Enhancing Historical Understanding, Gender Perspectives, and Critical Thinking

Integrating AI-Powered Tools in University-Level British History Education

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DOI: https://doi.org/10.53349/re-source.2025.is1.a1391

Abstract

This study examines the integration of AI-powered tools in university-level British history education, focusing on critical thinking, historical interpretation, and student engagement. First-year students at the Department of British and American Studies at the University of Ss. Cyril and Methodius in Trnava used ChatGPT, Perplexity, and HeyGen to analyse historical figures and create AI-generated presentations. Through a seminar-based workshop, students evaluated AI-generated content, verified historical accuracy, and developed digital storytelling skills.

A qualitative research approach was used, with observation sheets assessing engagement, research validation, collaboration, and argument construction. Findings show that AI tools enhanced participation and creativity but also revealed challenges in source validation and critical analysis. The study underscores the need for AI literacy training and structured reflection to ensure AI complements rather than replaces historical inquiry.

Keywords: Artificial Intelligence in Education, History Education, Critical Thinking Skills, Personalized Learning

1 Introduction

The integration of artificial intelligence (AI) in education is transforming how historical narratives are taught, offering new ways to enhance critical thinking and gender perspectives. In Slovakia, the Ministry of Investments, Regional Development, and Informatization (MIRRI) collaborates with the Ministry of Education to introduce AI in schools and universities. MIRRI's recommendations focus on updating curricula to include algorithmic thinking and AI-related subjects to equip students with digital skills (MIRRI, 2019; AI Watch, 2024). Additionally, an

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expert group is working to align AI applications in education with public and private sector needs. To support AI literacy, introductory AI courses for educators and public employees aim to build a foundational understanding of AI concepts (AI Watch, 2024).

At the European level, the EU promotes the responsible use of AI in education through ethical guidelines and regulatory frameworks. The European Commission's *Ethical Guidelines on the Use of AI and Data in Teaching and Learning for Educators* provide recommendations for teachers integrating AI into their pedagogy (European Commission, 2023). The proposed *Artificial Intelligence Act* classifies AI systems used in education as high-risk, requiring transparency and accountability to ensure fair student evaluation and academic access (All Digital, 2024). These efforts reflect the EU's broader commitment to fostering digital education while safeguarding ethical principles.

This study examines how AI-powered tools enhance historical understanding, gender perspectives, and critical thinking in university-level British history education. AI-driven interactive features, such as talking avatars and AI-generated historical narratives, create immersive learning experiences that challenge traditional interpretations. Given Slovakia's and the EU's growing emphasis on AI in education, this research provides insights into how AI tools can improve learning outcomes and promote a more inclusive approach to historical studies.

2 Theoretical background

2.1 Artificial Intelligence in Education

The use of artificial intelligence (AI) in education has become a widely discussed topic among researchers, with many studies examining its benefits, challenges, and ethical implications. AI-powered applications, such as ChatGPT or Perplexity, have been shown to enhance critical thinking by providing personalized explanations and fostering diverse perspectives (Alderson, 2000; Stranský, 2023). Research emphasizes that these tools can support students in analysing texts, addressing gender biases, and engaging with historical narratives in new ways (Zaghlool – Khasawneh, 2023; Hassan, 2024). However, their effectiveness depends on educators guiding students in critically evaluating AI-generated content and mitigating potential biases embedded within these systems (Gerlich, 2025; UNESCO, 2025). As AI continues to shape higher education, it is essential to balance its advantages with ethical considerations and pedagogical oversight to ensure responsible and meaningful integration in university curricula (Ngo & Hastie, 2024; Papadopoulos, 2024; Pondelíková & Luprichová, 2024).

A recent study by Ullah et al. (2024) analysed publicly available guidelines on the use of Generative Artificial Intelligence (GenAI) tools in universities worldwide. The research examined policies from the world's top 50 universities, revealing that while 41 institutions provided GenAI guidelines, many lacked detailed instructions on algorithm transparency, AI-generated content documentation, and reporting mechanisms for misconduct. The study highlights the need for comprehensive and regularly updated guidelines, AI literacy training for both students and faculty, and clearer institutional policies on ethical AI use.

A similar discussion has emerged in Slovakia, where Pakšiová, Brauner, and Semerád (2023) investigated AI's impact on university education. Their study emphasizes that AI tools, particularly ChatGPT, can enhance personalized learning and real-time feedback. However, concerns arise regarding misinformation, reduced critical thinking, and the absence of clear institutional policies. The authors stress the importance of AI literacy training to help students critically evaluate AI-generated content, aligning with global recommendations for structured AI guidelines in higher education.

Pondelíková's (2025) research on AI integration in British and American Studies at Slovak universities highlights both the benefits and challenges of AI in humanities education. While students readily adopt AI for learning and research, many educators express concerns about academic integrity, plagiarism, and the lack of clear guidelines. The study reveals a gap in AI literacy between students and teachers, emphasizing the need for structured AI training to ensure responsible and effective use. This is particularly relevant for history education, where critically evaluating AI-generated content is essential to avoid misinformation and biases. Pondelíková also advocates for universities to invest in digital infrastructure and establish transparent policies on AI usage. Her findings reinforce the importance of ethical AI adoption in education, ensuring that both students and educators are prepared for its evolving role in academia.

2.2 Critical Thinking Skills in Higher Education

The integration of artificial intelligence (AI) into education has transformed pedagogical approaches, offering opportunities for personalized learning, adaptive assessments, and enhanced student engagement. Critical thinking is a cornerstone of university education, enabling students to evaluate evidence, challenge assumptions, and construct reasoned arguments. Research highlights the effectiveness of active learning strategies, such as problem-based learning and reflective journals, in cultivating these skills (Ding, 2024). However, studies reveal disparities in how critical thinking is taught across disciplines, with history education often prioritizing source analysis and historiographical debate (Mohamed Nor, 2021). The OECD notes that while universities emphasize critical thinking, assessment methods frequently fail to measure it meaningfully, urging institutions to adopt iterative feedback mechanisms (Van Damme & Zahner, 2022).

Balancing AI-driven automation with human intellectual rigor remains a challenge, as overreliance on AI tools risks stifling independent thought (Yin, 2024). AI-generated content can streamline research but lacks the contextual discernment required for historical interpretation (Jagadesh Kumar, 2023). Reports highlight AI's capacity to automate decision-making and detect patterns in educational data, enabling tailored instructional strategies while emphasizing governance to mitigate biases (U.S. Department of Education, 2023). Similarly, UNESCO (2021) underscores AI's potential to address disparities in education but cautions against excessive reliance, which may erode critical thinking and creativity. AI-driven tools also assist in automating administrative tasks, allowing educators to focus on curriculum design and interactive teaching, though ethical concerns such as data privacy and algorithmic transparency remain pressing issues (Yin, 2024).

While AI-driven tools like intelligent tutoring systems and virtual assistants have proven effective in improving learning outcomes in STEM education, their role in humanities disciplines, particularly history, remains underexplored (Ajayi & Yahya, 2024; Lee, 2023; Amdan, Mohammad & Janius, 2024). This gap suggests the need for further investigation into how AI can support historical analysis, critical inquiry, and engagement with diverse perspectives in history education. Understanding AI's potential in history classrooms requires addressing not only its capabilities in information synthesis but also its limitations in interpreting historical narratives, historiographical debates, and social contexts.

3 Research

3.1 Objective, Research Methodology, and Observation

The objective of this seminar lesson was to engage first-year university students from the Department of British and American Studies at the University of Ss. Cyril and Methodius in Trnava, Slovakia, in a revision-based, critical thinking activity related to significant historical figures from Great Britain and Ireland. The lesson aimed to develop students' ability to critically evaluate historical personalities, formulate reasoned arguments, and use AI-powered tools responsibly in historical research. Through collaborative group work, students applied their prior knowledge while enhancing their skills in source validation, digital literacy, and historical analysis. Additionally, the activity encouraged creativity and digital communication by integrating AI-driven talking avatars to present their perspectives.

The study was conducted as a seminar-based workshop for first-year university students enrolled in the *History and Culture of Great Britain and Ireland* course. The methodology integrated revision, collaborative learning, AI-enhanced research, and digital content creation, employing an interactive, project-based approach.

The session began with a brainstorming discussion, where students reflected on historical figures they considered significant and justified their choices in a class-wide discussion. This phase encouraged critical thinking and engagement with historical impact. Following this, students were divided into mixed groups of four and introduced to their task. Each group selected a historical figure and took on the role of that character's descendant, presenting as YouTubers or influencers advocating for or criticizing the figure's actions.

In the research phase, students worked in pairs within their groups. One pair gathered additional information using AI tools such as ChatGPT, Perplexity, or SciSpace, while the other verified the accuracy of AI-generated content through academic sources like Google Scholar, ResearchGate, or Academia.edu. Since these platforms had already been introduced in a previous lesson, students were familiar with their functionalities and had prior experience using them for academic research. This prior exposure enabled them to navigate the tools more efficiently, critically assess the reliability of AI-generated content, and cross-reference findings with credible academic sources. After synthesizing their findings, groups collaboratively prepared a structured, evidence-based script that formed the foundation of their presentation. Once the research was completed, students moved on to creating AI-generated talking avatars using the tool HeyGen. They selected avatars that best fit their historical figure and generated a short video in which the AI avatar presented their argument.

This digital content served as a visual and auditory representation of their research and analysis.
The final phase consisted of group presentations and peer discussion. Each group introduced their video, explained their reasoning, and provided supporting arguments. The class then engaged in a structured discussion, evaluating whether the arguments were well-reasoned, historically accurate, and aligned with the research findings.
Throughout the entire process, the instructor observed students' engagement, collaboration, research quality, and AI tool usage using a prepared observation sheet. This allowed for a structured assessment of how students interacted with AI tools, analysed historical content, and developed critical thinking skills.

The study employed a qualitative methodology, focusing on student engagement, critical thinking, and digital literacy in the context of history education. This approach was chosen because it allowed for an in-depth exploration of students' interactions with AI tools, their ability to evaluate historical narratives, and their engagement in collaborative learning. Qualitative research is particularly valuable in educational settings, as it provides insights into how learners construct knowledge and develop reasoning skills through discussion, inquiry, and reflection (Merriam & Tisdell, 2016).
Observation was the primary method of data collection, enabling the instructor to assess how students applied AI-generated content, verified historical facts, and structured their arguments. Classroom observations allow researchers to capture authentic interactions, thought processes, and learning behaviours, offering a richer understanding of educational experiences than numerical data alone (Patton, 2015). Since the activity required students to critically assess historical figures and present their findings in a digital format, qualitative research was the most suitable method for analysing how they engaged with information, navigated AI tools, and collaborated to produce meaningful content.
The use of observation sheets provided a structured means of collecting qualitative data while maintaining flexibility in evaluating different aspects of student performance. Qualitative inquiry is essential when studying student perceptions, cognitive engagement, and problem-solving strategies, as it allows for a deeper interpretation of their reasoning and decision-making (Creswell & Poth, 2018). Unlike quantitative research, which relies on predefined variables and statistical analysis, this study aimed to capture students' thought processes, creativity, and engagement in real-time, making qualitative observation the most appropriate method.
The research also aligns with constructivist learning theories, emphasizing that students actively build their understanding through inquiry and collaboration (Vygotsky, 1978). By integrating AI tools into the seminar, students were encouraged to question, verify, and reconstruct historical knowledge, demonstrating the critical thinking skills essential for historical inquiry. The study not only examined how students interacted with AI but also explored how digital tools influence the construction of historical narratives and critical engagement with historical figures.
To guide the study, the following research questions were formulated:

1. How do university students critically engage with AI-generated historical content in the learning process?
2. How does the use of AI-powered avatars influence students' engagement and ability to construct historical arguments?

3. What impact does AI-enhanced learning have on students' critical thinking skills in history education?

During the lesson, the observation focused on **student engagement, critical thinking, research validation, collaboration, creativity, and digital literacy**. Engagement was assessed through participation in discussions and group tasks, noting whether students were highly, moderately, or minimally involved. **Critical thinking skills** were evaluated based on students' ability to question AI-generated content, compare sources, and develop reasoned arguments. Attention was given to **research and source validation**, ensuring students cross-checked AI-generated content with academic sources. **Collaboration and group work** were observed to determine how effectively students distributed tasks and worked as a team. Creativity was assessed through the **quality of AI-generated avatars and the coherence of their scripts**, while the **accuracy of historical content** was measured by alignment with factual evidence. **Clarity of justifications** was noted based on how well students structured their arguments. Their **AI literacy and digital skills** were evaluated through their ability to navigate AI tools and critically assess the credibility of AI-generated information. Finally, **class discussion participation** was observed, particularly in how students engaged with peer feedback and reflected on the learning process.

3.2 Research Sample

The research sample consisted of first-year university students from the Department of British and American Studies at the University of Ss. Cyril and Methodius in Trnava, Slovakia. The participants were enrolled in two study programs: English Language in Specialized Communication and Pre-service Teacher Training for English Language. A total of 71 students (51 female, 20 male) were from the English Language in Specialized Communication program, while 7 students (6 female, 1 male) were pre-service teachers preparing for their future roles as English language educators.

The 71 students participated in three seminar groups, each consisting of approximately 23 students, who then self-divided into working groups of around four students per group. The pre-service teacher group attended a separate seminar session, where the seven students were divided into two working groups. The organization of seminar groups allowed for collaborative learning, interactive engagement, and effective implementation of the AI-driven activities.

The careful consideration of workshop size, participant age, and group structure was crucial for ensuring the quality of delivery and active engagement in the seminar. By incorporating interactive elements, peer collaboration, and digital tools, the workshop aimed to maximize student participation and enhance learning outcomes. The structured yet flexible format of the working groups facilitated in-depth discussion, research validation, and digital content creation, ensuring that students effectively engaged with both historical content and AI-driven methodologies.

4 Analysis of the Observation Sheets

The observation sheets provided insights into how students engaged with AI tools, approached historical inquiry, collaborated in groups, and developed their critical thinking skills. The seminar workshop aimed to assess how students interacted with AI-generated content, verified historical accuracy, and presented arguments through digital storytelling. The observations revealed both strengths and areas that required further development in integrating AI tools into history education.

Student Engagement and Collaboration

Students displayed varying levels of engagement throughout the activity. Many actively participated in brainstorming discussions, demonstrating enthusiasm when selecting historical figures such as Boudicca, Oliver Cromwell, Elizabeth I, Mary I, Henry VII, Henry VIII, and Queen Victoria. The role-playing element, where students assumed the persona of an influencer or descendant, encouraged some groups to explore their historical characters in greater depth. In some cases, students took leadership roles within their groups, facilitating discussions and guiding research. However, differences in participation were noted, as some students took a more passive role during research or content creation, relying more on their peers. This variation suggests that while collaborative learning was generally effective, task distribution within groups could be improved to ensure equal participation.

Critical Thinking and Research Validation

The research phase provided an opportunity for students to engage with AI-generated content and verify it using academic sources. Some groups demonstrated a strong ability to cross-check AI outputs against scholarly literature, carefully examining whether AI-generated information aligned with established historical sources. Others, however, relied more on AI-generated responses without deeper verification, which occasionally resulted in oversimplified interpretations or historical inaccuracies. The double-checking process using platforms like Google Scholar, ResearchGate, and Academia.edu helped refine students' understanding, but not all groups approached this step with the same level of rigor. The observations suggest that students benefited from AI as a research tool, but additional emphasis on source validation and bias detection would enhance their ability to critically assess AI-generated historical content.

Argument Construction and Justification

The level of historical argumentation varied among groups. Some groups provided well-reasoned, nuanced arguments, particularly when discussing controversial figures like Oliver Cromwell or Henry VIII, where students engaged in more complex discussions about historical impact. Others focused more on a straightforward narrative approach, presenting key facts without fully developing an argumentative stance. During the peer discussion phase, students had the opportunity to question and refine their arguments, which helped strengthen their reasoning in some cases. However, some groups struggled to justify their claims with clear historical evidence, suggesting a need for more structured guidance in constructing well-supported historical arguments.

AI Literacy and Digital Skills

Students demonstrated a range of abilities in navigating AI tools for research and digital content creation. Most were able to use AI-generated content to support their historical research, but their awareness of AI limitations and biases varied. The use of HeyGen for creating AI-driven avatars was generally effective, with students selecting appropriate avatars and synthesizing their research into engaging digital presentations. Some groups prioritized the technical execution of their video over the depth of historical argumentation, indicating a

tendency to focus more on presentation quality rather than content accuracy. These observations suggest that while AI tools can enhance engagement and creativity, they should complement—not replace—historical analysis and argument development.

Class Discussion and Reflection

The post-presentation discussion provided valuable opportunities for peer evaluation and reflection. Some students actively engaged in debating the validity of arguments and assessing how well each group justified their historical stance. In cases where groups struggled to provide clear justifications, their peers often pointed out inconsistencies or gaps in reasoning, leading to further refinement of ideas. While many students participated in these discussions, some remained less engaged in the reflective process, suggesting that more structured prompts for discussion could encourage wider participation.

4.1 Key Findings and Recommendations

The observation sheets highlighted how AI tools supported engagement, creativity, and historical inquiry, but also underscored the need for more rigorous source validation and critical questioning of AI-generated content. Students were able to integrate AI-driven research into their presentations, yet some demonstrated a tendency to accept AI outputs uncritically. Encouraging a stronger emphasis on fact-checking, argument depth, and engagement in peer discussion would enhance the effectiveness of AI-enhanced history education. Future workshops could benefit from more structured guidance on AI bias detection, additional peer feedback opportunities, and explicit questioning techniques to ensure deeper analytical engagement with historical sources.

5 Conclusion

The integration of AI-powered tools in university-level British history education presents both opportunities and challenges. The seminar-based workshop demonstrated that AI tools, particularly AI-generated avatars and conversational AI, can enhance student engagement, historical inquiry, and digital literacy. Students actively participated in discussions, constructed arguments, and explored multiple perspectives on historical figures. The role-playing task, where students assumed the personas of descendants and influencers, encouraged critical thinking and creative engagement with historical narratives. However, the observation sheets revealed variability in how students verified AI-generated content and structured their arguments, highlighting the need for stronger research validation skills.

While AI tools provided efficient access to historical information, some students over-relied on AI-generated content without critically questioning its accuracy. The structured peer discussion and feedback process helped refine historical justifications and deepen analytical engagement, but differences in participation suggested that more structured reflection prompts could encourage wider engagement. The study underscores the importance of guiding students in AI literacy, source evaluation, and ethical AI use, ensuring that technology enhances rather than replaces historical analysis.

This research highlights AI's potential to personalize learning experiences and foster deeper critical engagement with historical narratives, aligning with broader discussions on AI's role in education. However, effective integration requires ongoing refinement of AI literacy training, increased emphasis on argument construction, and structured feedback mechanisms. Future research should explore how AI-driven learning environments can further develop students' analytical reasoning, digital competencies, and historical interpretation skills in university education.

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ACKNOWLEDGEMENT

This paper was created within the project KEGA No. 012UCM-4/2024Women in science and technology – raising the awareness of male and female students in the field of gender equality.