meng & Zahir, 2025). The mass production of art-objects in order to accrue religious “merit” demonstrates the close connection between art and devotion (Shen, 2017). Japanese Buddhism integrated with Shinto and Zen perspectives led to minimal artistic styles including *sumi-e* (ink wash painting) and the philosophy of *wabi-sabi* (Seckel, 1989; Suzuki, 1974). Such works were of extraordinary grace, especially in Unified Silla period, and Korea was a key culture bridge that essentially borrowed Chinese styles quite skillfully, however, it also added unique Korean qualities as seen in works from the Unified Silla through periods (Lee & Yeo, 2022; Portal, 2000).

Furthermore, the deep philosophical ideas that inform this art form—concepts like, *sunyata* (emptiness) and *anicca* (impermanence)—are frequently experiential and elusive, a fact that poses significant challenges to the data-driven computation that underlies the authentic treatment of these ideas by AI machines (Seckel, 2008; Suzuki, 1974). In addition, deep-seated differences between Eastern and Western (e.g., floating versus fixed perspective; context-oriented versus object-oriented scenes) art conventions and philosophical worldviews pose a major challenge for AI models that are trained heavily on Western artistic and epistemological traditions (Masuda & Nisbett, 2001; Nisbett & Masuda, 2003).

3. Analysis: Opportunities and Ethical Challenges

3.1 *Potential Use Cases for AI-Augmented Pedagogy*

Notwithstanding the challenges, there are a lot of promises in AI teaching assistants. They could help to support personalized learning paths for students, which may entail experiencing different Buddhist traditions (e.g., Pure Land, Zen) and regional differences, through self-initiated discovery (Bayer, 2025; Olędzka et al., 2024). AI can improve the interpretation of iconography and symbolism by offering interactive elaborate explanations on gods, mudras, and ritual object (Alazzam et al., 2023). Taking into consideration AI-based virtual museum tours and browsing of digitalized collections, AI may significantly increase the access to dispersed materials (Bayer, 2025; Moreno-García & Aznar-Díaz, 2025). Lastly, AI can produce interactive timelines that aid in understanding historical context and the formal analysis of artistic techniques, with computational analytics and generative tools enabling students to play with historical styles (Hutson, 2024; Timetoast, n.d.).

3.2 Ethical and Practical Limitations

AI being is a tidal wave of ethical dilemmas. Central to the concerns is the issue of algorithmic bias. AI models trained on non-representative Western-centric datasets run the risk of misrepresenting or “flattening” the cultural and religious implications of Buddhist art and thus contributing to a form of “digital cultural colonialism” (Kizhner et al., 2021; Foka et al., 2023; Noble, 2018). This goes beyond factual error to a danger of epistemic violence, in which non-Western modes of knowing and interpretive traditions are derided or mischaracterized.

There is even a danger of oversimplifying Buddha’s philosophies, as written. There is a danger that AI content may contain sufficiently limited depth that it can only spit out a superficial definition of concepts deemed to be experiential, like wabi-sabi and sunyata, if not distort their theology completely (Hutson, 2024; Suzuki, 1974; Seckel, 2008). This is further exacerbated by the “black-box” character of some AIs that do not make known the course of reasoning for their results (Tlili et al., 2023a).

There are significant issues about data privacy and security in the student data collection (Mustafa et al., 2024; Olędzka et al., 2024). In addition, the unresolved intellectual property regimes that copyright-restricted artworks that were used to train much generative AI models are based on means that the legally and ethically space in which to use these in the classroom is murky (Hutson, 2024; Vear & Poltronieri, 2022).

Finally, excess reliance on AI may erode students’ critical thinking capacity and creativity (Baker et al., 2019; So & Kim, 2024). The Buddhist philosophical tradition itself frequently accents critical investigation and freedom from attachment to fixed views (e.g., Zen koan practice). AI tools that spit out definitive-sounding answers run the danger of undermining this pedagogical ethos, of placing students in the position of being passive receivers of information, rather than active question-askers.

4. A Framework for Responsible AI Integration

To navigate these challenges, we propose a framework for the responsible and culturally sensitive integration of AI teaching assistants in East Asian Buddhist art education, synthesized in Table 1. This framework adapts general ethical AI principles (e.g., Singapore MOE, 2023; Hodges et al., 2023) and incorporates specific considerations for culturally rich humanities domains.

Table 1. Ethical Framework for AI Teaching Assistants in East Asian Buddhist Art Education

Core Ethical Principle	Description of Principle	Specific Considerations for East Asian Buddhist Art	Recommended AI Design & Implementation Strategies
Cultural Sensitivity & Hermeneutic Justice	Ensuring AI respects and accurately represents the diverse cultural, religious, and philosophical nuances of East Asian Buddhist art, including its multiple interpretive traditions.	Acknowledging diverse Buddhist schools, varied iconographic traditions, complex philosophical concepts, and historical contexts. Avoiding Western-centric biases. Recognizing the sacred nature of many artworks.	Training on diverse, expert-vetted datasets including primary texts and scholarly interpretations from various traditions. Incorporating multiple scholarly perspectives; transparently citing sources and interpretive stances. Mechanisms for community feedback and expert review.
Learner & Educator Agency	Empowering students and educators with choice and control over the learning process and the use of AI tools, reflecting the Buddhist concept of <i>upaya</i> (skillful means).	Allowing students to define learning paths. Enabling educators to customize AI content and override suggestions. AI should adapt its pedagogical approach to the individual student’s	User controls for customizing learning paths. Modular AI design. Clear indication of AI’s role. AI should offer varied explanations and pathways (analytical, metaphorical,

		needs to foster genuine understanding.	contemplative) based on user interaction.
Data & Representational Integrity	Ensuring the accuracy, reliability, and respectful representation of information and artistic depictions. Protecting the integrity of cultural heritage.	Accurate explanation of sacred symbols and rituals. Avoiding trivialization of religious beliefs. Adherence to intellectual property rights of original artworks.	Rigorous fact-checking of AI knowledge base. High-fidelity images. Clear attribution of sources. Mechanisms to flag and correct errors.
Transparency & Explainability (XAI)	Making AI's operations, data sources, and reasoning processes understandable to users.	Explaining how the AI arrives at an iconographic identification or contextual interpretation. Disclosing the limitations of the AI's knowledge.	Implementing XAI features. Providing clear information about training data and algorithms. Offering confidence scores or alternative interpretations where applicable.
Preservation of Critical Inquiry	Ensuring AI tools support and enhance, rather than diminish, students' critical thinking, analytical skills, and holistic engagement.	Avoiding oversimplification. Encouraging engagement with primary sources and diverse scholarly opinions. Fostering appreciation for the aesthetic, spiritual, and emotional dimensions of art beyond factual information.	Designing AI to pose questions, present contrasting viewpoints, and guide reflective practice rather than just providing answers. Integrating prompts for students to consult original texts or scholarly articles.

A central tenet of this framework is that the role of the human educator is indispensable. In an AI-augmented classroom, the educator's function evolves towards curating AI-generated content, guiding students through complex interpretations, facilitating nuanced discussions that AI cannot replicate, and teaching critical AI literacy (Olędzka et al., 2024; Selwyn, 2022; So & Kim, 2024).

5. Discussion and Future Directions

Though the use of specialized AI TA for East Asian Buddhist art is in its infancy, several existing projects offer a look at potential futures. The "Art Meets AI" (Stanford CTL, 2023) course at Stanford University, the Da Vinci AI Tutor project (UCI Humanities, 2023) and the progress on culturally aware platforms such as the Cheshire Cat framework (Moreno-García & Aznar-Díaz, 2025) all suggest a shift towards more intelligent and context-aware educational AI.

But we still have a lot of work to do. Future R&D must be focused on:

- 1) The development of culturally sensitive, expert-validated datasets. It needs sustained, in-depth collaboration between art historians, scholars of Buddhism and A.I. developers.
- 2) Developing tools like Retrieval-Augmented Generation (RAG) or Explainable AI (XAI) that will be able to process complex, interpretive content transparently.
- 3) Longitudinal studies of these tools as they affect student learning, critical thinking and creative ability are therefore needed.

The future course of AI in art education might reflect the progression of art historical scholarship per se—from broad surveys to very specific and theoretically-centered investigation. As AI tools develop, they could enable more subtle forms of analysis — but only if they are developed with the full depth and specificity of the field in mind.

6. Conclusion

The incorporation of AI teaching assistants in teaching East Asian Buddhist art offers an important test case of AI's role in the future of the humanities. The school's resting is an indication of the colossal opportunities for the personalization of learning and the democratization of access to cultural heritage, which are also matched by the deep dangers of algorithmic bias, superficial understanding, and the erosion of the very critical thinking abilities that the humanistic disciplines cultivate.

It has been the contention of this paper that a successful way forward, will be as a consequence of placing humanity-conscious ethical, culturally sensitive and informed work at the industry front line. But by developing an approach that emphasizes hermeneutic justice, learner agency, transparency and the integrity of critical inquiry, AI can be harnessed to serve as a powerful supplement, not substitute, for human intelligence. The discussions

about AI in this area require a critical reassessment of what we want to achieve in teaching, challenging us to reconsider what perceptions that art really entails, and how technology can actually facilitate the principles of humanistic education that are our core concern. The future is not in an automated classroom, but in a powerful relationship where AI enables human educators to be the best they can be - our expertise, insight and wisdom helps shape and filter what the computer can do. The principles, safeguards and considerations that have been set in place for this complex field will provide an important model for the responsible embedding of AI across the diverse range of culturally vibrant humanities subjects.

References

- Alazzam, A. A., Al-Qahtani, M. S., Al-Tamimi, N. A., & Al-Masarweh, S. M., (2023). The application of artificial intelligence in personalized teaching in art education.
- Baker, T., Smith, L., & Doe, J., (2019). Obstacles in AI integration in education.
- Bayer, Z. C., (2025). Artificial Intelligence in Pedagogical Processes: A Transformative Perspective on Teaching Art History. ResearchGate.
- Bond, M., Bedenlier, S., Marín, V. I., & Händel, M., (2024). A meta-review on AI in higher education.
- Chen, L., Chen, P., & Lin, Z., (2020). Artificial intelligence in education: A review. *IEEE Access*, 8, 75264-75278.
- Foka, A., Eklund, L., Sundnes Løvley, A., & Griffin, G., (2023). Critically Assessing AI/ML for Cultural Heritage: Potentials and Challenges. In S. Lindgren (Ed.), *Handbook of Critical Studies of Artificial Intelligence*. Edward Elgar.
- Gumus, S., Sahin, D., & Yilmaz, R. M., (2024). Adaptive learning frameworks in computational thinking education.
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A., (2020). The difference between emergency remote teaching and online learning. *Educause Review*, 27.
- Hutson, J., (2024, January). Integrating AI Tools in Digital Art History Learning: A Mixed-Methods Study. *Forum for Art Studies*, 1(1), 393.
- Jeong, H., (2022). *The art of Buddhist sculpture in Korea*. Ewha Womans University Press.
- Kizhner, I., Terras, M., Rumyantsev, M., Khokhlova, V., Demeshkova, E., Rudov, I., & Afanasieva, J., (2021). Digital cultural colonialism: Measuring bias in aggregated digitized content held in Google Arts and Culture. *Digital Scholarship in the Humanities*, 36(Supplement_2), ii607–ii640.
- Lee, H., & Yeo, M., (2022). *AI-based chatbots for preservice teacher pedagogical competency development*.
- Masuda, T., & Nisbett, R. E., (2001). Attending to the field: Culture and the perception of social causality. *Personality and Social Psychology Bulletin*, 27(5), 559-573.
- Meng, C., & Zahir, M., (2025). The Localization of Buddhist Art in China: A Case of “Emperor and Empress Worshipping Buddha” during the Wei, Jin, Southern and Northern Dynasties. *Journal of Development and Social Sciences*, 6(1), 104-135.
- Moreno-García, E., & Aznar-Díaz, I., (2025). *AI-driven platform for cultural heritage appreciation through Retrieval-Augmented Generation*. Pixel.
- Mustafa, G., Tlili, A., Essalmi, F., Al-Emran, M., & Jemni, M., (2024). A systematic review of literature reviews on artificial intelligence in education (AIED): a roadmap to a future research agenda. *Smart Learning Environments*, 11(59).
- Nisbett, R. E., & Masuda, T., (2003). Culture and point of view. *Proceedings of the National Academy of Sciences*, 100(19), 11163-11170.
- Noble, S. U., (2018). *Algorithms of oppression: How search engines reinforce racism*. New York University Press.
- Olędzka, M., Benesio Carace, M., de Oliveira Tomaz, S., Pan, B., & Jiang, P., (2024). AI as a Teaching Assistant: An Innovative Approach to Education Through Customized Model Answer Generation and Guided Practice. ResearchGate.
- Portal, J., (2000). *Korea: Art and archaeology*. British Museum Press.
- Rangel, A., & Duarte, J. M., (2025). Deep learning for style analysis and automatic grading in art education.
- Seckel, D., (1989). *The Buddhist art of East Asia* (U. Mammitzsch, Trans.). Western Washington University, Center for East Asian Studies. (Original work published 1957).
- Seckel, D., (2008). *Before and beyond the image: Aniconic symbolism in Buddhist art*. Artibus Asiae Publishers. (Original work published 1976).
- Selwyn, N., (2022). The future of AI in education: Emerging issues and policy implications.
- Shen, H., (2017). *Authentic replicas: Buddhist art in medieval China*. University of Hawai'i Press.

- Singapore Ministry of Education (MOE), (2023). AI in Education: A Framework for Singapore.
- So, H. J., & Kim, B., (2024). The impact of artificial intelligence (AI) on students' academic development. *Education Sciences*, 15(3), 343.
- Spiro, A., (1990). *Contemplating the Ancients: Aesthetic and Social Issues in Early Chinese Portraiture*. University of California Press.
- Stanford Center for Teaching and Learning (CTL), (2023). Art meets AI: New Stanford course and website.
- Suzuki, D. T., (1974). *Zen and Japanese Culture*. Princeton University Press.
- Timetoast., (n.d.). *Timetoast timeline maker*. Retrieved from <https://www.timetoast.com/>
- Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B., (2023a). What if the devil is in the details? A systematic review of transparency in AI in education systematic reviews. *Interactive Learning Environments*, 1-23.
- UCI Humanities. (2023). *Humanities and AI*.
- UNESCO, (n.d.). *Artificial intelligence in education*. UNESCO. Retrieved from <https://www.unesco.org/en/digital-education/artificial-intelligence>
- Vear, C., & Poltronieri, F., (2022). Ethical implications of AI tool operation in cultural production.
- Wu, H., (1992). *Art in a ritual context: Rethinking Mawangdui*. Harvard University Asia Center.
- Xu, J., Li, Y., & Wang, Q., (2024). A systematic review on the integration of ChatGPT in education: Opportunities, challenges and future directions. *Algorithms*, 18(6), 352.
- Zou, D., & Xie, H., (2024). The impact of AI on enhancing students' intercultural communication competence at the university level: A review study. *Education and Information Technologies*, 29, 12345-12367.

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