

The Impact of ChatGPT on History Education: An Analysis of Misinformation and Historical Reasoning in High Schools

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ABSTRACT

The development of artificial intelligence (AI) technology, especially Large Language Models such as ChatGPT, has brought major changes in the world of education, including in history learning at the secondary school level. ChatGPT is often used by students to organize assignments, summarize events, and understand historical concepts quickly and practically. However, the study found that most students use ChatGPT passively without undergoing the information verification process, which has an impact on potential misinformation and decreased historical thinking skills. This research uses a qualitative approach with an exploratory case study conducted at SMA Negeri 6 Tasikmalaya City, involving students in grades XI and XII and two history teachers. Data was obtained through interviews, observations, and documentation, then analyzed using the Miles and Huberman model. The results show that ChatGPT often provides historical information that is general, biased, and sometimes factually incorrect, including in untraceable references. In addition, students who rely on ChatGPT show a decreasing tendency to compile chronologies, explain cause and effect, and understand the context of historical events. These findings show the importance of teacher assistance in directing the use of AI in a critical and literacy manner. This study recommends pedagogical strategies that integrate digital literacy, resource evaluation, and historical source-based learning as mitigating steps. ChatGPT should be positioned not as the primary source, but as an exploratory tool that is reflexively directed so as not to perpetuate misinformation and still support the formation of students' historical reasoning.

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1. Introduction

The development of artificial intelligence (AI) technology has brought significant changes in various sectors of life, including the world of education. One form of AI that is currently popular and widely used in the world of education is the Large Language Model (LLM), such as ChatGPT developed by OpenAI. ChatGPT is a machine learning-based model that is able to automatically generate text in various forms, ranging from summaries, material explanations, to essays. With its ability to respond quickly and coherently to user questions, ChatGPT has become a digital tool that is often used by students in completing tasks, including in history subjects.

At the high school level, ChatGPT is starting to be widely used by students to access historical information, understand difficult concepts, or even to draft essay assignments and learning reports. With a single tap, students can gain explanations on topics such as the World War, the Industrial Revolution, or important events in Indonesian history. In this context, ChatGPT appears to be an innovation that can encourage independent learning, increase students' interest in reading, and support the integration of technology in 21st-century education [1]. The Indonesian Ministry of Education and Culture also encourages the strengthening of digital literacy as part of the basic competencies of the younger generation in facing the Industrial Revolution 4.0 era. This aligns with the global trend in education emphasizing the integration of digital skills, critical thinking, and technological adaptability to prepare students for future challenges. According to Ilomäki et al. [2] digital competence is not only about the technical use of digital tools but also includes the ability to use technology creatively, critically, and responsibly in learning and problem-solving contexts. Furthermore, Vuorikari et al. [3] argue that developing digital literacy among young learners is crucial for fostering employability, social participation, and lifelong learning in the context of Industry 4.0. Similarly, Ally and Wark [4] emphasize that educational systems must integrate digital literacy into national curricula to ensure that students are equipped to thrive in a digitally driven economy.

However, behind these advances, there are challenges and concerns that cannot be ignored. ChatGPT is not a factual search engine like Google Scholar or digital libraries, but rather a predictive model that structures sentences based on possible language patterns that often appear in its training data. Thus, the likelihood of inaccurate, biased, or out of historical context is very high [5]. In history lessons at the high school level, which basically aim to foster chronological understanding, causal linkage, and critical awareness of the past misinformation like this can have a serious impact on students' understanding. In addition, the passive use of ChatGPT by students can also threaten the sustainability of historical thinking processes. Historical reasoning is the cognitive ability of students to interpret past events contextually, critically, and reflectively, taking into account aspects of chronology, multiperspective, historical evidence, and causality [6], [7]. In many cases, students who use ChatGPT simply copy and paste answers without further verification, synthesis, or analysis. This condition reflects a decline in critical thinking skills, and in the long run can weaken the main purpose of history education as a means of forming historical awareness and national character.

This phenomenon is exacerbated by the fact that most high school students do not have digital literacy mature enough to respond critically to information. They tend to take all information from machines as truth, without realizing that it may not be sourced from valid scientific references. Study by van Laar et al. [8] shows that digital literacy, including the ability to assess the credibility of sources and understand information structures, is still a major challenge among secondary school students. When AI technology such as ChatGPT is used without critical understanding, the role of teachers as facilitators of historical and digital literacy becomes increasingly crucial. The use of ChatGPT in history learning also poses a pedagogical dilemma for teachers. On the one hand, teachers are required to keep up with technological developments and encourage students to adapt to digital innovations. But on the other hand, teachers are also faced with the task of ensuring that the learning process does not only become an instant consumption of information, but still involves high-level thinking skills such as source analysis, evidence evaluation, and interpretation of complex historical events. The balance between the use of technology and the formation of critical thinking character is the main challenge in learning history in the digital era.

As a foundation for understanding the context and urgency of this research, it is important to review the various findings from previous studies related to the use of artificial intelligence, particularly ChatGPT, in the world of education. Research by Jo [9], who found that the *self-learning capacity* of ChatGPT significantly enhances students' knowledge acquisition, application, and behavioral intention to learn independently. However, as emphasized by Yang et al. [10], the overuse of ChatGPT may lead to overreliance and decreased creativity, as students tend to accept AI-generated answers passively rather than engaging in deeper analytical thinking. Similarly, Sarin et al. [11] warned that excessive dependence on generative AI can undermine students' critical thinking skills

and academic integrity. Therefore, the use of ChatGPT must be done wisely and integrated with conventional learning methods to ensure that students remain cognitively active and independent in learning.

Kasneci et al. [12] states that ChatGPT can serve as a learning assistant that helps students understand material quickly, although it still poses ethical and pedagogical challenges, such as the potential for the dissemination of inaccurate information. Similarly, research by Damian Okaibedi Eke [13] shows that while ChatGPT is capable of answering a wide range of academic questions coherently, the answers it generates are often not supported by valid sources, thus risking misinformation. In the context of historical literacy, Wineburg and Monte-Sano [14] emphasizing that historical thinking requires the skills of assessing sources, understanding chronology, and constructing narratives based on relevant evidence, skills that would not necessarily be formed if students only relied on prediction-based technologies such as ChatGPT. However, until now, studies on the direct influence of ChatGPT on students' historical understanding and historical thinking processes at the secondary school level are still very limited.

Based on various previous studies, ChatGPT has proven to have great potential in supporting learning in higher education, especially in terms of accelerating material understanding, increasing learning motivation, and helping to complete academic tasks efficiently. However, most of these studies still focus on the context of higher education in general and have not specifically examined its impact on cognitive structures in specific disciplines, such as history. On the other hand, a number of studies have also begun to underline the risks of using ChatGPT, including the potential for misinformation due to answers that are not based on scientific references, as well as a decrease in the quality of critical thinking if used passively and non-reflectively. In this context, this study presents novelty by focusing on the direct influence of the use of ChatGPT on the historical thinking skills of high school students, especially in the aspects of chronology, causality, multiperspective, and resource evaluation. This study also broadens the understanding of how artificial intelligence can shape or even obscure students' historical literacy processes when not accompanied by a critical pedagogical approach. Thus, this research makes an original contribution in the interdisciplinary realm between educational technology and historical literacy, which has rarely been touched comprehensively.

With this introductory explanation, this article aims to provide a critical analysis of the use of ChatGPT in history learning at the high school level, especially related to two main issues: (1) the potential misinformation contained in the answers generated by ChatGPT and (2) the threat to students' historical reasoning due to learning patterns that rely too much on AI. This article will also discuss how teachers, curriculum, and learning environments can shape students' interaction patterns with AI in a more wise and critical way. At the end of the discussion, this article will offer practical recommendations to minimize negative impacts and responsibly integrate AI in the history learning process.

2. Method

This study uses a qualitative approach with an exploratory case study type. This approach was chosen because it is appropriate to explore the phenomenon in depth regarding how high school students use ChatGPT in learning history, as well as its impact on their historical understanding and reasoning. Case studies allow researchers to analyze contextually and specifically problems that arise in real learning environments [15]. According to Yin [16], case studies are suitable for use when researchers want to answer the "why" and "how" questions, as well as when the boundaries between the phenomenon and its context are not clearly visible. In this context, the phenomenon of using ChatGPT cannot be separated from the context of digital learning, student characteristics, and the role of teachers.

This research was conducted at SMA Negeri 6 Tasikmalaya City, West Java, the selection of SMA Negeri 6 Tasikmalaya City as the location of the research was based on scientific considerations relevant to the objectives and focus of the study. The school has actively implemented the integration

of digital technology in the learning process, including the use of artificial intelligence-based software such as ChatGPT. This makes SMA Negeri 6 a representative context to explore how AI technology is used in the secondary education environment, especially in history learning. In addition, this school has sufficient demographic characteristics and digital ecosystem to observe the phenomenon of real use of technology in the classroom. The subjects of this study consist of 10 students in grades XI and XII, 2 history teachers who are directly involved in the learning process and supervision of the use of technology by students. The selection of informants is carried out by *purposive sampling*, i.e. selecting individuals who are considered most relevant and have direct experience of the phenomenon being researched. This technique allows researchers to obtain rich, in-depth, and contextually grounded data from participants who possess specific knowledge or experiences related to the research topic. As stated by Palinkas et al. [17] purposive sampling is widely used in qualitative research for the identification and selection of information-rich cases related to the phenomenon of interest. Similarly, Etikan, Musa, and Alkassim [18] emphasize that purposive sampling enables the researcher to intentionally choose participants who can provide the most relevant and detailed information to achieve the study's objectives. This approach ensures that the selected participants contribute meaningful insights, thereby enhancing the credibility and depth of the research findings.

The data in this study was obtained through three main techniques, namely interviews, observations, and documentation studies. The interviews were conducted to explore the experiences, perceptions, and thought patterns of students and teachers towards the use of ChatGPT, especially related to the accuracy of information and the historical thinking process. Observations were made to see firsthand the practice of using ChatGPT both inside and outside the classroom, including students' interaction with digital platforms when doing assignments. In addition, documentation in the form of student assignment results, ChatGPT interaction transcripts, and teacher learning planning was collected for qualitative analysis. The data that has been collected is analyzed using the Miles and Huberman model, which includes the process of data reduction, data presentation, and iterative conclusion drawing [19]. Data reduction is carried out by classifying important information according to the focus of the research, while the presentation of data is carried out in the form of narrative quotations, matrices, or descriptive findings to facilitate interpretation. Conclusions are drawn in stages through a process of verification between sources and theoretical reflection.

To ensure the validity of the data, this study uses triangulation of sources and techniques, namely by comparing the results of interviews, observations, and documents, as well as conducting member checking by confirming the findings to the informant so that there are no misinterpretations. In addition, discussions with fellow researchers were conducted to validate findings through the peer debriefing process [20]. With this approach, the research is expected to be able to provide a comprehensive picture of the impact of the use of ChatGPT in history learning, especially in terms of the risk of misinformation and the potential decline of historical reasoning among high school students. To provide a more systematic understanding of the issues raised in this study, Fig. 1 presented a problem diagram that illustrates the relationship between students, the use of ChatGPT, and its impact on historical thinking processes and misinformation.

3. Results and Discussion

The results show that the use of ChatGPT in history learning by high school students tends to be practical and functional, especially in completing tasks that demand narrative explanations, summaries of events, or writing historical essays. From interviews with ten students in grades XI and XII, eight students admitted that they often use ChatGPT to answer questions or seek understanding of certain historical events because they are considered faster and easier to understand than opening textbooks or reading official sources. However, an important finding from this study is that most students do not carry out the verification process of the information provided by ChatGPT. They tend to directly copy the content of the answers into the task without comparing it with other sources. This indicates a tendency to use passively, which in the long run can weaken critical thinking and a deep understanding of the historical context being studied [8].

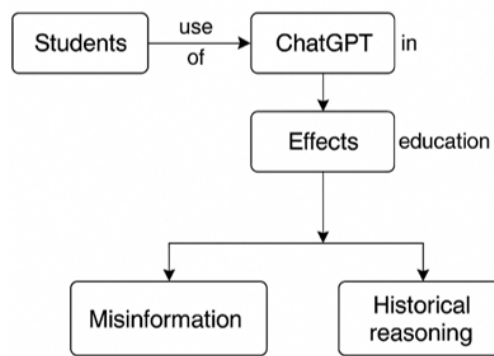


Fig. 1. Conceptual Framework

From the documentation of student assignments, a number of factual errors and oversimplification of historical events were found. For example, in an assignment on the background of the Indonesian Proclamation of Independence, some students wrote that "Japan sincerely helped Indonesia's independence" is a narrative that is historically biased and inconsistent with critical historiographic studies. When searched, the sentence comes directly from ChatGPT's initial response that doesn't provide enough source references or contextual explanations. This shows that ChatGPT has the potential to spread historical misinformation, especially if used without teacher assistance and without adequate digital literacy skills [5]. Although some of the information generated by ChatGPT is general and neutral, the results of this study reinforce concerns that language models such as ChatGPT are not yet reliable to convey historical complexity and nuances accurately and responsibly.

Then another problem regarding the accuracy and credibility of information, in the use of ChatGPT there are problems in the accuracy and credibility of the information produced. As is well known, ChatGPT is a form of artificial intelligence that is able to answer all forms of questions given by users. The artificial intelligence works in the form of an automatic conversation by having patterns and correlations of data that has been trained, so that it is able to provide a quick response to each user [21]. It is important to know that history speaks based on data and facts. In the case of history learning, there is a tendency for inaccuracies in the information provided by ChatGPT. Often there are similarities in the pattern of answers given by ChatGPT to several different questions. In addition, the answers given are concise and general answers so that they are not able to explain the context of learning. Similar problems also occur when performing a search by including a reading source. Even though ChatGPT is able to provide references related to a subject matter, in fact the results provided are not appropriate when reviewed.

Based on the image above, the information provided by ChatGPT is sufficient to briefly explain the Bandung Lautan Api incident. However, there is an error when the AI is asked to provide references to related sources. The four references listed above are still not detailed and correspond between the title and the author. Through one of the examples above, we can see that the use of ChatGPT in history learning has problems that cannot be underestimated. Students' tendency to capture all the information provided by ChatGPT will have an impact on misunderstanding and misunderstanding.

Furthermore, the teacher interviewed expressed his concern about the decline of students' historical reasoning. In class observation and discussion, students who are used to using ChatGPT tend to have difficulty when asked to reinterpret a historical event using their own words, construct a chronology, or identify cause and effect. Some students only remember the information that appears on the screen, without the ability to analyze context, check the validity of sources, or compare different perspectives. This is in line with the Wineburg concept [7] which states that historical reason involves the process of thinking critically and reflecting on the past, not just memorizing facts. These findings suggest that the uncritical use of ChatGPT not only increases the risk of misinformation, but can also

disrupt the process of forming historical thinking that should be the primary goal of history learning at the intermediate level.

4. Discussion

The findings of this study reveal a paradox in the use of artificial intelligence technologies such as ChatGPT in the context of history learning in high school. On the one hand, ChatGPT is able to provide easy access to information quickly and efficiently, which makes it very attractive to use by students, especially in tasks that require narrative explanation and essay writing. But on the other hand, this practical use actually shows that most students do not carry out the information verification process, thus creating a passive and uncritical learning pattern. This phenomenon describes what van Laar et al. [8] as a limitation of digital literacy, namely the unpreparedness of students in evaluating and filtering information from AI-based technology. In the context of historical learning, where an understanding of sources, contexts, and perspectives is crucial, a purely consumptive approach to information runs the risk of obscuring the true meaning and nuances of history.

Furthermore, findings in the form of factual errors in students' assignments such as biased narratives about "British and Dutch forces re-entered Indonesia to restore Dutch colonial rule" the correction is as such, after World War II, British forces entered Indonesia under the Allied command to disarm Japanese troops, but they also assisted the return of Dutch administration (NICA), which led to conflict with Indonesian nationalists. and "They demanded that Indonesian fighters and residents evacuate Bandung within 24 hours" the correction is as such, the British command ordered Indonesian troops to evacuate the southern part of Bandung within about 24 to 48 hours. This shows that ChatGPT has not been able to accurately convey the complexity of historiography. ChatGPT generates text based on linguistic predictions, not on methodological considerations or authentic primary sources. This is in line with criticism from Elsdén, Nissen, and Roper [5], which emphasizes that generative AI models have limitations in conveying accurate information, especially in educational contexts that demand clarity of sources and logical structures. The reluctance of students to compare ChatGPT's answers with official references also shows a low awareness of the importance of information validation, which in the historical context can lead to misinterpretation and mistakes in structuring historical arguments.

The issue of information accuracy is also reinforced by the fact that ChatGPT often provides inconsistent or even fictitious references. As shown in Fig. 2 regarding the Bandung Lautan Api incident, the references provided by ChatGPT are not academically relevant because they do not match between the title and the author's name, nor can their existence even be traced. Sami et al. [21] confirms that although AI like ChatGPT is highly sophisticated in generating languages, it does not have the same data correctness review mechanism as conventional academic sources have. Therefore, the use of ChatGPT without an understanding of historical epistemology and without information quality control can actually perpetuate misinformation, while keeping students away from scientific practice in understanding the past.

The long-term impact of this pattern of use is the erosion historical reasoning student. Classroom observations and interview results show that students who are used to using ChatGPT tend to have difficulty reexplaining material in their own words, constructing a logical chronology, and assessing cause and effect and various perspectives in a historical event. Wineburg [7] emphasizes that historical reason is not a natural ability, but rather the result of critical and reflective exercise of historical data. If students only memorize the information presented by machines without going through their own thinking process, then history learning will lose its function as a tool to form a critical perspective on the world. In the long run, this can result in a decrease in the quality of historical literacy among students, as well as a decrease in their ability to make decisions based on learning from the past.

In dealing with the impact of using ChatGPT in history classrooms, teachers need to develop pedagogical strategies that are not only responsive to technology, but also strengthen students' historical thinking skills and avoid the spread of misinformation. One of the key steps is to integrate

ChatGPT as a tool for reflection and exploration, rather than as the only source of information. Kasneci et al. [12] emphasizing that although ChatGPT has great potential in supporting the independent learning process, teachers must still supervise and direct its use so as not to cause dependency or the spread of unverified information. Teachers are advised to guide students in comparing ChatGPT's results with authentic historical sources, as well as train them to evaluate the accuracy and context of the information. Wineburg and Monte-Sano [14] states that historical thinking requires the ability to analyze evidence, understand chronology, and assess various perspectives of competence that cannot be obtained by passive receiving information alone. Therefore, teachers can design activities that encourage students to criticize and review ChatGPT's answers, for example through class discussions, primary source analysis assignments, or historical fact-checking exercises. In addition, the implementation of digital literacy is very important. Van Laar et al. [8] mentioning that the ability to assess the credibility of digital information is a crucial part of 21st century literacy. Therefore, teachers need to provide explicit guidance on the ethics and techniques of using AI, as well as improve their own competence through technology literacy training. With these measures, the use of ChatGPT in history learning can be directed to strengthen students' critical reasoning and historical awareness responsibly and reflectively.

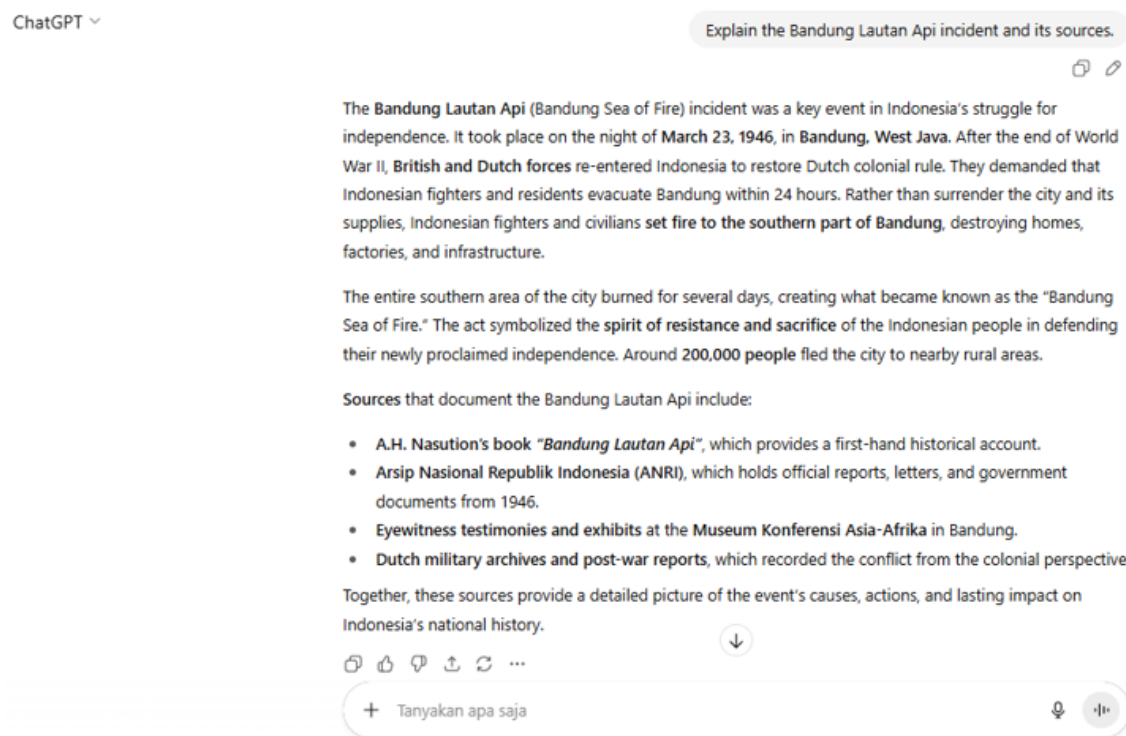


Fig. 2. Examples of using ChatGPT in answering questions with historical themes

Thus, this study emphasizes that although ChatGPT has potential as a learning tool, its use in historical contexts needs to be managed with a pedagogical approach that is critically aware and based on source literacy. Teachers play an important role in accompanying students to not only passively accept answers from AI, but to use them as initial exploration material that is then re-tested through the study of other sources and reflective discussions. This collaboration between technology and critical pedagogy needs to be developed so that the use of AI in the classroom does not become a shortcut that endangers historical understanding, but rather a bridge to more contextual, factual, and in-depth learning.

5. Conclusion

This study confirms that the use of ChatGPT in history learning at the high school level today tends to be practical and consumptive. The majority of students use ChatGPT to complete tasks that are narrative in nature, such as essays and summaries of historical events, without conducting a verification or evaluation process on the correctness of the information obtained. This indicates low digital literacy and a lack of critical historical thinking skills. Findings in the form of factual errors and biased historical narratives in student assignments show that ChatGPT, as a predictive model, has not been reliable in conveying complex and nuanced historical information. Without teacher assistance and a critical learning approach, ChatGPT risks reinforcing historical misinformation and weakening students' historical reasoning.

Based on the findings of the study, it is recommended that education practitioners, especially history teachers, integrate ChatGPT not as the main source of information, but as a thinking tool that is used critically and reflectively. Teachers need to place ChatGPT as a spark for discussion and initial exploration of historical material, not as a provider of final answers. This practice can be done by encouraging students to criticize the answers generated by AI, compare them with official historical sources, and reconstruct information based on personal understanding. In addition, it is important for teachers to develop a *source-based learning* approach, which emphasizes reading, analyzing, and comparing primary and secondary historical sources. Tasks such as document analysis, chronology, and multiperspective exploration can help strengthen students' historical reasoning as well as serve as a means to test the accuracy of information obtained from ChatGPT. In this process, strengthening digital literacy and historical literacy is very important. Teachers need to provide explicit guidance on how to evaluate digital sources, recognize biases, and filter information obtained from AI. A brief training on "how ChatGPT works" or "how to respond to answers from AI" can be an applicable first step in increasing students' awareness of the critical use of technology.

On the other hand, improving teacher competence is also an urgent matter. Teachers as the main facilitators in the learning process need to understand the potential, limitations, and risks of using AI in order to guide students appropriately. Therefore, technology literacy and historiography training, as well as collaboration between teachers to design ethical and educational AI utilization strategies, are highly recommended. In addition, schools also need to develop ethical guidelines and policies for the use of AI in learning. These guidelines can include limitations on the use of AI in academic assignments, as well as assessment rubrics that not only assess final results, but also emphasize students' critical and independent thought processes.

For future research directions, it is necessary to expand the study of the use of ChatGPT and AI technology in a broader context. Comparative research across schools and regions can provide insights into how social contexts and digital infrastructure affect patterns of AI utilization in history learning. In addition, the development of critical AI-based learning models, such as digital history modules that integrate source verification, needs to be further explored. Longitudinal studies are also needed to look at the long-term impact of AI use on students' historical reasoning development. Finally, analysis of algorithms and narrative biases in ChatGPT is important, especially in conveying history from a local Indonesian perspective compared to a global perspective. Thus, the use of AI in history education cannot be separated from a pedagogical framework that is conscious, ethical, and based on historical literacy. The integration of technologies like ChatGPT should be geared towards supporting deep and reflective learning processes, not just being a shortcut to task completion.

Declarations

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References

- [1] T. Matos, W. Santos, E. Zdravevski, P. J. Coelho, I. M. Pires, and F. Madeira, "A systematic review of artificial intelligence applications in education: Emerging trends and challenges," *Decision Analytics Journal*, vol. 15, p. 100571, 2025, <https://doi.org/10.1016/j.dajour.2025.100571>.
- [2] L. Ilomäki, S. Paavola, M. Lakkala, and A. Kantosalo, "Digital competence - an emergent boundary concept for policy and educational research," *Educ. Inf. Technol.*, vol. 21, no. 3, pp. 655-679, 2016, <https://doi.org/10.1007/s10639-014-9346-4>.
- [3] R. Vuorikari, S. Kluzer, and Y. Punie, "DigComp 2.2: The Digital Competence Framework for Citizens," *Publ. Off. Eur. Union*, 2022, <https://doi.org/10.2760/115376>.
- [4] N. Wark, and M. Ally, "An emergent pedagogical framework for integrating emergent technologies into curriculum design," *Emerging technologies and pedagogies in the curriculum*, pp. 89-111, 2020, https://doi.org/10.1007/978-981-15-0618-5_6.
- [5] W. K. Monib, A. Qazi, R. A. Apong, M. T. Azizan, L. De Silva, and H. Yassin, "Generative AI and future education: a review, theoretical validation, and authors' perspective on challenges and solutions," *PeerJ Computer Science*, vol. 10, p. e2105, 2024, <https://doi.org/10.7717/peerj-cs.2105>.
- [6] P. Seixas and T. Morton, *The Big Six Historical Thinking Concepts*. Toronto, ON, Canada: Nelson Education, 2013, <https://archive.org/details/bigsixhistorical0000seix/page/n6/mode/1up>.
- [7] S. S. Wineburg, *Historical Thinking and Other Unnatural Acts: Charting the Future of Teaching the Past*. Philadelphia, PA, USA: Temple University Press, 2001, https://books.google.co.id/books?id=tN9nQgAACAAJ&hl=id&source=gbs_navlinks_s.
- [8] E. van Laar, A. J. A. M. van Deursen, J. A. G. M. van Dijk, and J. de Haan, "The relation between 21st-century skills and digital skills: A systematic literature review," *Comput. Human Behav.*, vol. 72, pp. 577-588, 2017, <https://doi.org/10.1016/j.chb.2017.03.010>.
- [9] H. Jo, "From concerns to benefits: A comprehensive study of ChatGPT usage in education," *Int. J. Educ. Technol. High. Educ.*, vol. 23, no. 3, pp. 1-15, 2024, <https://doi.org/10.1186/s41239-024-00471-4>.
- [10] Y. Yang, S. Hussin, and H. Hashim, "Revising with intelligence: ChatGPT feedback and its impact on EFL students' revision and self-efficacy," *Forum Linguist. Stud.*, vol. 7, no. 7, pp. 352-367, Jul. 2025, <https://doi.org/10.30564/fls.v7i7.9845>.
- [11] S. Sok and K. Heng, "Opportunities, challenges, and strategies for using ChatGPT in higher education: A literature review," *J. Digit. Educ. Technol.*, vol. 4, no. 1, pp. 1-11, 2024, <https://doi.org/10.30935/jdet/14027>.
- [12] E. Kasneci, K. Seßler, S. Küchemann, M. Bannert, D. Dementieva, F. Fischer, et al., "ChatGPT for Good? On Opportunities and Challenges of Large Language Models for Education," *Learn. Individ. Differ.*, vol. 103, 2023, <https://doi.org/10.1016/j.lindif.2023.102274>.
- [13] D. O. Eke, "ChatGPT and the rise of generative AI: Threat to academic integrity?," *J. Responsible Technol.*, vol. 13, Apr. 2023, <https://doi.org/10.1016/j.jrt.2023.100060>.
- [14] S. Wineburg and C. Monte-Sano, "Famous Americans': The Changing Pantheon of American Heroes," *J. Am. Hist.*, vol. 94, no. 4, pp. 1186-1202, 2008, <https://doi.org/10.2307/25095326>.
- [15] J. W. Creswell and J. D. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed. Thousand Oaks, CA, USA: Sage Publ., 2018, https://spada.uns.ac.id/pluginfile.php/510378/mod_resource/content/1/creswell.pdf.
- [16] R. K. Yin, *Case Study Research and Applications: Design and Methods*, 6th ed. Thousand Oaks, CA, USA: SAGE Publ., 2017, <https://books.google.co.id/books?id=6DwmDwAAQBAJ&printsec=front-cover&hl=id>.
- [17] L. A. Palinkas, S. M. Horwitz, C. A. Green, J. P. Wisdom, N. Duan, and K. Hoagwood, "Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research,"

- Adm. Policy Ment. Heal. Ment. Heal. Serv. Res.*, vol. 42, no. 5, pp. 533-544, 2015, <https://doi.org/10.1007/s10488-013-0528-y>.
- [18] I. Etikan, S. A. Musa, and R. S. Alkassim, "Comparison of Convenience Sampling and Purposive Sampling," *Am. J. Theor. Appl. Stat.*, vol. 5, no. 1, pp. 1-4, 2016, <https://doi.org/10.11648/j.ajtas.20160501.11>.
- [19] M. B. Miles, A. M. Huberman, and J. Saldaña, *Qualitative Data Analysis: A Methods Sourcebook*. Sage Publications, 2013, <https://www.metodos.work/wp-content/uploads/2024/01/Qualitative-Data-Analysis.pdf>
- [20] Y. S. Lincoln, E. G. Guba, and J. J. Pilotta, "Naturalistic inquiry," *Int. J. Intercult. Relat.*, vol. 9, no. 4, pp. 438–439, 1985, [https://doi.org/10.1016/0147-1767\(85\)90062-8](https://doi.org/10.1016/0147-1767(85)90062-8).
- [21] A. Sami, I. Uddin, N. Khan, M. Bilal, M. Shahid, and I. Ali, "Getting to Know ChatGPT: An Introduction to Implementation and Working.," in *Proc. 1st Int. Conf. Computing Technol., Tools and Applications (ICTAP-23)*, Peshawar, Pakistan, May 9–11, 2023, https://www.researchgate.net/publication/372890276_Getting_to_Know_ChatGPT_An_Introduction_to_Implementation_and_Working.