

Fostering Digital Agency Through Scaffolding in Social Studies Education: A Systematic Literature Review

Budi Kurnia*, Ani Rusilowati, Nina Witasari

Universitas Negeri Semarang, Semarang, Indonesia

*Corresponding Author: budikurnianew@students.unnes.ac.id

Abstract. Digital transformation shifts the orientation of Social Studies education from content acquisition toward developing students' digital agency for critical participation in society. Although research on digital literacy expands, a comprehensive synthesis regarding the role of scaffolding in fostering digital agency within Social Studies remains limited. This study aims to analyze study characteristics, thematic clusters, intervention impacts, and implementation challenges of scaffolding-based digital agency. Utilizing a Systematic Literature Review (SLR) guided by the PRISMA 2020 statement and rigorous Quality Assessment, 11 core empirical articles from the 2015-2025 period were retrieved from the Scopus database. Qualitative-thematic synthesis crystallizes the literature into five main clusters: digital literacy, civic participation, instructional technology, disciplinary thinking, and teacher professional learning. The implemented scaffolding strategies proved highly effective in enhancing students' cognitive-evaluative capacities, such as data literacy and critical source evaluation. However, their impact on active digital civic engagement outside the classroom remains moderate-to-low. Key challenges identified include the dominance of epistemic control in learning orientations and the fragmentation between techno-pedagogical designs and the core essence of civic education. This study contributes to formulating an integrated conceptual model and mapping critical research gaps to guide future Social Studies instructional designs oriented toward active digital citizenship.

Keywords: digital agency; scaffolding; Social Studies Education; digital citizenship; systematic literature review.

INTRODUCTION

Digital transformation has fundamentally reshaped how individuals access information, interact, learn, and participate in society. Beyond technical proficiency, it requires individuals to use digital technologies critically, reflectively, and responsibly across diverse contexts. Consequently, education is increasingly expected to foster digital agency, defined as the capacity to consciously utilize digital technologies to make decisions, solve problems, construct knowledge, and actively participate in an information-based society (Kaun & Forsman, 2024; Tabak & Dubovi, 2025). As a core twenty-first-century competence, digital agency is closely associated with digital literacy, digital citizenship, critical thinking, and meaningful participation in digital environments (Farisi, 2016; Nachtigal et al., 2024).

Within Social Studies education, digital agency has become increasingly important because the discipline aims not only to develop students' understanding of social issues but also to prepare responsible and active citizens capable of participating in democratic society (Farisi, 2016; Monte-Sano et al., 2021). As digital environments become central spaces for civic interaction, students need the ability to evaluate information

critically, understand multiple perspectives, and participate ethically in digital communities (Baytiyeh, 2021; Nachtigal et al., 2024). Developing digital agency, however, remains challenging due to unequal access to technology, varying levels of digital literacy, and differences in institutional readiness (Tabak & Dubovi, 2025). Moreover, technology integration in schools often emphasizes the use of digital tools rather than pedagogical approaches that promote active participation and autonomous learning (Tondeur et al., 2017; Weisberg & Dawson, 2023). Previous studies consistently indicate that the effectiveness of technology-enhanced learning depends more on instructional design than on technology availability alone (Voogt et al., 2013; Law, 2018; Selwyn et al., 2025).

Scaffolding has been widely recognized as a promising pedagogical approach to address these challenges. Grounded in sociocultural theory, scaffolding provides temporary instructional support that enables learners to achieve higher levels of understanding before gradually becoming independent (Puntambekar & Hübscher, 2022; Quintana et al., 2004). In digital learning environments, scaffolding may take the form of prompts, visual guidance, reflective feedback, collaborative discussion, and technology-supported

instructional assistance that facilitate self-regulation and problem-solving (Belland et al., 2017). Previous studies have demonstrated that scaffolding enhances learning motivation, student engagement, critical thinking, creativity, and overall learning outcomes (Walter et al., 2024; Lin et al., 2023; Chang et al., 2024). Within Social Studies education, scaffolding also supports inquiry-based learning, disciplinary literacy, historical reasoning, and students' understanding of complex social issues through structured discussions and guided interpretation of historical sources (Monte-Sano et al., 2021; Lupo et al., 2018; Walldén, 2020; ter Beek et al., 2022; Lesley et al., 2023).

Despite the growing body of research on digital literacy, educational technology, and scaffolding, the relationship between scaffolding and digital agency in Social Studies education remains fragmented. Existing studies generally examine digital agency within broader discussions of digital literacy and student participation, while scaffolding research predominantly focuses on educational technology or cross-disciplinary learning contexts. Likewise, research in Social Studies education mainly emphasizes historical thinking and disciplinary literacy without explicitly integrating digital agency development. This fragmented evidence indicates the absence of a comprehensive synthesis explaining how scaffolding strategies contribute to fostering digital agency in Social Studies education and highlights the need to consolidate current empirical findings.

Therefore, this study conducts a Systematic Literature Review (SLR) of Scopus-indexed empirical studies to synthesize evidence on the use of scaffolding for fostering digital agency in Social Studies education. Specifically, the review aims to identify research trends, examine the scaffolding strategies employed, evaluate their effectiveness in enhancing students' digital literacy, participation, and agency, and identify the major challenges and future research opportunities. The findings are expected to strengthen the theoretical understanding of the relationship between scaffolding, digital agency, and Social Studies education while providing practical guidance for designing more inclusive, participatory, and digitally responsive learning environments.

Guided by these objectives, the research questions (RQs) are as follows:

RQ1. What are the developmental trends in research regarding the use of scaffolding to support digital agency within Social Studies education?

RQ2. What specific scaffolding strategies are

utilized to support students' digital agency development within digital learning environments?

RQ3. How effective is the implementation of scaffolding in enhancing students' digital literacy, participation, and agency?

RQ4. What are the primary challenges and future opportunities in implementing scaffolding to support digital agency development in digital era Social Studies education?

METHODS

Research Design

This study employs a Systematic Literature Review (SLR) method to identify, evaluate, and synthesize empirical evidence regarding the development of digital agency through scaffolding strategies in Social Studies education. The SLR method was selected as it enables researchers to gain a comprehensive understanding of research developments, the effectiveness of instructional strategies, and critical literature gaps that require further exploration. The review process was executed systematically in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines to ensure transparency, rigor, and reproducibility (Page et al., 2021).

Literature Search Strategy

A comprehensive literature search was conducted within the Scopus database, selected for its extensive indexing coverage of peer-reviewed international journals, making it a primary benchmark in systematic review research (Mongeon & Paul-Hus, 2016). The search strategy was structured around three core conceptual pillars: digital agency, scaffolding, and social studies education.

To ensure comprehensive retrieval, we utilized a combination of keywords grouped by concept and connected using Boolean operators. The search was focused on the title, abstract, and keyword fields (TITLE-ABS-KEY), with subject restrictions applied to the Social Sciences domain (LIMIT-TO (SUBJAREA, "SOCI")) to maintain the relevance of the disciplinary context. The complete search string deployed was as follows:

TITLE-ABS-KEY (("digital agency" OR "digital citizenship") AND ("scaffolding" OR "scaffolded instruction" OR "digital support") AND ("social studies" OR "civic education" OR "social studies education")) AND (LIMIT-TO (SUBJAREA , "SOCI"))

The systematic search was executed in May

2026 and initially yielded 71 documents. All retrieved search results were exported to reference management software for subsequent identification, deduplication, and systematic screening based on the predetermined inclusion and exclusion criteria.

Inclusion and exclusion criteria were established prior to the article selection process to guarantee that the analyzed studies possessed direct relevance to the research objectives. Setting these boundary criteria also aimed to minimize selection bias and enhance the validity of the resulting synthesis (Kitchenham & Charters, 2007).

Inclusion and Exclusion Criteria

Table 1. Inclusion and Exclusion Criteria

Aspect	Inclusion Criteria	Exclusion Criteria
Topic	Examines digital agency, digital citizenship, civic agency, or forms of agency within digital contexts.	Does not examine agency or digital literacy.
Intervention / Approach	Utilizes scaffolding, scaffolded instruction, digital support, inquiry support, or similar pedagogical scaffolding.	Does not involve pedagogical support or scaffolding.
Context	Set within social studies, civic education, citizenship education, history education, or related social science fields.	Outside the context of Social Studies education.
Document Type	Peer-reviewed empirical research articles.	Reviews, editorials, conference papers, book chapters.
Language	English.	Non-English languages.
Database	Indexed in the Scopus database.	Non-Scopus indexed.
Publication Year	2015–2025	Outside the specified range.

Article Selection Process

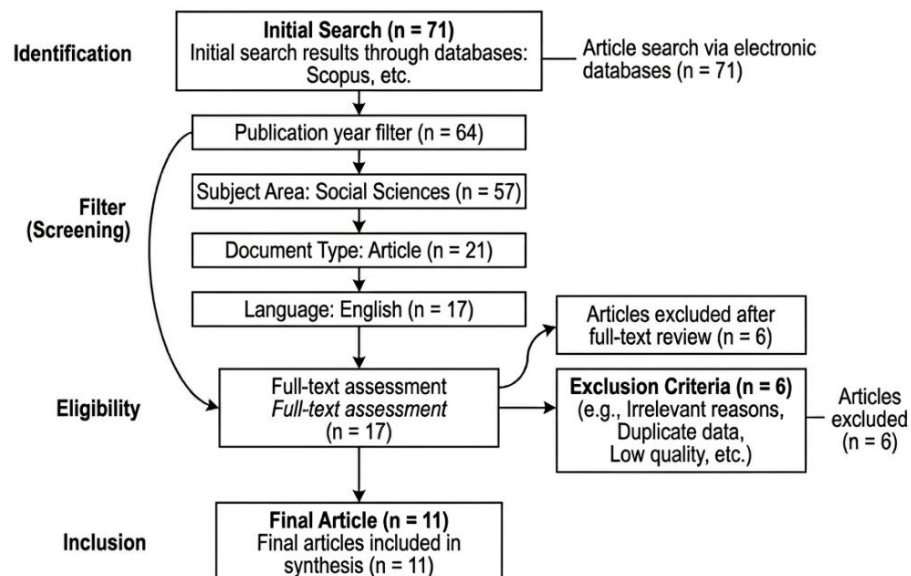


Figure 1. PRISMA Flow Diagram

The selection of articles followed the sequential stages of the PRISMA 2020 framework, consisting of identification, screening, eligibility assessment,

and final inclusion. The initial database search yielded 71 documents. Applying the publication year restriction (2015-2025) narrowed the selection

to 64 documents. Filtering for the Social Sciences subject area resulted in 57 documents, while restricting the document type exclusively to journal articles reduced the pool to 21 documents. After applying the English language filter, 17 articles met the initial baseline criteria.

Subsequently, a rigorous abstract and full-text screening was conducted to evaluate the alignment of each article with the core research focus. The evaluation revealed that six articles failed to meet the inclusion criteria because they did not directly address digital agency, did not utilize a scaffolding approach or relevant pedagogical support, or fell

completely outside the context of Social Studies instruction. Consequently, eleven empirical articles were selected as the primary data sources for this systematic review.

Study Quality Assessment

Following the final selection process, each article was rigorously evaluated using a quality assessment instrument adapted from Kitchenham and Charters (2007). This appraisal aimed to ensure that the analyzed studies possessed sufficient methodological quality to warrant inclusion in the data synthesis process.

Table 2. Quality Assessment Criteria

Code	Assessment Question
QA1	Are the research objectives clearly outlined and defined?
QA2	Is the research methodology adequately and transparently described?
QA3	Are the data collection procedures clearly explained?
QA4	Are the research results presented in a systematic and coherent manner?
QA5	Are the conclusions robustly supported by the empirical findings?

Each criterion was scored as follows: 1.0 if fully met (yes), 0.5 if partially met (partly), and 0.0 if not met (no). Based on these five quality indicators, the maximum achievable score for each article was 5.0.

Articles securing a score of ≥ 4.0 were categorized as high-quality and retained for data synthesis, while studies scoring below this threshold were considered for exclusion.

Table 3. Quality Assessment Results of Selected Articles

No	Author (Year)	QA1	QA2	QA3	QA4	QA5	Total Score	Final Decision
1	Tabak & Dubovi (2025)	1.0	1.0	1.0	1.0	1.0	5.0	Include (High Quality)
2	Nachtigal et al. (2024)	1.0	1.0	1.0	0.5	1.0	4.5	Include (High Quality)
3	Lesley et al. (2023)	1.0	1.0	0.5	1.0	1.0	4.5	Include (High Quality)
4	Weisberg & Dawson (2023)	1.0	1.0	1.0	1.0	1.0	5.0	Include (High Quality)
5	ter Beek et al. (2022)	1.0	1.0	1.0	1.0	1.0	5.0	Include (High Quality)
6	Baytiyeh (2021)	1.0	1.0	0.5	1.0	1.0	4.5	Include (High Quality)
7	Monte-Sano et al. (2021)	1.0	1.0	1.0	1.0	1.0	5.0	Include (High Quality)
8	Walldén (2020)	1.0	1.0	0.5	1.0	1.0	4.5	Include (High Quality)
9	Lupo et al. (2018)	1.0	1.0	0.5	1.0	1.0	4.5	Include (High Quality)
10	Callahan (2017)	1.0	1.0	0.5	0.5	1.0	4.0	Include (High Quality)
11	Farisi (2016)	1.0	1.0	0.5	1.0	1.0	4.5	Include (High Quality)

12	Kaun & Forsman (2024)	1.0	0.5	0.5	0.5	0.0	2.5	Exclude (Context outside Social Studies/Schooling)
13	Chang et al. (2024)	1.0	0.5	0.0	0.5	0.0	2.0	Exclude (Context of Medical/VR Training)
14	Gümüş et al. (2024)	1.0	0.5	0.5	0.5	0.0	2.5	Exclude (Focused purely on Informatics)
15	Segundo-Marcos et al. (2023)	1.0	0.5	0.0	0.5	0.5	2.5	Exclude (Focused on General Child Psychology)
16	Lin et al. (2023)	1.0	0.5	0.5	0.0	0.0	2.0	Exclude (Focused on Computational Thinking)
17	Alam et al. (2023)	1.0	0.0	0.5	0.5	0.0	2.0	Exclude (Issue of Lecturer Workload/Gender)

The quality assessment results demonstrate that the final 11 selected articles scored between 4.0 and 5.0, reflecting high methodological quality. The majority of these studies featured clear research objectives, structured methodologies, and conclusions robustly supported by empirical data. Although a few articles received a score of 0.5 on data collection procedures or result presentations due to minor gaps in detailed methodological reporting, all final papers successfully met the established quality threshold (4.0) and were confidently retained for data synthesis.

Data Extraction and Synthesis

The final data processing phase in this study was conducted through two integrated stages: textual data extraction and conceptual synthesis. In the first stage, metadata from the 11 final articles were systematically extracted into a manual working matrix to map critical information, including authors, publication year, research context/focus, specific scaffolding strategies implemented, and primary outcomes or findings directly related to digital agency.

Subsequently, the extracted textual data were analyzed using the Thematic Synthesis method

adapted for contemporary systematic reviews (Flemming et al., 2023). This qualitative synthesis process initiated with free line-by-line coding of the primary text, followed by the clustering of similar codes into established descriptive categories (Page et al., 2021). In the final stage, new analytical themes were reconstructed to critically interpret the data (Gough & Thomas, 2024). This comprehensive synthesis approach was directed systematically to robustly address the four research questions (RQ1–RQ4) posed in this study.

RESULTS AND DISCUSSION

Study Selection and Literature Characteristics

The literature selection process demonstrates that research surrounding digital agency within Social Studies education remains limited and has rarely been examined in an integrated manner. This scarcity is evidenced by the PRISMA screening results, which identified 71 initial articles from Scopus, subsequently narrowing down to 11 articles after undergoing multiple stages of rigorous selection based on publication year, subject area, document type, language, and content eligibility (Table 1).

Table 4. Literature Selection Results (PRISMA Summary)

Selection Stage	Number of Articles
Initial Scopus Identification	71
Publication Year Filter	64
Social Sciences Subject Filter	57
Document Type Filter	21
English Language Filter	17
Final Included Studies	11

These findings indicate that scholarship simultaneously connecting digital agency, pedagogical scaffolding, and Social Studies education is still in its nascent stages of development. Consequently, the available literature remains fragmented and has yet to establish a well-defined international conceptual framework.

The analysis reveals that research on digital agency has experienced a significant increase over the past five years. This trend is demonstrated by the dominance of publications during the 2021–2025 period, which accounted for 63.6% of the total studies, while the remaining 36.4% originated from the 2016–2020 period (Table 2).

Research Development Trends

Table 5. Publication Distribution by Year

Period	Frequency	Percentage
2016–2020	4	36.4%
2021–2025	7	63.6%

These findings indicate that digital agency is a relatively new yet rapidly accelerating field of study, expanding in tandem with the broader digital transformation in education (Baytiyeh, 2021; Nachtigal et al., 2024; Tabak & Dubovi, 2025). Moreover, there is a visible shift in research orientation from merely using technology as an instructional tool toward empowering student agency through digital literacy, civic engagement, and digital social participation (Farisi, 2016; Callahan, 2017; Weisberg & Dawson, 2023).

Study Characteristics Matrix and Research Focus

An analysis of the study characteristics reveals significant variations across geographic locations (country distribution), the targeted Social Studies learning domains, and the scaffolding approaches implemented to support digital agency. These cross-national and substantive variances indicate that a single dominant approach does not exist; instead, there is a multi-dimensional spectrum of strategies that are adaptively tailored to local curricular contexts.

Table 6. Matrix of Primary Studies

No	Literature Source (Primary Article)	Country / Location	Target Social Studies Domain	Implemented Scaffolding Strategy Type	Developed Digital Agency Dimension
1	Tabak & Dubovi (2025)	Israel	Data Literacy & Socioscientific Issues	Literacy & Data Scaffolding	Critical Evaluation of Information
2	Nachtigal et al. (2024)	United States	Citizenship Education	Socio-Emotional Scaffolding	Digital Civic Engagement
3	Lesley et al. (2023)	United States	Digital History Literacy	Disciplinary Literacy Scaffolding	Critical Evaluation of Digital Sources
4	Weisberg & Dawson (2023)	United States	Social Justice Techno-Pedagogy	Equity Technology Scaffolding	Teacher Professional Agency
5	ter Beek et al. (2022)	Netherlands	Historical Issue Reasoning	Textual & Literacy Scaffolding	Historical Reasoning Ability
6	Baytiyeh (2021)	Lebanon	Social Sustainability Education	Social Media Peer Support	Community Digital Social Participation
7	Monte-Sano et	United States	Open Social	Inquiry &	Democratic

	al. (2021)		Inquiry	Discussion Scaffolding	Classroom Participation
8	Walldén (2020)	Sweden	Modern Period History	Discourse & Language Scaffolding	Conceptual Understanding of Socio-Historical Issues
9	Lupo et al. (2018)	United States	Social Studies Content Reinforcement	Text-Set / Conceptual Scaffolding	Socio-Historical Background Knowledge Construction
10	Callahan (2017)	United States	Asynchronous History	Collaborative Virtual Scaffolding	Critical Reflection based on Digital Communities
11	Farisi (2016)	Indonesia	ICT Integration & Global Issues	Technological Task Scaffolding	21st-Century Critical Thinking Skills

The findings from this matrix demonstrate that disciplinary literacy-based scaffolding (literacy, discourse, and text-set scaffolding) and technology-driven interventions (technological task and equity technology scaffolding) are the most prevalent approaches. This combination of approaches is empirically proven across multiple countries to strengthen students' cognitive capacities in critically evaluating information and building their socio-historical background knowledge (Lupo et al., 2018; ter Beek et al., 2022; Lesley et al., 2023; Tabak & Dubovi, 2025).

Conversely, there is also an emerging trend toward strengthening non-cognitive scaffolding, such as socio-emotional and collaborative/peer support. These strategies are specifically

engineered to foster a more active dimension of digital agency, characterized by democratic participation and active digital civic engagement within specific communities (Callahan, 2017; Baytiyeh, 2021; Monte-Sano et al., 2021; Nachtigal et al., 2024).

Thematic Structure and Literature Clustering

The thematic synthesis indicates that the literature on digital agency within Social Studies education crystallizes into five primary thematic clusters. These clusters represent the substantive focus currently expanding within global scholarship and demonstrate how elements of scaffolding and agency are conceptually mapped.

Table 7. Thematic Clusters from Primary Literature Synthesis

Thematic Cluster	Core Research Focus	Dominant Studies (Primary Articles)
Digital Literacy & Information Processing	Development of data literacy, digital information processing, and critical evaluation of social media.	Tabak & Dubovi (2025); Lesley et al. (2023); Walldén (2020)
Civic Agency & Digital Participation	Digital civic engagement, socio-emotional actions, and community participation within digital spaces.	Nachtigal et al. (2024); Baytiyeh (2021)
Instructional Technology & Equity	ICT integration in instructional settings, technological equity, and digital task design.	Farisi (2016); Weisberg & Dawson (2023)
Disciplinary Thinking in Social Studies	Historical reasoning, open social inquiry, and background socio-historical knowledge construction.	Lupo et al. (2018); Monte-Sano et al. (2021); ter Beek et al. (2022)
Professional Learning & Teacher Agency	Critical teacher reflection, virtual learning communities, and techno-pedagogy professional development.	Callahan (2017)

Despite these thematic connections, the analysis shows that digital agency is still predominantly

conceptualized as a byproduct of digital literacy rather than as an explicit pedagogical construct

deliberately developed through scaffolding (Walldén, 2020; Lesley et al., 2023). Furthermore, scaffolding continues to be positioned as a generic instructional strategy and has not yet been systematically channeled toward agency development within the explicit context of Social Studies education.

The Impact of Scaffolding on Digital Agency

The synthesis results indicate that scaffolding

strategies yield diverse yet specifically clustered impacts on the development of students' digital agency in Social Studies classrooms. The most dominant impact is the reinforcement of data literacy and critical information evaluation skills, a finding consistently observed across the majority of the analyzed primary studies (Lupo et al., 2018; Walldén, 2020; ter Beek et al., 2022; Lesley et al., 2023; Tabak & Dubovi, 2025).

Table 8. Distribution of Key Impacts of Scaffolding on Digital Agency

Key Digital Agency Impact Category	Frequency	Related Primary Article Sources
Reinforcing Data Literacy & Critical Evaluation (Focus on students' cognitive-evaluative capacity)	5	Tabak & Dubovi (2025); Lesley et al. (2023); ter Beek et al. (2022); Walldén (2020); Lupo et al. (2018)
Enhancing Participation & Democratic Classroom Interaction (Focus on active engagement within Social Studies instruction)	2	Monte-Sano et al. (2021); Callahan (2017)
Developing Global Skills & Techno-Pedagogical Reflection (Focus on macro ICT integration and teacher agency)	2	Weisberg & Dawson (2023); Farisi (2016)
Triggering Digital Civic Engagement (Focus on real-world action and active agency in society)	2	Nachtigal et al. (2024); Baytiyeh (2021)

Paradigm Shifts in Digital Agency within Social Studies Education

The evolving literature reveals three primary findings regarding the paradigm shifts of digital agency within Social Studies education. First, a definitive movement occurs from viewing technology as a mere instructional aid toward treating digital agency as a social and reflective pedagogical outcome. Within this scope, technology is no longer conceptualized as a neutral instrument, but rather as an intrinsic component of social practices that shapes how students interact with and interpret digital information. This shift marks an epistemological transition in Social

Studies, moving away from transmission-based learning approaches toward participatory and meaning-making learning frameworks that position students as active agents within digital ecosystems (Selwyn et al., 2025; Williamson, 2017; Lund & Aagaard, 2020; Erstad et al., 2021).

Second, technology is increasingly understood as an element of an expansive learning ecosystem mediated by broader social and pedagogical practices. Consequently, successful digital learning is determined not merely by technological access, but by the quality of social interactions, pedagogical scaffolding structures, and the underlying design of learning activities that

promote collaboration and reflection. This finding underscores that technology does not automatically trigger pedagogical benefits; instead, its effects operate through complex processes of social mediation within classroom environments (Vygotsky, 1978; Wertsch, 1998; Kozulin et al., 2003; Rogoff, 2003; Daniels, 2016).

Third, digital agency is progressively positioned as a multidimensional construct that spans cognitive, social, ethical, and participatory dimensions. This conceptualization indicates that agency is no longer understood purely as an individual competence, but rather as a capacity distributed across the interactions among individuals, communities, and digital structures. Agency is therefore relational and emergent, rather than a fixed, static attribute possessed by an individual (Buckingham, 2015; Jenkins et al., 2016; Kumpulainen & Rajala, 2017; Erstad et al., 2021).

Nevertheless, the literature also reveals a persistent conceptual tension with the traditional *digital competence* approach, which continues to dominate digital education policies. This conventional perspective tends to reduce digital agency to a standardized set of individually measurable technical skills, thereby marginalizing the critical dimensions of social participation and transformative digital citizenship. Consequently, a pronounced disjunction emerges between operational digital competence and the broader capacity of individuals to act as social agents within wider digital arenas (Ferrari, 2013; Van Laar et al., 2017; Fraillon et al., 2020; Siddiq et al., 2024).

Scaffolding as a Mechanism for Digital Agency Development

The analysis of the synthesized literature yields three core findings concerning the operationalization of scaffolding in fostering digital agency. First, *literacy scaffolding* stands out as the most dominant form of support compared to other scaffolding configurations. This widespread presence demonstrates that pedagogical interventions remain overwhelmingly centered on strengthening reading, comprehension, and evaluation capacities for both digital and textual information. Such dominance indicates that the instructional goals of current interventions primarily operate at the level of *knowledge acquisition*, rather than advancing toward the more complex and transformative layer of *agency formation*.

Second, scaffolding structures in the existing literature are heavily dominated by cognitive functions and are rarely aligned systematically with

agency development. This deficiency is reflected in the scarcity of scaffolding designs that explicitly empower students to make autonomous decisions, engage actively within digital public spheres, or initiate knowledge-driven social actions. Stated differently, scaffolding continues to function predominantly as a *cognitive support system* rather than a *socio-transformative mechanism* that bridges academic knowledge with meaningful social action (Reiser & Tabak, 2014; Puntambekar, 2022).

Third, there is an evident fragmentation among technology-based, collaboration-based, and inquiry-based scaffolding strategies, which have yet to be integrated into a single, cohesive pedagogical model. This fragmentation prevents scaffolding from operating as a unified instructional design system, leaving it instead as a collection of isolated strategies that lack systematic direction toward comprehensive agency transformation (Belland et al., 2017; Lin et al., 2023).

Theoretically, this situation demonstrates that the concept of the *Zone of Proximal Development* (ZPD) is still predominantly interpreted within narrow cognitive limits. In modern digital contexts, scaffolding must expand to incorporate social, epistemic, and participatory dimensions. Thus, scaffolding needs to be reconstructed as a comprehensive mediational mechanism that bridges knowledge acquisition, social interaction, and real-world digital actions (Vygotsky, 1978; Sawyer, 2014).

The Effectiveness of Scaffolding on Literacy, Participation, and Agency

The synthesized evidence points to three major outcomes regarding the overall effectiveness of scaffolding strategies:

- **High Cognitive Effectiveness:** Scaffolding is highly effective in enhancing foundational digital literacy and critical information evaluation skills, particularly in guiding students to navigate, interpret, and assess source credibility within intricate digital landscapes. This efficacy confirms that scaffolding remains strongest within cognitive and basic epistemic dimensions (Eshet, 2012; Ng, 2012; Buckingham, 2015).
- **Moderate Classroom Participation:** Scaffolding delivers a moderate contribution to active classroom participation via discussions, collaboration, and structured inquiry tasks. However, this participation remains constrained within highly regulated classroom settings, failing to translate into active engagement

within broader, open digital public spheres. Hence, the transition from classroom participation to authentic civic participation remains weak (Choi et al., 2017; Ribble, 2017; Fraillon et al., 2020).

- **Limited Agency Transformation:** The direct contribution of scaffolding toward genuine digital agency and active civic engagement remains relatively constrained. Although students exhibit noticeable improvements in managing digital information, these skills seldom mature into a robust capacity for social, reflective action within the framework of active digital citizenship, leaving a structural gap between digital competence and civic agency in Social Studies outcomes (Helsper & Eynon, 2013; Jones & Mitchell, 2016; Kivunja, 2020).

Challenges and Opportunities in Scaffolding-Based Digital Agency Implementation

The systematic analysis illuminates three key findings regarding the deployment of scaffolding interventions. First, the over-reliance on traditional literacy frameworks causes scaffolding to favor information mastery over active agency development. This reality demonstrates that instructional designs heavily prioritize *epistemic control* over *social transformation*, thereby slowing the educational shift toward cultivating active digital citizens.

Second, a clear disconnect persists among technology integration, pedagogical practices, and the core civic objectives of Social Studies curricula. This misalignment prevents scaffolding from operating as an integrated ecosystem, making it difficult to attain holistic, transformative learning goals, particularly the cultivation of authentic digital citizenship.

Third, digital agency is consistently positioned in the literature as an indirect byproduct of other interventions rather than as an explicitly targeted pedagogical goal. Conceptually, this status shows that digital agency is still treated as an *emergent*

construct rather than a structured *instructional target* intentionally built into curriculum blueprints (Lund & Aagaard, 2020; Kumpulainen & Sefton-Green, 2021; Selwyn et al., 2025).

Nevertheless, significant opportunities exist to engineer more integrative scaffolding models by synthesizing sociocultural theories, inquiry-based learning, and interactive digital technologies. Such integrated frameworks hold the potential to transform basic digital literacy into reflective, collaborative, and participatory *civic agency* within the domain of Social Studies education (Reiser & Tabak, 2014; Zhu et al., 2017; Belland et al., 2017).

Conceptual Model Formulation for Digital Agency Development

As the primary theoretical contribution of this systematic review, Figure 1 proposes a conceptual model that synthesizes the fragmented findings from the 11 reviewed primary studies. This model is explicitly formulated to address the conceptual tension between basic technical competence approaches and authentic social agency formation within Social Studies classrooms (Weisberg & Dawson, 2023; Nachtigal et al., 2024).

The model strongly confirms that digital agency does not develop instantaneously or automatically through the mere frequency of student technology use in schools (Farisi, 2016). Instead, this capacity unfolds progressively through pedagogical mediation driven by structured scaffolding strategies (ter Beek et al., 2022; Tabak & Dubovi, 2025).

Within this framework, scaffolding serves as the *key mechanism* linking daily instructional activities to the reinforcement of students' digital agency. Its critical components comprise disciplinary literacy scaffolding to sharpen cognitive reasoning (Lupo et al., 2018; Walldén, 2020; Lesley et al., 2023) and socio-collaborative environment scaffolding to catalyze authentic classroom action (Callahan, 2017; Monte-Sano et al., 2021).

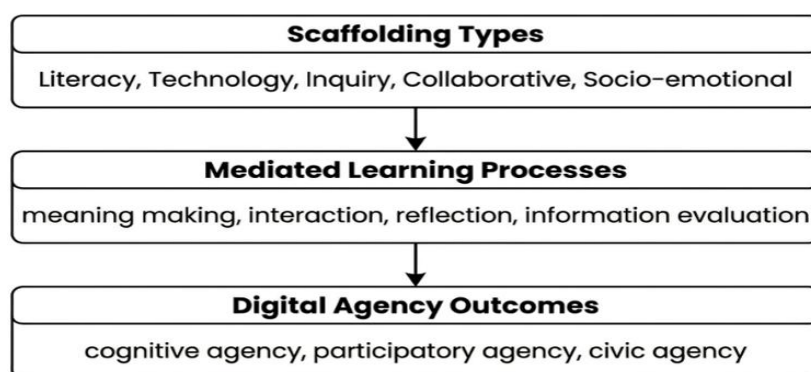


Figure 2. Synthesis of the Conceptual Model for Digital Agency Development
Research Gap Map and Future Research Agenda

To chart a sustainable path for future scholarship in this domain, an analysis of current literature boundaries was conducted through the Research Gap Map illustrated in Figure 3. This visual analysis reveals a highly significant gap in international scholarship regarding the explicit integration of scaffolding and digital agency within the boundaries of Social Studies education.

This gap is evidenced by the profound lack of

ine both concepts into a unified, holistic pedagogical model. The vast majority of current research remains heavily concentrated on short-term cognitive literacy evaluations and generalized instructional strategies (Lupo et al., 2018; ter Beek et al., 2022).

Conversely, scholarly territory directly linking scaffolding interventions to long-term outcomes, such as real-world digital civic engagement and active social participation outside school boundaries, remains largely unexamined (Baytiyeh, 2021; Nachtigal et al., 2024).

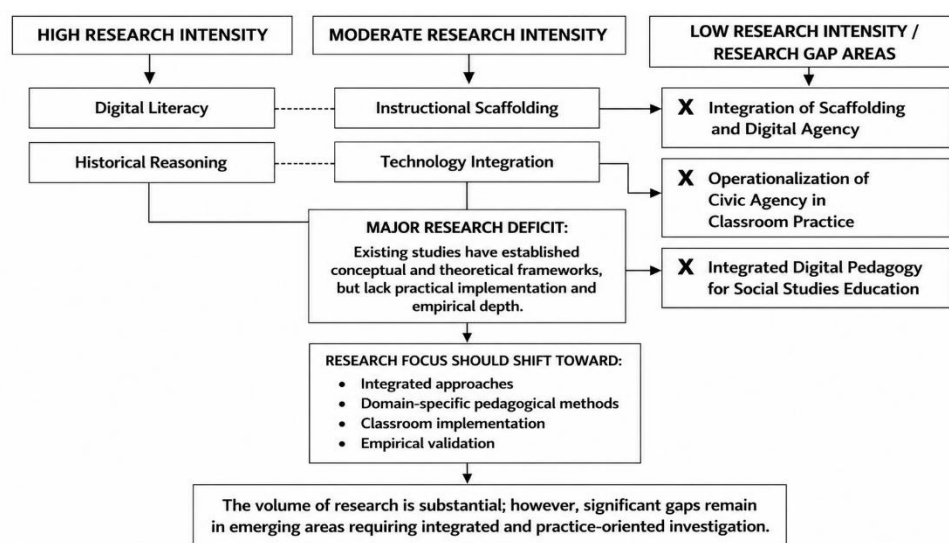


Figure 3. Research Gap Map and Future Research Agenda

The stark research gaps highlighted in Figure 3 confirm that the future research agenda must strategically reposition its focus. Future researchers should move beyond testing generic ICT tools (Farisi, 2016) toward the development, experimentation, and empirical validation of Social Studies instructional models that explicitly integrate multidimensional scaffolding (synthesizing cognitive, technological, and socio-emotional supports).

These interventions must be systematically channeled to target core instructional endpoints, namely the cultivation of students' digital agency, digital citizenship, and active civic engagement (Baytiyeh, 2021; Weisberg & Dawson, 2023; Nachtigal et al., 2024). This unmapped area presents a fertile opportunity to drive the next wave of international contributions in Social Studies education research.

CONCLUSION

This systematic literature review synthesized

evidence from 11 Scopus-indexed empirical studies to examine the role of pedagogical scaffolding in fostering digital agency within Social Studies education. The findings indicate that research in this field remains limited but has grown steadily over the past decade. Existing studies primarily employ scaffolding through inquiry-based learning, guided discussions, digital instructional support, and disciplinary literacy practices. These approaches consistently enhance students' digital literacy, critical thinking, and information evaluation skills, although their effectiveness in promoting authentic digital civic participation and broader digital agency remains limited.

The review also highlights several persistent challenges, including the fragmented integration of technology, pedagogy, and citizenship education, as well as the tendency to position digital agency as an indirect learning outcome rather than an explicit instructional objective. By synthesizing fragmented empirical evidence, this review provides a clearer conceptual understanding of how scaffolding can support digital agency development in Social

Studies education and identifies important directions for strengthening pedagogical practice.

This review is subject to several limitations. It included only Scopus-indexed journal articles, resulting in a relatively small body of empirical evidence, and the qualitative thematic synthesis is inherently interpretative. Future research should therefore expand the evidence base by incorporating broader educational contexts, conducting longitudinal and design-based studies, and investigating how emerging technologies, including generative artificial intelligence and immersive learning environments, can be integrated into scaffolding designs that explicitly foster students' digital agency and active digital citizenship.

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