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Artificial Intelligence in School Social Studies Education: A Systematic Literature Review of Pedagogical Applications, Learning Outcomes, and Educational Challenges

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Abstract

This study aims to examine the trends, pedagogical applications, learning outcomes, and challenges associated with artificial intelligence (AI) integration in primary and secondary school Social Studies education. A systematic literature review (SLR) was conducted using the Scopus database and guided by the PRISMA 2020 framework. The search identified 161 records, which were progressively refined through publication-year, subject-category, and language filters, resulting in 63 records for screening. Following title and abstract screening, 28 publications underwent full-text assessment, and 25 studies were included in the final synthesis. The findings reveal that AI integration has expanded across history, geography, and civic education, particularly through interactive learning, historical simulations, primary-source analysis, generative content creation, differentiated instruction, and civic problem-solving. AI-supported learning demonstrates potential to facilitate critical thinking, historical empathy, geographical reasoning, critical social inquiry, and civic and ethical understanding. However, these contributions depend on appropriate pedagogical design, teacher guidance, and critical verification of AI-generated information. Four interconnected challenges were identified: pedagogical readiness, epistemological reliability and algorithmic bias, technological accessibility, and ethical concerns involving privacy and academic integrity. The originality of this study lies in integrating pedagogical applications, disciplinary learning outcomes, and implementation

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challenges within a unified analytical framework, while distinguishing between *teaching with AI* and *teaching about AI*. This review contributes a conceptual perspective that positions AI as a pedagogically mediated epistemic tool and provides evidence-informed directions for instructional design, teacher professional development, responsible AI integration, and future research in school Social Studies education.

Keyword: Artificial Intelligence; Social Studies Education; Pedagogical Practices; Learning Outcomes; Educational Challenges.

INTRODUCTION

Artificial intelligence (AI) is increasingly reshaping educational practices by introducing new possibilities for information processing, personalized instruction, interactive learning, and educational assessment. The rapid development of generative AI, particularly large language models (LLMs), has further accelerated this transformation by enabling students and teachers to interact with AI systems through natural language, generate instructional materials, explore complex concepts, and obtain immediate feedback (Moallem et al., 2026). These developments have significant implications for school education, where AI is no longer merely a technological resource but is also becoming an object of learning and critical examination (Kamalov et al., 2023; Williamson & Eynon, 2020). Consequently, educational institutions face the challenge of integrating AI in ways that enhance learning while maintaining pedagogical integrity, epistemic responsibility, and equitable access (Caruana et al., 2026; Jaldemark et al., 2025; Khan et al., 2025).

Within this broader transformation, Social Studies education represents a particularly relevant context for AI integration. Encompassing areas such as history, geography, and civic education, Social Studies aims to develop students' understanding of society, historical processes, spatial relationships, citizenship, and contemporary social issues (Berson & Berson, 2024; Yetisensoy & Rapoport, 2023). Its educational objectives extend beyond factual knowledge to include critical inquiry, evidence evaluation, perspective-taking, ethical reasoning, and informed civic participation (Garwood et al., 2021; Thornton, 2022). AI technologies may support these objectives by facilitating historical simulations, geographical exploration, dialogue with virtual characters, analysis of social data, and inquiry into complex societal problems. However, their use also raises important questions concerning information accuracy, algorithmic bias, students'

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intellectual autonomy, and the development of disciplinary understanding (Adams et al., 2026; Garwood et al., 2021).

Recent research indicates that AI integration in school Social Studies is developing across several pedagogical applications. In history education, LLM-based simulations and conversational historical personas have been explored to provide students with opportunities for historical inquiry, dialogue, and perspective-taking (Kim et al., 2025; Park et al., 2025). Generative AI has also been applied to arts-based history learning, differentiated instructional content generation, and the comparison of AI-generated and student-written historical narratives (Ao et al., 2026; Chen et al., 2025; Kindenberg, 2024). In geography education, conversational AI has been investigated as a means of supporting environmental awareness and geographical thinking, while other studies have considered its potential for content creation, visualization, and personalized learning (Bueno-Picazo & Tirado-Olivares, 2026; Liu et al., 2025) These developments suggest a shift from conventional technology-assisted instruction toward more interactive, adaptive, and generative learning environments.

AI applications are also expanding into civic education and broader social inquiry. Studies have examined machine learning as a subject for critical reflection on democratic processes and societal implications (Kaspersen et al., 2022), AI-assisted inquiry into historical redlining and structural inequality (Nocera et al., 2024), and AI-supported problem-based learning for conflict resolution in primary civic education (Nadziroh et al., 2025). Other research has investigated AI-supported assessment, including natural language understanding systems for formative assessment and ChatGPT-supported summative assessment in Social Studies (Nantaburom, 2026; Yetisensoy, 2026). The emergence of these applications demonstrates that AI integration is not confined to one disciplinary area or instructional function. Rather, it encompasses teaching resources, learning interactions, assessment systems, and critical engagement with AI itself.

Although the literature demonstrates promising developments, existing studies differ considerably in their pedagogical approaches, research designs, educational levels, and reported outcomes. Empirical studies have identified positive contributions to student engagement, historical knowledge, critical inquiry, and learning experiences. For example, Chen et al., (2025) reported improvements in historical knowledge and motivation, alongside reduced cognitive load, through generative AI-powered arts-based learning. Similarly, a quasi-experimental study of teacher-guided ChatGPT-supported Social Studies instruction found a statistically significant difference in students' critical-thinking disposition (Demirtaş, 2026). In disaster education, AI-

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assisted chatbots improved students' disaster knowledge, although their effects on disaster awareness were not statistically significant (Yetisensoy, 2026). These findings suggest that AI-supported learning may contribute to particular cognitive and affective outcomes, but its effectiveness should not be assumed to be uniform across learning objectives or instructional contexts.

Other studies emphasize disciplinary thinking and the development of students' critical understanding of AI. McClure et al. (2024) demonstrated how primary historical sources and machine learning activities could help high school students examine data bias and its societal implications. Likewise, Kaspersen et al. (2022) explored how students could critically reflect on machine learning in the context of democratic elections. In multilingual Social Studies classrooms, AI chatbots have been used to support historical inquiry, including questioning, sourcing, contextualization, and evaluation of AI-generated information (Gomes et al., 2026). Nevertheless, research has also identified concerns involving factual inaccuracies, student dependence, ethical and privacy issues, prompt limitations, and teachers' need for appropriate guidance (Liu et al., 2025; Tan & Subramonyam, 2024). The diversity of these findings indicates that AI's educational value depends not only on technological capabilities but also on instructional design, teacher mediation, disciplinary objectives, and students' capacity to evaluate generated information.

Despite the growing number of studies, the evidence remains fragmented across history, geography, civic education, and other Social Studies-related contexts. Many investigations focus on a specific AI application, classroom intervention, or learning outcome, making it difficult to understand the broader patterns of AI integration across school Social Studies. Furthermore, studies vary in their conceptualization of AI: some treat it as a pedagogical tool that supports teaching and learning, whereas others position AI and machine learning as subjects through which students examine technological, ethical, and societal issues. These two orientations are related but represent distinct educational purposes that have not yet been sufficiently synthesized within a unified analytical framework. A further gap concerns the relationship between AI integration and the disciplinary aims of Social Studies. Although previous research reports outcomes such as engagement, knowledge acquisition, motivation, and critical thinking, evidence concerning historical thinking, geographical reasoning, social inquiry, and civic understanding remains distributed across different studies. In addition, the literature identifies pedagogical, epistemological, technological, and ethical concerns, but these challenges are often

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discussed within individual application contexts rather than examined comparatively. The available review literature also appears limited in its coverage of the broader school Social Studies landscape, including the diversity of AI applications, educational levels, learning outcomes, and implementation challenges. A systematic synthesis is therefore needed to clarify these relationships and identify areas requiring further investigation.

A systematic literature review (SLR) is necessary to consolidate the expanding but heterogeneous evidence on AI in school Social Studies education. Individual empirical studies provide valuable insights into particular technologies and classroom contexts; however, their findings alone cannot establish the overall development, distribution, and limitations of the research field. By systematically identifying, screening, and synthesizing relevant studies, this review can examine publication patterns, characterize pedagogical applications, compare reported learning outcomes, and identify recurring educational challenges. Such an approach also provides a transparent basis for distinguishing established findings from emerging possibilities and unresolved questions in AI-supported Social Studies education (Martin et al., 2024; Zafari et al., 2022). This review contributes an integrated synthesis of AI in school Social Studies education across history, geography, and civic education, with attention to both teaching with AI and teaching about AI. Rather than examining AI solely as an instructional tool, the review considers how AI also functions as a subject of critical inquiry into data, algorithms, bias, democracy, and societal change. It further connects pedagogical applications with disciplinary learning outcomes and the pedagogical, epistemological, technological, and ethical conditions that shape implementation. The resulting synthesis is expected to contribute a clearer conceptual understanding of the field, identify underexplored research areas, and provide evidence-informed implications for teachers, researchers, and educational policymakers. This systematic literature review aims to examine the development and integration of artificial intelligence in Social Studies education at the primary and secondary school levels. Specifically, it seeks to identify research trends, analyze pedagogical applications, synthesize reported contributions to students' disciplinary and higher-order learning, and examine the challenges influencing implementation. Accordingly, the review addresses the following research questions:

RQ1. What are the trends and patterns of AI integration in school Social Studies education?
RQ2. How is AI integrated into teaching and learning practices across history, geography, and civic education?

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RQ3. How does AI-supported learning contribute to students' critical social inquiry, disciplinary thinking, and higher-order cognitive skills?

RQ4. What pedagogical, epistemological, technological, and ethical challenges influence AI integration in school Social Studies education?

RESEARCH METHODS

1.1. Research Design

This study employed a Systematic Literature Review (SLR) to examine the development and integration of artificial intelligence (AI) in school Social Studies education. The review aimed to identify publication trends, examine pedagogical applications, synthesize reported learning outcomes, and explore the educational challenges associated with AI integration across history, geography, and civic education. The review process was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 framework to support transparent reporting of study identification, screening, eligibility assessment, and selection (Page et al., 2021). An SLR approach was considered appropriate because research on AI in Social Studies education is distributed across different disciplinary contexts, educational levels, technological applications, and research designs. By systematically identifying and synthesizing relevant publications, this study sought to provide an overview of the research landscape and a deeper understanding of how AI is incorporated into teaching and learning practices. The review considered both studies investigating AI as a pedagogical tool and studies examining AI or machine learning as a subject of critical learning, provided that they were relevant to school Social Studies education.

1.2. Database and Search Strategy

Scopus was selected as the primary bibliographic database because of its multidisciplinary coverage and the availability of structured bibliographic information, including publication titles, authors, abstracts, keywords, source titles, affiliations, and citation information. The search focused on publications addressing AI in Social Studies education at the primary and secondary school levels. The search strategy combined two groups of keywords: AI-related terms and Social Studies-related terms. The AI-related group included "artificial intelligence", "generative AI", "generative artificial intelligence", ChatGPT, and "AI chatbot*". The Social Studies-related group included "social studies", "social studies education", "social science education", "elementary

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social studies", "primary social studies", and "secondary social studies". These terms were combined using Boolean operators to identify publications addressing the intersection of AI and Social Studies education.

The Scopus search was conducted using the following query:

TITLE-ABS-KEY(("artificial intelligence" OR "generative AI" OR ChatGPT OR "AI chatbot" OR "generative artificial intelligence") AND ("social studies" OR "social studies education" OR "social science education" OR "elementary social studies" OR "primary social studies" OR "secondary social studies"))*

The search results were refined using publication-year, subject-category, and language filters. The intended publication period was 2020–2026, and English-language publications were selected. Relevant Scopus subject categories were also applied to maintain alignment with the scope of the review. Regarding document types, journal articles and conference papers were selected to capture both established research findings and emerging studies presented at academic conferences. No Open Access restriction was applied, allowing both open-access and subscription-based publications to be considered. The initial Scopus search identified 161 records. Following the application of publication-year, subject-category, and language filters, 63 records remained for screening. Title and abstract screening resulted in the exclusion of 35 records that did not meet the preliminary eligibility criteria. Subsequently, 28 reports were retrieved and assessed through full-text examination. Of these, three reports were excluded because they did not satisfy the established inclusion criteria. Consequently, 25 studies met all eligibility requirements and were included in the final systematic literature review.

1.3. Eligibility Criteria

Eligibility criteria were established to ensure that the selected publications were relevant to the research objectives. The review focused on AI in school Social Studies education, particularly in the contexts of history, geography, and civic education at the primary and secondary levels. Publications were considered eligible when they addressed AI applications or AI-related learning in these educational contexts. Relevant technologies included generative AI, large language models (LLMs), conversational chatbots, machine learning, natural language processing, and AI-supported assessment. Studies examining AI as a pedagogical tool and studies investigating AI or machine learning as a subject of critical learning were both considered relevant. Studies reporting pedagogical practices, student learning outcomes, disciplinary inquiry,

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critical thinking, or implementation challenges were also considered. Publications were excluded when they did not involve an identifiable AI component, addressed unrelated subject areas without a clear connection to Social Studies, or focused exclusively on higher education or teacher education without relevant school-level learning evidence. Studies discussing educational technology without demonstrating an AI-related application were also excluded. Publications outside the 2020–2026 publication period, publications not written in English, and document types other than journal articles and conference papers were not considered eligible.

1.4. Study Selection and Screening Process

The study selection process was structured according to the identification, screening, and eligibility stages of the PRISMA 2020 framework. The initial Scopus search identified 161 records. Following the application of the publication-year filter, 139 records remained. The subsequent subject-category filter reduced the number to 69 records, and the English-language filter resulted in 63 records. These 63 records were exported into a CSV file and used as the dataset for the preliminary screening process. The screening process involved examining publication titles and abstracts to assess their relevance to the review objectives and eligibility criteria. Each record was assessed according to three main considerations: its relevance to AI, its connection to Social Studies education, and its applicability to primary or secondary school contexts. Screening decisions were organized into three categories: Include, Maybe, and Exclude. The Include category comprised publications whose titles and abstracts indicated a clear relationship with the review scope. The Maybe category comprised publications for which the educational level, disciplinary relevance, or specific role of AI required further clarification. The Exclude category consisted of publications that clearly did not meet the established eligibility criteria.

Following the preliminary title-and-abstract screening, 28 publications were selected for further assessment. These publications addressed AI-related applications across history, geography, Social Studies, and civic education. The 25 publications were treated as a provisional selection pending full-text eligibility assessment. Publications that did not satisfy the eligibility criteria upon full-text examination were to be excluded, with the reasons for exclusion documented accordingly. The identification and selection process was documented using a PRISMA 2020 flow diagram. The diagram presents the number of records identified through database searching, the records remaining after the application of database filters, the screening outcomes, and the publications assessed for eligibility. The final number of studies included in

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the review was determined after full-text assessment. The PRISMA flow diagram is presented in Figure 1 in the Results section.

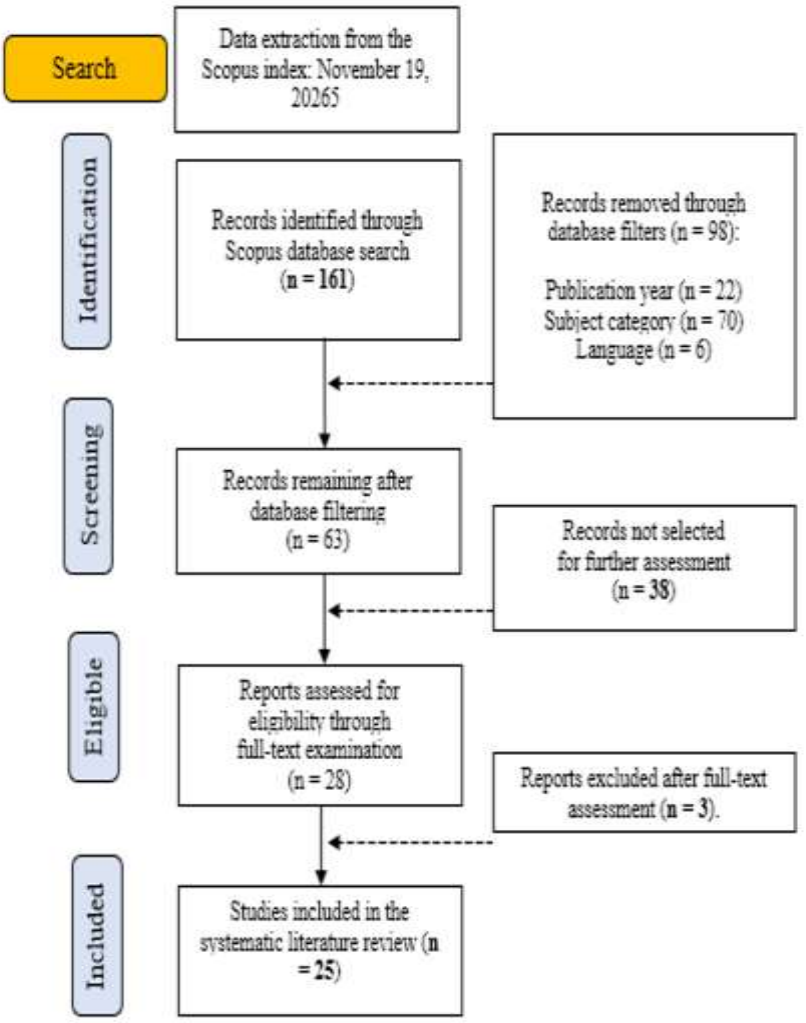

Figure 1. Systematic Literature Review information flow using PRISMA

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1.5. Data Extraction and Analytical Framework

Bibliographic and study-related information was extracted from the selected publications. The information included publication year, authors, publication source, country or geographical context where reported, educational level, Social Studies discipline, AI technology, research design, pedagogical application, reported learning outcomes, and implementation challenges. The extracted information was organized according to the four research questions. For RQ1, publication characteristics and research patterns were examined, including publication years, publication sources, authors, institutional affiliations, countries or territories, document types, and subject areas. For RQ2, the analysis focused on how AI was integrated into teaching and learning practices across history, geography, and civic education. For RQ3, the analysis examined reported contributions to students' critical social inquiry, disciplinary thinking, and higher-order cognitive skills. For RQ4, the identified challenges were organized into pedagogical, epistemological, technological, and ethical dimensions.

1.6. Data Synthesis and Bibliometric Analysis

This review combined descriptive bibliometric analysis with qualitative thematic synthesis. Bibliometric information was analyzed using the Scopus Analyze Results feature to examine publication trends by year, publication sources, authors, institutional affiliations, countries or territories, document types, subject areas, and funding sponsors. The bibliometric analysis was conducted using the selected set of 25 publications to describe the publication characteristics and development of research on AI in school Social Studies education. In addition to bibliometric analysis, qualitative thematic synthesis was conducted to examine the substantive findings of the selected studies. The studies were compared to identify recurring patterns in AI applications, pedagogical approaches, learning outcomes, and educational challenges. Particular attention was given to the distinction between using AI as a learning tool and teaching AI as a subject of critical inquiry. The synthesis also examined similarities, differences, and underexplored areas across history, geography, and civic education. Combining these approaches provided both a descriptive overview of the research landscape and a deeper understanding of the pedagogical and educational implications of AI integration in school Social Studies education.

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RESULT AND DISCUSSION

3.1. Research Result

3.1.1. Trends and Patterns of AI Integration in School Social Studies Education

3.1.1.1. Annual Publication Trends

The annual distribution of publications illustrates the development of scholarly interest in artificial intelligence integration in school Social Studies education from 2022 to 2026, as presented in Figure 2.

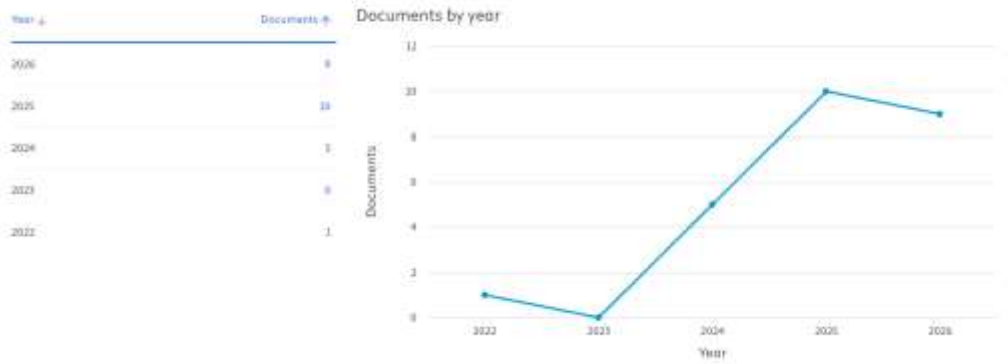

Figure 2. Annual Publication Trends in AI and School Social Studies Education (2022–2026)
Source: Scopus database, based on 25 selected publications (2026)

The publication trend indicates a growing academic interest in AI integration in school Social Studies education. One publication was recorded in 2022, followed by no publications in 2023. The number increased to five in 2024 and reached its highest point of ten publications in 2025. In 2026, nine publications were recorded. This increase suggests that AI integration in Social Studies education has gained considerable research attention since 2024, particularly in relation to emerging generative AI technologies and their pedagogical applications. Nevertheless, the 2026 figure should be interpreted as provisional because it represents the Scopus records available at the time of data collection.

3.1.1.2. Geographical Distribution of Research

The geographical distribution of publications reveals the countries contributing to research on artificial intelligence in school Social Studies education, as illustrated in Figure 3.

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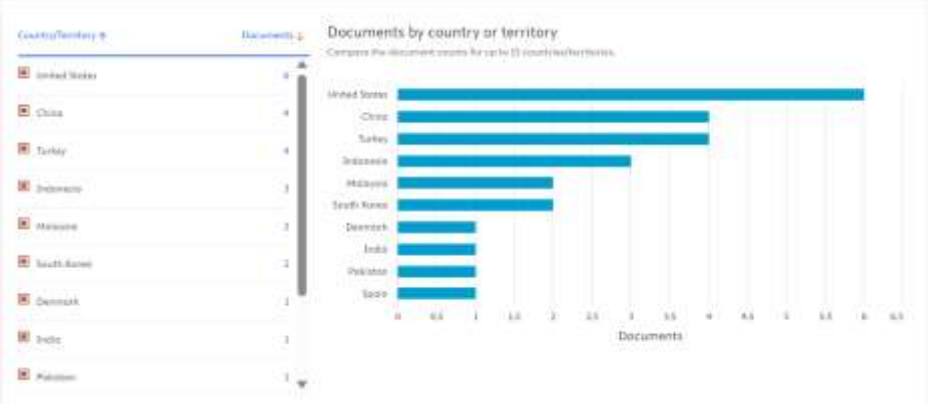

Figure 3. Geographical Distribution of Publications on AI in School Social Studies Education

Source: Scopus database, based on 25 selected publications (2026)

The findings show that the United States leads the publication output with six documents, followed by China and Turkey with four publications each. Indonesia contributes three publications, while Malaysia and South Korea each account for two. Denmark, India, Pakistan, and Spain contribute one publication each. These findings indicate that research on AI in school Social Studies education is geographically diverse, with contributions from North America, Asia, and Europe. The presence of Indonesia and Malaysia also highlights contributions from Southeast Asian researchers to this emerging field. Overall, the distribution suggests growing international engagement, although publication output remains concentrated in a small number of countries.

3.1.1.3. Leading Publication Sources and Authors

The distribution of publications by author highlights the researchers who have contributed to the development of AI-related research in school Social Studies education, as presented in Figure 4.

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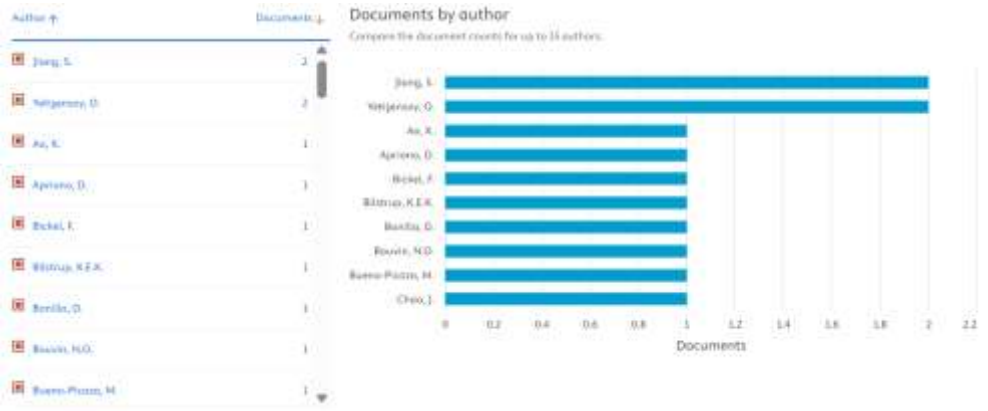

Figure 4. Leading Authors in Research on AI in School Social Studies Education

Source: Scopus database, based on 25 selected publications (2026)

The findings indicate that Jiang, S. and Yetişensoy, O. are the most frequent contributors, with two publications each. Meanwhile, the other authors shown in the Scopus analysis have contributed one publication each. This distribution suggests that research in this field is still relatively dispersed among researchers, with no single author demonstrating substantial dominance. Nevertheless, the repeated contributions of Jiang and Yetişensoy indicate emerging research activity by these scholars in AI-supported Social Studies education.



Figure 5. Distribution of Publications by Source in AI and School Social Studies Education

Source: Scopus database, based on 25 selected publications (2026)

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The distribution of publications across sources indicates that research on AI in school Social Studies education is published across a variety of academic journals and conference proceedings. The *Conference on Human Factors in Computing Systems Proceedings* and the *Journal of Educational Research* contribute the highest number of publications, with two documents each. Other sources, including *Acta Psychologica*, *AIIP Conference Proceedings*, and *Discover Education*, contribute one publication each. This distribution suggests that research in this field is dispersed across different publication outlets, reflecting its interdisciplinary nature and the involvement of educational and technological research communities.

3.1.1.4. Subject Areas and Document Types

The distribution of document types and subject areas provides an overview of the publication characteristics and interdisciplinary nature of research on AI in school Social Studies education, as illustrated in Figures 6 and 7.



Figure 6. Distribution of Publications by Document Type

Source: Scopus database, based on 25 selected publications (2026)

The document-type distribution shows that journal articles account for 60% (15 publications), while conference papers represent 40% (10 publications). This indicates that research in this field is disseminated through both peer-reviewed journal publications and academic conference proceedings, reflecting the combination of established research and emerging developments.

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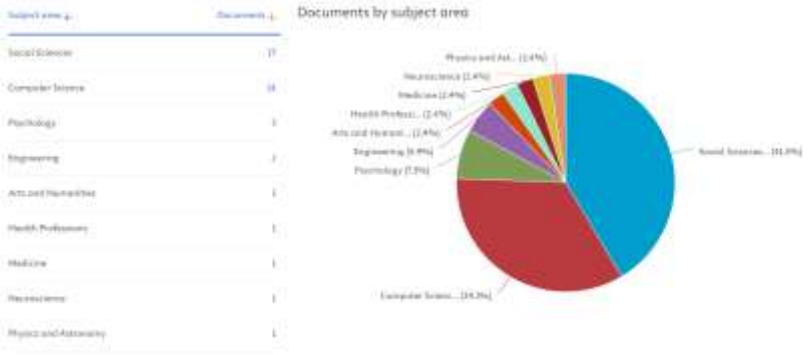

Figure 7. Distribution of Publications by Subject Area
Source: Scopus database, based on 25 selected publications (2026)

Regarding subject areas, Social Sciences represents the largest proportion (41.5%), followed by Computer Science (34.1%). Psychology accounts for 7.3%, while Engineering contributes 4.9%. Other areas, including Arts and Humanities, Health Professions, Medicine, Neuroscience, and Physics and Astronomy, each account for 2.4%. This distribution highlights the interdisciplinary character of AI research in Social Studies education, particularly the intersection between educational and social perspectives and technological developments.

3.1.1.5. Trends in AI Technologies and Research Focus

The 25 selected publications were classified according to their predominant AI applications and research focuses to identify the main directions of AI integration in school Social Studies education.

Table 1. Classification of AI Applications and Research Focus in School Social Studies Education

No.	Research focus and AI application	Number of studies
1	AI-supported instructional content, interactive learning, and personalized instruction	15
2	AI-supported formative and summative assessment	2
3	AI literacy, machine learning, and societal implications of AI	3
4	AI-supported social inquiry and civic problem-solving	3
5	Teachers' information needs for AI integration	1
6	AI-based adaptive learning systems (literature review)	1

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	Total	25

Source: Authors' classification (2026)

The classification indicates that the largest research focus concerns AI-supported instructional content, interactive learning, and personalized instruction, accounting for 15 publications. This suggests that AI is predominantly investigated as a pedagogical resource for facilitating teaching and learning activities. Meanwhile, three studies examine AI literacy, machine learning, and the societal implications of AI, while another three focus on social inquiry and civic problem-solving. AI-supported assessment receives attention in two studies. Teacher information needs and AI-based adaptive learning reviews are represented by one publication each. Overall, these findings suggest that current research primarily emphasizes the instructional applications of AI, while its role in developing students' critical understanding of AI and addressing broader societal issues remains a comparatively less explored area.

3.1.2. Pedagogical Integration of Artificial Intelligence in School Social Studies Education

The synthesis of the reviewed studies identified five recurring patterns of AI integration in school Social Studies education. These patterns illustrate how AI applications are incorporated into instructional activities and contribute to disciplinary learning, as summarized in Figure 8.



Figure 8. Pedagogical Patterns of Artificial Intelligence Integration in School Social Studies Education.

Source: Authors' synthesis; illustration generated with ChatGPT (OpenAI, 2026).

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As illustrated in Figure 8, AI integration encompasses five interconnected pedagogical patterns, ranging from historical inquiry and generative content creation to civic inquiry, assessment, and teacher-guided implementation. Collectively, these patterns demonstrate that the educational contribution of AI extends beyond instructional support to include the development of critical inquiry, disciplinary understanding, creativity, and responsible civic engagement.

3.1.2.1. AI-Supported Historical Inquiry and Disciplinary Learning

A prominent application of AI involves supporting historical inquiry through conversational chatbots, simulated historical personas, and machine learning-based analysis of historical sources. Historical chatbots, including HistoChat and other LLM-based applications, enable students to interact with simulated historical figures, ask questions, and explore historical perspectives (Gomes et al., 2026; Kim et al., 2025; Park et al., 2025; Shanghvi et al., 2025). These activities extend historical learning beyond factual recall toward interpretation, perspective-taking, and historical empathy. Kim et al. (2025), for example, reported improvements in students' historical empathy and personal connections with historical figures. Shanghvi et al. (2025) similarly observed that students' questions progressed from factual inquiries toward counterfactual and ethical reasoning. Another approach employs machine learning and text-mining tools to examine historical primary sources. Studies using StoryQ and SourceML engaged students in analyzing large collections of historical documents, identifying linguistic patterns, and examining biases embedded in historical records (McClure et al., 2024; Nocera et al., 2024). These activities connect historical inquiry with AI literacy by helping students understand how data patterns and classification processes can reflect broader social inequalities. Thus, AI supports disciplinary learning when its outputs and processes become objects of critical investigation rather than unquestioned sources of information.

3.1.2.2. Generative AI for Content Creation and Differentiated Instruction

Generative AI has also been used to create and adapt instructional materials, including historical narratives, visual representations, learning objectives, and differentiated learning tasks. In history education, applications combining ChatGPT and DALL-E 3 support collaborative storytelling, script development, character creation, and visual production. Chen et al. (2025) reported that AI-supported arts-based learning improved students' post-test achievement and

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reduced cognitive load. Wang et al. (2025) demonstrated the use of generative AI in digital storytelling, where students created learning materials while verifying AI-generated claims against documentary sources. Generative AI also supports differentiated instruction. Ao and Tian (2025) used structured prompts to generate tiered learning objectives, primary-source tasks, and reading recommendations suited to different levels of student readiness. These applications indicate that generative AI can expand opportunities for creative and differentiated learning. However, its pedagogical value depends on curriculum alignment, teacher guidance, and the verification of generated content.

3.1.2.3. AI-Mediated Inquiry, Simulation, and Civic Engagement

In civic education, AI has been incorporated into problem-based learning and interactive simulations that expose students to social issues and decision-making processes. For example, Model Citizens enabled students to participate in simulated town council deliberations involving a municipal budget crisis. Students evaluated competing priorities and the legitimacy of AI-generated deliberations. Zhou (2026) reported that full deliberation produced the highest learning gains, whereas layered transparency was associated with higher levels of trust. AI-supported problem-based learning has similarly been used to facilitate social conflict analysis and resolution. Students examined conflict cases, considered alternative actions, and reflected on the ethical consequences of their decisions. In another approach, students constructed and tested machine learning models to predict voter behavior, connecting computational activities with discussions of voter privacy and algorithmic political targeting (Dindler et al., 2022). These findings suggest that AI-mediated simulations and problem-based activities can support civic reasoning, ethical reflection, and engagement with complex social issues.

3.1.2.4. *AI-Supported Assessment and Feedback*

AI integration also extends to formative assessment and learning evaluation. AI-supported assessment systems have been used to provide immediate feedback, conduct knowledge checks, and identify students' conceptual misunderstandings. Yetisensoy (2026) reported improvements in Social Studies achievement and retention following the integration of AI-assisted formative assessment. Meanwhile, Nantaburom (2026) examined a controlled assessment format combining student-written essays with ChatGPT-supported synthesis tasks. The findings highlighted students' preference for using AI in higher-order synthesis activities and the

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perceived value of structured assessment arrangements. These applications demonstrate AI's potential to support feedback and assessment, although teacher oversight remains necessary to ensure the validity and appropriateness of learning evaluations.

3.1.2.5. Teacher and Student Roles in AI-Integrated Learning

Across the reviewed studies, AI integration is accompanied by changes in teacher and student roles. Teachers increasingly function as instructional designers, prompt developers, facilitators of inquiry, and moderators of student–AI interactions. They also supervise the verification of AI-generated information and ensure alignment with curriculum objectives. Students, meanwhile, engage as active inquirers, critical evaluators, decision-makers, and co-creators. They interact with historical chatbots, analyze primary sources, evaluate generated content, participate in simulations, and produce digital learning materials. Overall, the findings indicate that AI integration in school Social Studies education is characterized by a shift toward interactive, inquiry-oriented, and participatory learning. However, AI does not replace the intellectual and pedagogical contributions of teachers or students. Its educational value depends on structured learning activities, critical evaluation, source verification, and sustained teacher guidance.

3.1.3. Contributions of AI-Supported Learning to Critical Social Inquiry, Disciplinary Thinking, and Higher-Order Cognitive Skills

The reviewed studies indicate that AI-supported learning contributes to students' cognitive and disciplinary development through several interconnected learning outcomes. These include critical thinking and epistemic vigilance, critical social inquiry, historical thinking and empathy, geographical reasoning, and civic and ethical reasoning. However, the reported contributions vary across disciplines and instructional contexts. The findings suggest that AI is most educationally valuable when students are required to question, verify, interpret, and critically evaluate AI-generated information rather than merely use it to obtain answers.

3.1.3.1. Critical Thinking, Verification, and Epistemic Vigilance

A recurring finding concerns the contribution of AI-supported activities to students' critical thinking and information evaluation. Demirtaş (2026) reported that students participating in teacher-guided ChatGPT instruction achieved significantly higher critical-thinking disposition

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scores than those in the comparison group ($F(1, 53) = 8.013$, $p = .007$, $\eta p^2 = 0.131$). Other studies incorporated verification activities that required students to compare AI-generated responses with textbooks, primary sources, and other credible references (Gomes et al., 2026). These practices positioned AI-generated errors and unsupported claims as opportunities for critical evaluation rather than simply instructional shortcomings. Nantaburom (2026) also found that 95.1% of surveyed students considered ChatGPT appropriate for assessment when its use was governed by clearly defined conditions. Collectively, these findings suggest that critical thinking is supported not by AI use alone, but by structured verification, comparison, and reflection.

3.1.3.2. Critical Social Inquiry and Structural Understanding

AI-supported learning also contributes to critical social inquiry by enabling students to investigate patterns and structural explanations that may be difficult to identify through conventional textual analysis. Nocera et al. (2024) used StoryQ to help high school students analyze more than 300 historical redlining descriptions from the 1930s. The analysis enabled students to identify coded language and examine how historical descriptions reflected broader patterns of racial inequality. Notably, 13 of 21 interviewed students developed structural explanations of systemic inequality. Similarly, McClure et al. (2024) integrated historical inquiry with machine learning through the SourceML approach. Their findings indicated significant improvements in students' understanding of the origins of data bias, with 15 of 21 interviewed students demonstrating an understanding of bias sources. These studies illustrate how AI-based text analysis can extend social inquiry from examining individual historical documents toward recognizing institutional patterns, data bias, and structural inequality.

3.1.3.3. Historical Thinking and Historical Empathy

In history education, AI-supported learning has been associated with historical perspective-taking, empathy, and higher-order questioning. Conversational historical personas allow students to engage with simulated historical figures and explore their motivations and decisions (Kim et al., 2025; Park et al., 2025; Shanghvi et al., 2025). Kim et al. (2025) found that proactive HistoChat interactions significantly increased students' historical empathy compared with baseline interactions ($p < .05$). Shanghvi et al. (2025) observed that students' questions developed from factual recall toward ethical and counterfactual reasoning. However, the contribution of AI-generated historical narratives is not uniformly positive. Kindenberg (2024)

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found that although ChatGPT-generated narratives demonstrated stylistic quality, they lacked the emotional depth and retrospective analytical reasoning evident in student-written narratives. This suggests that AI can facilitate historical engagement and perspective-taking, but does not necessarily reproduce the interpretive and affective complexity of human historical understanding.

3.1.3.4. Geographical Thinking and Environmental Understanding

Evidence concerning geographical learning remains relatively limited. Bueno-Picazo and Tirado-Olivares (2026) found that primary school students using ChatGPT demonstrated significant gains in open-ended geographical reasoning ($Z = -2.33$, $p = .020$, $r = .49$), whereas students using Google Search did not demonstrate comparable improvement. The learning activities involved investigating extreme weather events and evaluating geographical information and visual representations. In disaster education, Yetişensoy (2026) reported that chatbot-supported instruction significantly improved students' disaster knowledge ($p < .05$). However, no statistically significant improvement was observed in disaster awareness ($p > .05$). These findings indicate that conversational AI may support geographical reasoning and factual understanding, although improved knowledge does not automatically translate into greater awareness or practical preparedness.

3.1.3.5. Civic Competence, Ethical Reasoning, and Higher-Order Cognitive Skills

AI-supported civic learning contributes to students' engagement with ethical dilemmas, social conflicts, and democratic decision-making. Nadziroh et al. (2025) reported substantial improvements in empathy, negotiation, and ethical reasoning following an AI-supported problem-based learning intervention, with effect sizes exceeding 1.6 ($p < .001$). Similarly, Zhou (2026) found that full deliberation in an AI-mediated municipal budget simulation produced the highest civic learning gains, while layered transparency generated the highest levels of trust and perceived legitimacy. Dindler et al. (2022) further demonstrated how constructing machine learning models for voter prediction could encourage students to examine data privacy and algorithmic political targeting. These findings suggest that AI-supported civic activities can provide opportunities to practice deliberation, evaluate competing interests, and consider the ethical consequences of decisions. Overall, AI-supported learning demonstrates potential to strengthen critical thinking, disciplinary inquiry, and higher-order cognitive engagement in school

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Social Studies education. Nevertheless, the evidence is uneven across disciplines, with historical and civic learning receiving greater research attention than geographical reasoning. Several studies also rely on short interventions, small samples, and quasi-experimental or qualitative designs, limiting conclusions about long-term effects and causal relationships. Therefore, the contribution of AI should be understood as conditional on pedagogical scaffolding, teacher guidance, and students' active engagement in evidence-based reasoning.

3.1.4. Challenges Influencing AI Integration in School Social Studies Education

The integration of artificial intelligence (AI) into school Social Studies education is influenced by interconnected pedagogical, epistemological, technological, and ethical challenges. The reviewed studies indicate that these challenges extend beyond the technical use of AI tools, involving teachers' instructional readiness, the reliability and representation of knowledge, unequal access to technology, and the protection of students' rights and intellectual autonomy. Among the four dimensions, epistemological and pedagogical challenges received the greatest research attention, appearing in 18 and 17 studies, respectively. Ethical and technological infrastructure challenges were less frequently investigated, appearing in 8 and 6 studies.

3.1.4.1. Pedagogical Challenges: Teacher Readiness, Cognitive Offloading, and Assessment Adaptation

A major pedagogical challenge concerns teachers' limited preparation to integrate AI meaningfully into Social Studies instruction. Han et al. (2026) identified a gap between teachers' practical information needs and the technical documentation provided by AI developers. Teachers required guidance on classroom applications, data policies, academic integrity, and curriculum alignment rather than technical descriptions of AI models. Similarly, Ao and Tian (2025) found that novice teachers needed repeated attempts to develop effective prompts, while Zhang et al. (2024) emphasized the need for teacher evaluation of AI-generated instructional materials. Another concern is students' potential overdependence on AI, which may encourage cognitive offloading and reduce independent reasoning. Nantaburom (2026) reported students' concerns about superficial learning when AI is used without sufficient subject knowledge. Demirtaş (2026) and Chen et al. (2025) also highlighted the risk that unrestricted AI assistance may weaken independent thinking and student involvement in learning processes. Furthermore, generative AI challenges conventional assessment practices because it can produce polished

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written responses that make students' independent contributions difficult to identify (Kindenberg, 2024; Han et al., 2024). These findings point to the importance of process-oriented assessment that evaluates inquiry, verification, and critical reflection rather than relying exclusively on final written products.

3.1.4.2. Epistemological Challenges: Hallucinations, Algorithmic Bias, and Historical Representation

Epistemological challenges are particularly significant in Social Studies because the discipline requires the interpretation and verification of historical, geographical, and civic knowledge. A recurring concern is the generation of inaccurate information, fabricated references, and historically inconsistent narratives. Wang et al. (2025) documented instances in which generative AI fabricated local historical events and misdated significant civil rights events. Gomes et al. (2026) also identified historical inaccuracies and anachronisms in chatbot responses. Ao and Tian (2025) reported that teachers devoted approximately 60% of their verification time to checking AI-generated content against primary sources. These findings demonstrate that AI-generated information cannot be treated as an authoritative source without independent verification. Algorithmic and cultural bias constitute another epistemological concern. Khan et al. (2025) highlighted the dominance of Global North perspectives in AI-generated content, potentially marginalizing local and Global South experiences. Wang et al. (2025) observed that AI-generated narratives could soften or sanitize representations of historical racial violence. In addition, McClure et al. (2024) and Nocera et al. (2024) demonstrated the importance of examining how historical data and classification processes reproduce existing social inequalities. Kim et al. (2025) identified a further limitation in historical chatbot interactions: students could become focused on individual biographies while overlooking broader political, economic, and institutional structures. Consequently, AI integration requires students to evaluate not only factual accuracy but also the perspectives, omissions, and assumptions embedded in generated knowledge.

3.1.4.3. Technological Challenges: Accessibility, Usability, and Infrastructure

Technological barriers affect the feasibility and equity of AI integration across school contexts. Dindler et al. (2022) observed that students initially experienced difficulties engaging with code-based machine learning interfaces because of perceived mathematical and technical

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barriers. Han et al. (2026) similarly identified difficulties associated with prompt engineering and the usability of AI documentation. These findings suggest that overly complex interfaces can divert students' attention from disciplinary inquiry toward technical procedures. Unequal access to digital infrastructure presents a broader challenge. Nadziroh et al. (2025) identified limited infrastructure in rural and under-resourced schools as a barrier to replicating AI-supported civic education interventions. Wang et al. (2025) also documented connectivity problems and restrictions on access to AI platforms in school settings. Such constraints may widen existing educational inequalities if AI-supported learning is available primarily to students in well-resourced schools. Therefore, technological integration requires attention to infrastructure, accessibility, platform availability, and the suitability of tools for different educational contexts.

3.1.4.4. Ethical Challenges: Privacy, Academic Integrity, and Intellectual Autonomy

Ethical challenges primarily concern student data protection, academic integrity, and the preservation of intellectual autonomy. Han et al. (2026) identified insufficient transparency in AI documentation regarding data handling, privacy policies, and institutional oversight. Nantaburom (2026) and Khan and Daud (2024) also reported concerns about student data privacy and the use of personal information by commercial AI platforms. These concerns are particularly important in school settings, where students may not fully understand the implications of submitting personal or educational information to external systems. Academic integrity presents another challenge because generative AI can produce written work that complicates the identification of students' original contributions. Han et al. (2026) documented teachers' concerns about the reliability of AI detection and the difficulty of monitoring students' writing processes. However, Wang et al. (2025) illustrated an alternative approach by emphasizing verification and responsibility toward the communities represented in students' work, rather than relying exclusively on surveillance or detection. This perspective is relevant to Social Studies because ethical learning involves not only following assessment rules but also developing responsibility, independent judgment, and respect for historical and civic evidence. The reviewed studies reveal that the challenges of AI integration are interconnected. Limited teacher readiness can increase the risk of inaccurate AI use, while unreliable outputs intensify teachers' verification workload. Unequal infrastructure further constrains the implementation of pedagogically and ethically responsible practices. Research gaps remain particularly evident in longitudinal investigations of cognitive effects, empirical studies in rural and resource-constrained schools,

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and systematic audits of student data privacy and consent. Addressing these challenges requires an integrated approach that combines teacher preparation, critical evaluation of AI-generated knowledge, equitable technological access, and clear ethical safeguards.

3.2. DISCUSSION

3.2.1. From AI Adoption to Pedagogically Meaningful Integration in Social Studies Education

The findings of this review indicate that the integration of artificial intelligence (AI) in school Social Studies education is moving beyond the use of technology as an information retrieval tool toward more interactive, inquiry-oriented, and participatory pedagogical practices. Across history, geography, and civic education, AI has been employed to facilitate historical simulations, primary-source analysis, generative content creation, geographical inquiry, and civic decision-making. This development suggests a shift in the educational function of AI, from providing ready-made information to supporting students' engagement with disciplinary knowledge and social issues. The use of historical chatbots and simulated historical personas illustrates this shift. Rather than relying exclusively on textbook narratives, students can interact with simulated historical figures, formulate questions, and explore historical perspectives (Kim et al., 2025; Park et al., 2025; Shanghvi et al., 2025). Similarly, machine learning-based approaches such as StoryQ and SourceML enable students to examine historical documents and identify patterns of social inequality embedded in historical records (McClure et al., 2024; Nocera et al., 2024). In civic education, AI-supported problem-based learning and multi-agent simulations create opportunities for students to examine social conflicts, deliberate on competing interests, and consider the consequences of public decisions (Zhou, 2026). These practices are particularly relevant to Social Studies because the subject requires more than factual knowledge acquisition. Students are expected to interpret evidence, understand multiple perspectives, examine social structures, and develop informed judgments about societal issues. Consequently, the educational value of AI should not be measured solely by the availability or sophistication of technological applications, but by the extent to which these applications support meaningful disciplinary learning. This finding highlights the importance of pedagogical design in determining whether AI becomes an intellectual resource or merely a mechanism for accelerating information delivery.

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3.2.2. AI as a Scaffold for Critical Thinking and Disciplinary Reasoning

The findings concerning learning outcomes suggest that AI-supported learning can contribute to critical thinking, historical understanding, geographical reasoning, and civic competence. However, these contributions are not automatic consequences of technology adoption. They are more evident when AI activities are accompanied by structured inquiry, source verification, teacher guidance, and opportunities for reflection. For example, Demirtaş (2026) reported significantly higher critical-thinking disposition scores among students participating in teacher-guided ChatGPT-supported instruction. In historical inquiry, Nocera et al. (2024) demonstrated how text-mining activities enabled students to move beyond individual historical descriptions toward structural explanations of racial inequality. Kim et al. (2025) also reported improvements in historical empathy through interactions with AI historical personas. In geography education, Bueno-Picazo and Tirado-Olivares (2026) found significant gains in students' open-ended geographical reasoning following conversational AI-supported learning. Meanwhile, Nadziroh et al. (2025) reported improvements in empathy, negotiation, and ethical reasoning through AI-supported problem-based learning.

These findings suggest that AI can function as a cognitive scaffold by providing opportunities to question, compare, interpret, and evaluate information. Nevertheless, the results also reveal important limitations. Yetişensoy (2026), for instance, reported improvements in disaster-related knowledge but no statistically significant gains in disaster awareness. Kindenberg (2024) found that AI-generated historical narratives could reproduce stylistic features of student writing but lacked comparable emotional depth and retrospective historical reasoning. Such findings indicate that improvements in factual understanding or task performance do not necessarily translate into broader disciplinary understanding or affective development. Therefore, the contribution of AI to higher-order cognitive skills should be understood as conditional rather than universal. AI-supported learning is more likely to promote critical reasoning when students are required to engage intellectually with its outputs instead of accepting generated responses as final conclusions. This distinction is particularly important in Social Studies, where interpretation, contextualization, and evidence-based judgment are central learning processes.

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3.2.3. Epistemological and Pedagogical Tensions in AI-Supported Social Studies Learning

A central finding of this review is the close relationship between pedagogical and epistemological challenges. While AI expands opportunities to access and generate information, it also introduces risks concerning factual accuracy, historical representation, algorithmic bias, and the reliability of knowledge. These concerns are particularly consequential in Social Studies because students engage with contested historical narratives, cultural perspectives, political processes, and complex social realities. Several studies documented inaccurate or fabricated AI-generated information. Wang et al. (2025) identified fabricated local historical events and inaccuracies in the representation of civil rights history, while Gomes et al. (2026) reported historical hallucinations and anachronisms in chatbot responses. Ao and Tian (2025) further found that teachers devoted approximately 60% of their verification time to checking AI-generated content against primary sources. These findings demonstrate that the use of generative AI may increase instructional preparation and verification demands rather than automatically reducing teachers' workload.

Beyond factual inaccuracies, algorithmic bias may reproduce dominant cultural and historical perspectives. Khan and Daud (2024) highlighted the potential dominance of Global North perspectives in AI-generated content, while Wang et al. (2025) observed the sanitization of historical racial violence in generated narratives. Kim et al. (2025) identified another epistemological limitation in historical chatbot interactions: students' conversations could become concentrated on individual biographies while overlooking broader political, economic, and institutional structures. These epistemological concerns are reinforced by pedagogical challenges. When teachers lack sufficient AI literacy or practical knowledge of prompt design, students may engage with AI outputs without adequate evaluation or disciplinary scaffolding. Conversely, unreliable outputs increase teachers' verification responsibilities and may reduce confidence in classroom implementation. This relationship suggests that epistemological reliability cannot be addressed through technology alone. It requires pedagogical arrangements that position students as critical evaluators of information and teachers as facilitators of evidence-based inquiry. Accordingly, verification against credible primary and secondary sources should become an integral component of AI-supported Social Studies learning.

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3.2.4. Equity, Ethics, and the Conditions for Responsible AI Integration

The findings also indicate that responsible AI integration involves broader questions of educational equity, data protection, academic integrity, and student autonomy. Technological access remains uneven across school contexts, particularly between well-resourced and rural or under-resourced institutions. Nadziroh et al. (2025) identified infrastructure limitations as a barrier to replicating AI-supported civic education interventions in rural schools. Dindler et al. (2022) also demonstrated that technical complexity and code-based interfaces could discourage students who lacked confidence in mathematics or computing. These barriers suggest that the benefits of AI-supported learning may be distributed unevenly if implementation depends on stable connectivity, advanced devices, paid platforms, or specialized technical knowledge. Therefore, equitable integration requires attention not only to whether AI tools are available, but also to whether teachers and students can access and use them under comparable educational conditions.

Ethical concerns further complicate implementation. Studies identified student data privacy, unclear data-handling practices, academic integrity, and the potential erosion of intellectual autonomy as important issues (Han, 2026; Nantaburom, 2026; Wang et al., 2025). Although AI detection and restrictive assessment arrangements may be used to address unauthorized AI assistance, these approaches do not necessarily develop students' ethical judgment. Wang et al. (2025), for example, emphasized responsibility toward the communities represented in students' historical work, suggesting an approach to academic integrity grounded in accountability rather than surveillance alone. For Social Studies education, these issues have particular significance because the subject aims to develop responsible and informed citizens. Students should therefore learn not only how to use AI tools, but also how personal data are processed, how algorithmic systems influence information, and why transparency, fairness, and accountability matter in digital society. Responsible AI integration consequently requires institutional safeguards, teacher preparation, and explicit attention to students' rights and intellectual agency.

3.2.5. Implications for Social Studies Education and Future Research

The synthesis offers several implications for the development of AI-integrated Social Studies education. First, instructional design should prioritize disciplinary inquiry rather than technology-centered activities. AI applications should be connected to historical source analysis,

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geographical interpretation, civic deliberation, and the investigation of social problems. Second, AI literacy should be embedded within Social Studies curricula through both teaching with AI and teaching about AI. Students need opportunities to use AI as a learning resource while also examining its limitations, data biases, and societal implications. Third, teacher professional development should extend beyond basic operational skills and prompt engineering. Teachers need pedagogical and epistemological competencies to design meaningful learning activities, evaluate generated information, facilitate critical discussion, and establish appropriate ethical boundaries. Fourth, assessment practices should place greater emphasis on students' reasoning processes, evidence evaluation, and independent interpretation rather than relying exclusively on final written products that can be generated or substantially assisted by AI.

The review also identifies important directions for future research. The available studies provide limited evidence about the long-term cognitive consequences of repeated AI use, particularly whether sustained reliance affects students' independent inquiry and reasoning. Research in rural and resource-constrained schools remains insufficient, limiting understanding of how infrastructure inequalities shape implementation. Furthermore, empirical investigations of student data privacy, informed consent, and actual data-handling practices are still needed. Future studies should also examine AI integration across different Social Studies disciplines more systematically, particularly geography, which receives comparatively less attention in the reviewed evidence. Overall, this review suggests that the educational contribution of AI in school Social Studies depends less on technological availability than on the quality of pedagogical mediation, epistemic evaluation, and ethical governance. AI should therefore be conceptualized not as a replacement for teachers or students' intellectual work, but as a pedagogically mediated tool that can support inquiry, disciplinary reasoning, and responsible civic learning when implemented under appropriate educational conditions.

CONCLUSION

This systematic literature review examines the integration of artificial intelligence (AI) in Social Studies education at the primary and secondary school levels, focusing on pedagogical practices, learning outcomes, and educational challenges. The findings indicate that AI integration has evolved beyond its initial function as an information-retrieval tool toward more interactive and inquiry-oriented applications, including historical simulations, primary-source analysis, geographical inquiry, generative content creation, problem-based learning, and civic

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education activities. AI-supported learning demonstrates potential to facilitate students' critical thinking, historical empathy, geographical reasoning, critical social inquiry, and civic and ethical understanding. However, these outcomes are not automatic consequences of technology adoption. They depend on purposeful instructional design, teacher guidance, students' active engagement, and systematic verification of AI-generated information. The review also identifies interconnected pedagogical, epistemological, technological, and ethical challenges, particularly teacher readiness, cognitive offloading, inaccurate or biased AI-generated content, unequal technological access, data privacy, and academic integrity.

This review contributes to the field by conceptualizing AI as a pedagogically mediated epistemic tool rather than merely an instructional technology. This perspective highlights the importance of examining not only how AI supports teaching and learning (*teaching with AI*), but also how students develop an understanding of AI, including its limitations, biases, and societal implications (*teaching about AI*). The review further emphasizes the changing roles of teachers as instructional designers, facilitators of disciplinary inquiry, and moderators of epistemic evaluation, while students are positioned as active investigators, critical evaluators, and creators of knowledge. Accordingly, the educational value of AI in Social Studies should be assessed not simply through learning achievement or technology-use indicators, but also through students' capacity to question evidence, evaluate information, interpret social phenomena, and construct reasoned arguments.

Several limitations should be considered when interpreting these findings. The review is limited to publications indexed in Scopus, written in English, published within the 2020–2026 period, and classified under the selected document types and subject categories. Consequently, relevant studies published in other databases, languages, or publication formats may have been overlooked. Furthermore, the included studies vary in research design, educational context, sample characteristics, AI applications, and outcome measures, limiting direct comparisons and broad generalizations. The review therefore recommends more longitudinal and comparative research to examine the sustained effects of AI-supported Social Studies learning, particularly across different school levels, geographical contexts, and socioeconomic settings. Future studies should also investigate how AI integration affects students' independent reasoning, disciplinary understanding, and civic participation, while addressing data privacy, algorithmic bias, academic integrity, and educational equity. Such research is essential to ensure that AI integration

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strengthens, rather than substitutes for, meaningful inquiry and critical learning in Social Studies education.

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