

ADVANTAGES AND DISADVANTAGES OF CHAT GPT, DEEPSEEK AND GEMINI IN STUDYING HISTORY

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Annotation: *This article analyzes the advantages and disadvantages of using AI tools such as ChatGPT, DeepSeek, and Gemini in historical studies. It highlights their role in enhancing student engagement, data analysis, and personalized learning. At the same time, it examines key challenges including data privacy, inaccuracies in AI-generated content, and risks to academic integrity. A balanced use of AI is emphasized.*

Key words: *artificial intelligence, history education, ChatGPT, DeepSeek, Gemini, academic integrity, data privacy*

ChatGPT, developed by OpenAI, is a high-performance artificial intelligence language model known for its advanced natural language processing capabilities. It engages its entire network for each query, which allows for contextual adaptability and coherence across various tasks, making it particularly effective in domains requiring rich conversational responses, such as creative writing, education, and interdisciplinary research. This versatility has made ChatGPT a valuable tool for students and researchers, as it can provide both general and specialized information in an accessible manner.

ChatGPT can significantly enhance the study of history through several key functionalities. Firstly, it serves as an effective writing companion, helping users generate text and ideas for research papers, essays, and presentations [9]. Additionally, its ability to analyze and interpret large datasets enables students to uncover insights that can enrich their understanding of historical trends and contexts. For example, it can assist in automating the data cleaning process and suggest visualizations that effectively communicate findings [10].

Moreover, the introduction of features such as ChatGPT Vision allows users to analyze historical images, which can be particularly beneficial for generating descriptions





suitable for alt tags or contextual analysis. This capability is especially useful for those using assistive technologies and enhances accessibility in historical research. Despite its advantages, the integration of ChatGPT into educational settings, especially in history, raises ethical concerns. The reliance on AI-generated text may inadvertently promote academic dishonesty if students use the model to produce assignments without critical engagement [2]. Furthermore, issues regarding the accuracy of information generated by ChatGPT necessitate careful verification, as it is prone to producing incorrect references and speculative content. These concerns highlight the importance of combining AI tools with strong educational practices that emphasize academic integrity and critical thinking.

DeepSeek is a Chinese AI startup founded in May 2023 by Liang Wenfeng, emerging from Hangzhou, China. The company focuses on developing large language models (LLMs) capable of executing complex reasoning tasks, reportedly outperforming competitors like OpenAI's models while maintaining cost-effectiveness. As a full competitor in the AI landscape, DeepSeek has attracted considerable attention, leading to millions of users attempting to access its services. However, it faced temporary halts in new user registrations due to cyberattacks and capacity constraints [11].

DeepSeek's strengths lie in its cutting-edge technology and comprehensive data utilization. The company boasts over 200 top-tier researchers and thousands of GPUs, enabling it to train models that are competitive with those from leading AI labs. Its flagship DeepSeek-R1 reasoning model has gained recognition for its performance and efficiency, placing it alongside major players in the industry [12]. Furthermore, DeepSeek's commitment to openness, including sharing code and methodologies, reflects a significant cultural shift in the tech community aimed at making AI tools more accessible and affordable.

Despite its advancements, DeepSeek grapples with significant challenges, particularly concerning data privacy and security. The company collects extensive personal data points from users, including profile information, technical details, and usage data, raising concerns about data sharing with third parties and the potential for misuse [4]. Additionally, vulnerabilities were identified, such as a publicly accessible database that exposed sensitive data, including chat history and operational details, which may undermine user trust and raise security concerns.

The potential applications of DeepSeek in education are notable, although they must be approached with caution due to the outlined privacy issues. The platform can serve as a tool for summarization and explanation of complex academic topics, enhancing students' understanding of materials [7]. However, users should remain vigilant about the privacy policies governing the use of DeepSeek, especially given its data collection practices and the possibility of data being stored in jurisdictions with varying protection laws.





Google's Gemini represents a significant advancement in the realm of artificial intelligence, particularly in educational contexts. As a family of multimodal AI models, Gemini is designed to understand, combine, and generate text, images, audio, video, and code, which enhances its versatility compared to traditional text-based AI models [5]. This multimodal capability allows users to engage with complex and nuanced information more effectively, making it particularly valuable for students studying history, where understanding various types of content is crucial [13].

One of Gemini's standout features is its ability to process multiple forms of media simultaneously. This means that students can explore historical events through a blend of text, images, and audio, enriching their learning experience. For instance, Gemini can provide personalized responses based on a user's search history, which can tailor historical content to align with individual learning preferences [14]. This level of customization transforms Gemini from a generic educational tool into a personal learning companion.

Gemini's seamless integration into various Google applications—such as Gmail, Docs, Slides, and Sheets—enhances its utility for students and educators alike. The AI's capabilities facilitate teaching, learning, and administrative tasks, making it a versatile tool for history education. Subscribers to the AI Premium Plan can expect even deeper integration, allowing for more streamlined workflows across different tasks [6].

Despite its advantages, Gemini is not without its challenges. The AI has faced scrutiny regarding accuracy, particularly in its representation of historical figures and events. For example, a controversy arose shortly after the launch of Gemini's AI image generator, which was criticized for sometimes misrepresenting diversity inappropriately. Such inaccuracies can lead to distortions in historical understanding, raising concerns about the reliability of AI-generated content in educational settings.

Moreover, users must be mindful of privacy issues and potential costs associated with accessing advanced features of Gemini. As the AI continues to evolve, it will be essential to address these concerns to maximize its effectiveness as an educational tool. The integration of AI technologies such as ChatGPT, DeepSeek, and Gemini in studying history presents a range of advantages and disadvantages. Each tool employs different methodologies and functionalities, which can significantly influence the learning experience.

ChatGPT offers a conversational interface that can assist students in understanding historical concepts and events. Its ability to engage in dialogue allows for clarification of misunderstandings, providing an interactive learning experience. However, ChatGPT has shown limitations in managing errors and communicating its boundaries, which can lead to user frustration when interactions break down. Furthermore, the reliance on this tool may inhibit the development of critical thinking skills, as students might lean too heavily on AI-generated responses instead of engaging deeply with primary and secondary sources [15].





DeepSeek's advanced data analysis capabilities allow for in-depth exploration of historical trends and patterns. It facilitates the comparison of various historical documents and events, thereby aiding in the identification of relationships and underlying principles [17]. This multi-step analytical approach enhances a student's ability to synthesize information from diverse sources. However, the technical complexity involved in using DeepSeek may pose challenges for some learners, potentially creating barriers to effective engagement with historical content [18].

Gemini aims to transition AI from simple question-answering to a more agentic role, functioning as a collaborative partner in research tasks [16]. This can significantly enrich students' understanding by encouraging iterative planning and critical inquiry. However, the effectiveness of Gemini in a historical context depends on the user's ability to effectively navigate its features and leverage its capabilities. For students unaccustomed to such tools, this might lead to confusion and hinder their learning process [19].

While AI tools like ChatGPT, DeepSeek, and Gemini have the potential to enhance historical studies through interactive dialogue, data analysis, and collaborative research, they also present challenges that educators and students must navigate. A balanced approach that incorporates traditional methods of historical inquiry alongside AI tools may prove most effective in fostering a comprehensive understanding of history. This dual approach allows for the benefits of technological advancements while ensuring that critical thinking and engagement with historical evidence remain central to the learning experience.

Students using AI tools like ChatGPT often report heightened engagement in their historical studies. By utilizing ChatGPT to develop their understanding of historical concepts, students engage in interactive problem-solving that enhances their learning experience. This is particularly evident in coding tasks, where students leverage the assistant to write and debug code, thus actively participating in their learning process rather than passively consuming information. Such interactions foster a deeper understanding of historical facts, events, and connections, allowing for individualized comprehension and critical thinking.

AI tools also provide opportunities for collaborative learning among students. In classroom settings, students can work in groups to create new historical narratives or engage in historical games, facilitating a deeper exploration of historical knowledge and skills. This approach not only mitigates concerns about unoriginal work but also encourages students to construct new knowledge collectively. Such collaborative environments promote not only the development of historical competencies but also the ability to think critically about the past.





Despite the benefits, students face challenges when interacting with AI tools. Inconsistencies in AI responses can lead to confusion and disengagement. However, students who persist through these challenges by seeking clarification or re-engaging with the tool demonstrate resilience and improved problem-solving confidence. Such experiences highlight the importance of understanding AI as a conversational partner, with the capability to issue apologies and manage misunderstandings effectively. This aspect of interaction can significantly influence a student's likelihood of returning to the tool for further academic assistance.

Students increasingly view AI tools like ChatGPT as valuable academic partners rather than mere sources of information. This shift in perception is largely attributed to the tools' capabilities in supporting higher-order cognitive tasks and enhancing learning through active engagement. Students report that using AI for tasks such as theory application or writing improvement contributes positively to their academic performance, reinforcing the idea that these tools can facilitate meaningful learning experiences in the study of history [20]. Despite the potential benefits of utilizing generative AI tools like ChatGPT, DeepSeek, and Gemini in studying history, several common challenges and misconceptions persist.

One significant concern is the misuse of these AI tools, which can lead to plagiarism, deception, and a lack of accountability among students. The excessive reliance on AI for academic tasks can discourage independent thinking, problem-solving, and research skills, as students may prioritize convenience over critical engagement with the material. This overdependence can result in superficial learning experiences, where students fail to deeply engage with historical content.

Another major challenge is the risk of inaccuracies in AI-generated content, which can stem from outdated or low-quality training data. Such inaccuracies can lead to factual errors and a poor logical flow in responses, undermining the reliability of the information provided by these tools. Additionally, biases inherent in AI algorithms may produce domestic-centric outputs, raising concerns over historical inaccuracies and the misrepresentation of diverse perspectives.

The use of generative AI raises questions about the broader implications for education. Critics argue that these technologies might prepare future generations to follow predefined answers rather than fostering adaptability and critical thinking skills needed for navigating unknown challenges [8]. In social sciences, while students appreciate the adaptability of AI in exploring complex questions, reliance on AI tools may prevent them from developing essential information literacy skills necessary for evaluating sources and differentiating between credible and unreliable information.





The ethical implications of AI use in historical studies also merit attention. The Google Gemini incident serves as a cautionary tale regarding the importance of historical accuracy and cultural representation in AI-generated content. It underscores the need for ethical frameworks and accountability in AI development, emphasizing that advancements in technology should not come at the cost of integrity and respect for human history.

As the educational landscape evolves with the advent of AI technologies like ChatGPT, DeepSeek, and Gemini, educators must adapt their teaching strategies to effectively incorporate these tools into their curricula. This involves moving beyond traditional assessment methods and embracing a diverse range of evaluations that foster critical thinking and creativity among students. Presentations, projects, and project-based learning are increasingly favored over conventional essays, aligning with the skills that educators seek to instill in learners for the 21st century. To maximize the benefits of AI in education, teachers need to enhance their own competencies in using these technologies. Professional development programs should focus on key areas such as prompt engineering, understanding bias in AI outputs, and practical applications of AI tools in the classroom. Ongoing support through help desks, professional learning communities, and feedback mechanisms can enable educators to share best practices and discover innovative ways to leverage AI in lesson planning and student assessment.

AI technologies offer the potential for personalized learning experiences tailored to individual student needs. For instance, AI-powered platforms can adapt educational content based on a student's knowledge level and learning style, providing real-time feedback that enhances the learning process. This immediate correction allows students to recognize and address their weaknesses promptly, promoting a more efficient learning environment. However, it is essential that the role of teachers as mentors and guides remains central to the learning experience, emphasizing the importance of teacher-student relationships in fostering academic and social-emotional growth.

Educators must also prioritize AI literacy, equipping students with the knowledge to navigate the complexities of AI technologies responsibly. This includes teaching students about the potential for misuse and the ethical implications of AI, encouraging discussions on topics such as academic honesty and the importance of originality in student work. By engaging students in critical conversations about AI, educators can help them understand the technology's capabilities while developing their own skills as thoughtful creators and thinkers.

As AI technologies continue to evolve, educational institutions must remain agile, regularly updating strategies and curricula to reflect new developments. This adaptability requires a commitment to continuous professional development for educators, as well as a willingness to embrace new methodologies that support effective teaching and learning in





an AI-enhanced environment. By fostering an atmosphere of innovation and critical engagement, educators can harness the power of AI to enrich student learning experiences while addressing the challenges it presents.

Conclusion: The advantages and disadvantages of using artificial intelligence tools such as ChatGPT, DeepSeek, and Gemini in studying history reflect a complex balance between educational innovation and ethical responsibility. ChatGPT, developed by OpenAI, is widely recognized for its advanced natural language processing capabilities, which support interactive learning and historical research. It enables students to generate written content, analyze historical datasets, and enhance engagement. However, concerns regarding the accuracy of its outputs and the risk of academic dishonesty highlight the importance of careful verification and responsible use.

DeepSeek, a newer entrant in the AI landscape originating from China, emphasizes complex reasoning and data analysis. Its advanced capabilities allow for in-depth exploration of historical trends and patterns. At the same time, the platform faces serious challenges related to data privacy and security, raising ethical concerns about its data collection practices and the protection of user rights [3]. This dual nature continues to fuel debate over the balance between technological advancement and ethical responsibility.

Gemini, Google's multimodal AI model, further enriches the study of history by integrating text, images, and audio to provide a more comprehensive learning experience. Its ability to personalize learning is a significant advantage; however, concerns have been raised regarding inaccuracies in the representation of historical events. These issues highlight questions of reliability and emphasize the need for strict evaluation of AI-generated content to prevent distortions in historical understanding.

Overall, while AI tools such as ChatGPT, DeepSeek, and Gemini offer valuable opportunities to enhance historical studies through interactivity, personalization, and data analysis, they also introduce serious challenges related to ethics, privacy, and academic integrity. Addressing these challenges requires a balanced and responsible approach that combines the strengths of artificial intelligence with traditional educational practices. Such an approach ensures that students remain actively engaged, critically reflective, and ethically aware throughout their learning process.

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