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From Tool to Cognitive Partner: Reconfiguring History Teaching through Transhumanist AI

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Abstract

Artificial intelligence (AI) is increasingly discussed as a means of supporting history education, yet its educational value cannot be assessed only through speed, access, or personalisation. This critical literature review examines how a transhumanist lens illuminates the tension between cognitive augmentation and human agency in historical inquiry. It synthesises literature on AI-supported access to sources and learning, epistemic risks, and the responsibilities of teachers and learners. The reviewed literature suggests that AI may support searching, summarising, and comparing historical information, but these affordances do not by themselves demonstrate stronger historical reasoning. Risks include inaccurate or biased outputs, simplified narratives, and the transfer of interpretive authority from learners to automated systems. The article's contribution is an integrative framework linking AI affordances to disciplinary practices sourcing, corroboration, contextualisation, causal reasoning, multiperspectivity, and evidence-based argumentation while treating learner agency and teacher mediation as necessary conditions. AI use is therefore not inherently transhumanist: it can augment cognition when it supports inquiry, substitute for cognition when it supplies conclusions without scrutiny, or redistribute agency when its outputs are treated as authoritative. Because the present review does not report a reproducible database search and screening record, these conclusions are conceptual and should not be interpreted as estimates of intervention effectiveness.

Keywords: Artificial Intelligence; History Education; Historical Thinking; Transhumanism; Human Agency.

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INTRODUCTION

Digital technologies are increasingly used to extend access to information and support learning. Transhumanism provides one lens for examining this development because it foregrounds the possibility of extending human capacities through technological means (Nasution et al., 2025a). In education, however, the important question is not simply whether technology makes learning faster or more convenient, but whether it strengthens learners' ability to reason and act independently. Artificial

intelligence (AI) makes this question particularly urgent because it can generate explanations, summaries, and interpretations that resemble products of human reasoning (Copeland, 2026).

In education, AI is used to support activities such as preparing materials, adapting explanations, and providing feedback (Jamaaluddin & Sulistyowati, 2021; Zakiyah et al., 2024; Rifky, 2024). These functions may widen access to learning support, but they also create a risk that learners will accept generated answers without examining how those answers were produced or whether their evidence is reliable. Such concerns are especially consequential in history, where knowledge is constructed through the critical interpretation of sources rather than the unexamined collection of facts.

In history education, AI may help students locate historical materials, summarise documents, compare accounts, and formulate questions about the past (Fatimah & Octaviani, 2023; Pradita et al., 2025). These uses are educationally meaningful only when they are connected to disciplinary inquiry. A summary, for example, should lead students back to the source; a comparison generated by AI should be checked against the accounts being compared; and a proposed explanation should be tested against contextual evidence. The central issue is therefore not whether AI can produce historical information, but how its use affects students' capacity to evaluate evidence and construct interpretations.

Existing discussions identify both possible benefits and risks of AI in education and history learning. Research and conceptual writing address access, personalisation, engagement, accuracy, bias, and dependence (Chan & Hu, 2023; Choi, 2025; Ouida et al., 2025; Bila & Lozynska, 2025). Yet these concerns are often treated as separate advantages and disadvantages. A transhumanist lens allows them to be considered together: AI may extend a learner's cognitive reach while also encouraging reliance on an external system for selecting, organising, and interpreting information. This tension matters in history education because interpretive judgment, source criticism, and the recognition of competing perspectives are central disciplinary practices.

This article addresses the following question: how does a transhumanist perspective help explain the opportunities and risks of AI use in history education, particularly the relationship between cognitive augmentation and human agency? Its contribution is a conceptual synthesis that distinguishes AI as cognitive support, cognitive augmentation, and cognitive substitution, then connects these modes to historical-thinking practices and teacher mediation. The article is a critical literature review rather than an empirical evaluation of AI interventions; claims about learning outcomes are therefore framed as potential affordances unless direct empirical evidence is available.

METHOD

This study employed a critical integrative literature review to examine the relationship between artificial intelligence (AI), transhumanism, and human agency in history education. The review drew on scholarly journal articles, academic books, and educational policy documents addressing cognitive enhancement, AI applications in education, historical thinking, and the ethical implications of

technological development. The purpose was to critically synthesise these sources to understand how AI may support or extend students' cognitive capacities while potentially affecting their independence in interpreting historical information.

The literature was analysed thematically by examining four interrelated aspects: (1) transhumanism and cognitive enhancement; (2) the affordances of AI in history education; (3) epistemic risks, including inaccurate information, bias, and simplified historical narratives; and (4) teacher mediation and learner agency. A critical comparative analysis was used to identify recurring arguments, contrasting perspectives, and conceptual relationships across the literature. The analysis connected these themes to historical-thinking practices, including sourcing, corroboration, contextualisation, causal reasoning, multiperspectivity, and evidence-based argumentation. These relationships informed the conceptual distinction between AI as cognitive support, cognitive augmentation, and cognitive substitution.

As a critical integrative review, this study focuses on conceptual interpretation and synthesis rather than the systematic measurement of learning outcomes. The conclusions therefore concern the potential affordances, risks, and pedagogical implications of AI in history education rather than establishing that AI directly improves students' historical-thinking abilities. The proposed framework provides a basis for understanding how AI can be integrated into history learning while maintaining teacher guidance, critical reflection, and learner responsibility for evaluating historical evidence

RESULTS AND DISCUSSION

The Transhumanist Paradigm and the Development of Artificial Intelligence (AI)

Transhumanism is commonly associated with the use of technology to extend human capacities beyond existing biological or cognitive limits (Klichowski, 2015; Shatzer, 2019). For this review, its analytical value lies less in treating every educational technology as transhumanist and more in asking what happens when cognitive work is delegated to or performed with technological systems. Enhancing human capabilities may involve the development of technologies aimed at creating a life free from disease, slowing the ageing process, promoting well-being and happiness, improving the quality of entertainment, and using technology to replace or enhance human organs and bodily functions (Bergsma, 2000) AI use may be described as cognitive support when it helps learners carry out a task while leaving judgment with them; as augmentation when it expands the range or depth of inquiry; and as substitution when learners accept generated conclusions in place of their own examination of evidence. These are analytical distinctions used in this article, not mutually exclusive categories inherent in the technology.

The literature on human enhancement raises a tension between extending capability and preserving autonomy (Nyholm, 2023; Farah et al., 2014). Applied to history education, faster access to information is not equivalent to better historical thinking. An AI-generated account may help a student identify a possible line of inquiry, but historical understanding still depends on examining provenance, corroborating claims across sources, contextualising evidence, considering competing perspectives, and justifying interpretations. The transhumanist lens is useful when it

makes visible both the expanded capacity enabled by AI and the possibility that learners may surrender epistemic judgment to it.

Across the conceptual literature, cognitive enhancement is presented as a possibility rather than a guaranteed outcome of technology use (Farah et al., 2014; Nyholm, 2023). For history learning, the distinction is important: AI may reduce the effort required to locate or organise information, but that efficiency does not establish that students can evaluate sources or construct stronger arguments. The educational value of AI therefore depends on the task design and on whether learners remain responsible for checking evidence and explaining their reasoning.

A recurring concern in the literature is that technological assistance can become dependence when users accept outputs without independent evaluation. Discussions of AI in education identify risks related to reduced critical engagement and the reliability of generated information (Nasution et al., 2025b; Chan & Hu, 2023). In history education, these risks are disciplinary: students may mistake fluent generated text for verified evidence, overlook the provenance of claims, or fail to recognise that historical interpretations are debated. These are reasons to scrutinise AI use, not proof that AI inevitably reduces critical thinking.

AI is not inherently transhumanist simply because it is used in a classroom. Its relationship to human enhancement depends on how it distributes cognitive work and decision-making. When AI helps learners search for sources or generate questions that they then test, it can function as support or augmentation. When learners submit generated narratives without checking evidence, it functions more like cognitive substitution. This distinction provides the basis for assessing AI in history education throughout the article (Nyholm, 2023).

Indonesian policy guidance positions AI as a supporting resource for lesson planning, learning activities, reflection, and analysis while retaining teachers' responsibility for learning objectives, assessment, and contextual judgment (Kemendikdasmen, 2025). This policy position is consistent with a human-agency approach, but policy guidance should not be mistaken for empirical evidence that AI improves learning. Its practical significance is that the teacher remains responsible for deciding when AI is appropriate, checking the reliability of its outputs, and ensuring that learners engage with historical evidence rather than merely reproduce generated text.

Taken together, the conceptual literature and policy guidance point to a conditional rather than automatic relationship between AI and cognitive enhancement. AI can extend access and help organise information, but the benefits for historical reasoning depend on source-based tasks, explicit verification, and the continued responsibility of learners and teachers for interpretation. The central tension is that the same system that expands the material available for inquiry may also become an authority that narrows or pre-selects the interpretations learners encounter.

AI in History Education

AI creates new opportunities for making history learning more engaging and contextualised (Istiqomah et al., 2026). The reviewed literature identifies three broad affordances of AI for history education: access and organisation of information, support for inquiry, and adaptation of explanations to learners' needs. AI tools may

help locate digital materials, summarise long documents, or generate questions for further investigation (Fatimah & Octaviani, 2023; Pradita et al., 2025). These functions should be treated as support for inquiry rather than as substitutes for consulting original or scholarly sources.

The affordances are most relevant to history when they are linked to disciplinary practices. For sourcing, students can investigate who produced a document, when, for what purpose, and under what circumstances. For corroboration, they can compare AI-generated claims with primary sources and scholarly accounts. For contextualisation, they can test whether an explanation accounts for the political, social, and cultural conditions of the period. For causal reasoning and multiperspectivity, students can compare alternative explanations and identify whose experiences are included or omitted. AI may assist with generating questions or organising comparisons, but the historical judgment remains with the student and must be justified by evidence.

Personalised explanations and rapid feedback may help learners enter a topic or identify gaps in their understanding (Nabila & Rachman, 2025; Miskawi et al., 2025). However, evidence about AI in education generally cannot automatically be treated as evidence of improved historical thinking. The latter requires more specific outcomes, such as the quality of sourcing, corroboration, contextualisation, causal explanations, and evidence-based historical arguments. Accordingly, the literature reviewed here supports the possibility that AI can assist these activities, but it does not establish a general causal claim that AI improves historical understanding in all settings.

The same affordances create epistemic risks. AI-generated content can contain inaccurate statements, omit relevant context, or present an interpretation with more certainty than the evidence warrants. If students accept a fluent answer without checking its provenance, AI can shift the activity from historical inquiry to passive consumption. This is a conceptual and pedagogical risk; its frequency and magnitude cannot be estimated from the current review because the manuscript does not report a systematic appraisal of empirical studies.

The literature raises related concerns about algorithmic bias, hallucinated information, and the simplification of contested narratives (Pradita et al., 2025; Ouida et al., 2025; Choi, 2025; Bila & Lozynska, 2025). These risks are connected but distinct. Bias can shape which people, events, or viewpoints are represented; hallucination can introduce unsupported details or citations; and narrative simplification can erase disagreement, uncertainty, or historical context. Each risk can undermine multiperspectivity and evidence-based interpretation if generated outputs are treated as authoritative. The strength of empirical evidence for each risk should be assessed source by source; the present article treats them as concerns identified in the literature rather than as quantified effects.

The Integration of History Education within Transhumanism

History education in the digital era cannot be separated from technological developments, particularly digital technologies, AI, and immersive visual experiences that transcend conventional boundaries of space and time. Digital approaches to history education can broaden students' learning experiences, allowing them to engage with the past in ways that may create a sense of directly experiencing historical

events (Susilo et al., 2024). Through immersive technologies such as *Virtual Reality* (VR), students are no longer merely passive observers but can navigate temporal dimensions and develop a deeper sense of empathy towards the social contexts of the past (Almada et al., 2024).

Furthermore, the integration of AI enables more personalised curricular adaptation by supporting the in-depth analysis of various historical sources and datasets, thereby strengthening students' historical literacy and cognitive abilities (Istiqomah, 2026). This transformation signals a shift towards the concept of the technologically "enhanced human", in which the integration of AI and adaptive learning systems can provide cognitive scaffolding for more complex historical reasoning (Ni, 2026). The implementation of AI-based learning models and the use of digital archives have also been shown to increase student engagement and enhance their ability to evaluate complex historical evidence (Anggoro, 2025).

The transhumanist paradigm in history education also has implications for teachers. One of the most significant changes in the digital era is the shift in the teacher's role from being the primary source of knowledge to becoming a facilitator, mentor, and learning guide. Teachers are no longer expected simply to deliver historical content through conventional lectures, but also to guide students in making use of diverse digital learning resources, including online archives, virtual museums, educational videos, and e-learning platforms. At the same time, teachers are expected to possess strong digital literacy, integrate technology effectively into the learning process, and foster students' critical thinking, creativity, collaboration, and communication skills. In this way, teachers remain essential in creating history learning experiences that are more interactive, relevant, and responsive to the demands of twenty-first-century education (Susilo et al., 2024).

Despite the various opportunities offered by digital technologies, their implementation in history education also presents several challenges. An excessive focus on immersive experiences through VR, for instance, may lead students to become more captivated by visual elements than by developing critical historical thinking skills, such as analysing sources, evaluating perspectives, and recognising historical bias. Some studies suggest that without appropriate pedagogical design, immersive technologies may encourage passive forms of learning and oversimplify the complexity of historical events. Furthermore, technological implementation may involve challenges such as increased cognitive load, usability difficulties, limited access, and the potential for students to confuse virtual representations with historical reality itself. Meanwhile, the growing use of AI in education raises concerns about the diminishing role of human agency in the learning process if students become overly dependent on system-generated recommendations and information. Therefore, the use of AI and digital technologies in history education needs to be balanced with approaches grounded in human values, ethics, and critical thinking, ensuring that technology remains a supporting tool rather than a substitute for the historical interpretation carried out by teachers and students (Serrano-Ausejo, 2025).

The integration of technology into history education therefore presents both opportunities and challenges that need to be managed carefully. On the one hand, the use of digital technologies, AI, and VR can enhance the quality of learning by providing experiences that are more interactive, personalised, and contextualised.

Technology enables students to access a wider range of historical sources, develop digital literacy, and strengthen their historical thinking skills through the analysis of more diverse forms of data and evidence. On the other hand, technological use without appropriate pedagogical planning may encourage dependence on digital systems, reduce students' capacity for reflection, and weaken the humanistic dimension of history education.

Therefore, the transhumanist paradigm in history education should be understood as an approach that integrates technological advancement with human agency to enhance historical learning, rather than as an attempt to replace human beings with technology. Digital technologies, including artificial intelligence, can support students in accessing historical sources, comparing interpretations, and exploring different perspectives on the past. However, these capabilities do not automatically produce historical understanding. Students still require pedagogical guidance to evaluate the credibility of information, recognise bias, contextualise historical evidence, and develop reasoned interpretations. Teachers therefore remain central to the learning process by facilitating critical inquiry, encouraging reflection, and helping students connect historical knowledge with broader human values. This relationship demonstrates that the contribution of transhumanism to history education lies not merely in expanding technological capabilities, but in using them to strengthen students' historical thinking and understanding of the past. Consequently, the integration of technology should be guided by pedagogical principles that preserve human agency, critical reflection, and ethical awareness, ensuring that digital transformation enhances rather than diminishes the educational purpose of history learning.

CONCLUSION

This critical review suggests that AI may support history education by widening access to historical materials, helping organise information, and generating questions or comparisons for further inquiry. These affordances do not, on their own, demonstrate improved historical thinking. The relevant disciplinary outcomes are students' ability to examine provenance, corroborate sources, contextualise evidence, reason about causes, consider multiple perspectives, and construct evidence-based interpretations. The reviewed literature also identifies concerns about bias, hallucinated information, and simplified narratives, although the present manuscript does not provide a systematic assessment from which their prevalence or effect size could be estimated.

The transhumanist lens reveals the central tension between cognitive augmentation and human agency. AI can extend what learners can access and process, while also encouraging them to outsource the selection and interpretation of historical information. The distinction between cognitive support, augmentation, and substitution helps explain why AI use is not inherently beneficial or inherently harmful: its educational significance depends on whether students continue to verify claims and take responsibility for their reasoning.

The article's contribution is an integrative framework connecting AI affordances, historical-thinking practices, epistemic risks, teacher mediation, and

learner agency. It proposes that AI-supported history learning should be designed around source attribution, provenance checking, corroboration with primary or scholarly sources, contextualisation, comparison of competing interpretations, and disclosure of AI use. These are conceptual implications rather than proven effects. The conclusions are limited by the absence of a documented reproducible search and screening protocol, the heterogeneity of the cited source types, and the lack of empirical testing of the proposed framework.

RECOMMENDATION

This critical literature review demonstrates that artificial intelligence (AI) offers opportunities to support history education by expanding access to historical sources, organising information, and facilitating the comparison of historical accounts and interpretations. However, these affordances do not automatically translate into stronger historical thinking. The educational value of AI depends on whether its use encourages students to engage in disciplinary practices, including sourcing, corroboration, contextualisation, causal reasoning, multiperspectivity, and evidence-based argumentation. Without these practices, AI-assisted learning risks prioritising the production of information over the critical interpretation of the past.

The transhumanist perspective provides a conceptual framework for understanding the tension between cognitive augmentation and human agency in history education. AI can function as cognitive support when it assists students in accessing and organising information, as cognitive augmentation when it expands opportunities for historical inquiry, and as cognitive substitution when generated conclusions replace students' independent examination of evidence. These distinctions indicate that AI is neither inherently beneficial nor inherently detrimental to historical learning; its educational significance depends on how cognitive responsibilities and interpretive authority are distributed between technological systems, teachers, and students.

Teachers therefore remain essential in ensuring that technological advancement serves the educational purposes of history learning. Through pedagogical guidance, teachers can help students evaluate the credibility of generated information, identify bias and omissions, contextualise historical evidence, and construct interpretations supported by reliable sources. The integration of AI and other digital technologies should consequently prioritise historical inquiry, critical reflection, ethical awareness, and learner agency rather than technological adoption alone. Ultimately, the contribution of a transhumanist approach to history education lies in using technology to extend human capacities while preserving students' responsibility for historical reasoning and interpretation. As this article presents a conceptual synthesis rather than an empirical evaluation, further classroom-based research is needed to examine how different forms of AI integration influence students' historical-thinking practices and their capacity to engage independently with historical evidence.

Author Contributions

Bintang Putra Rachmad: conceptualization, methodology, literature review, data curation, formal analysis, investigation, resources, writing—original draft

preparation, and writing—review and editing; Sariyatun: supervision and critical review of the manuscript. All authors have read and agreed to the published version of the manuscript. Authorship is limited to those who have contributed substantially to the work reported.

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