



A Literature Review and Conceptual Analysis of Digital Social Literacy in Secondary Education

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Abstrak

Perkembangan teknologi digital telah mengubah secara signifikan pola interaksi sosial peserta didik, khususnya pada jenjang pendidikan menengah. Kondisi ini menuntut penguatan literasi yang tidak hanya berorientasi pada keterampilan teknis, tetapi juga mencakup dimensi sosial, etika, dan kritis dalam penggunaan teknologi digital. Literasi sosial digital menjadi konsep penting untuk membekali peserta didik agar mampu berinteraksi secara bertanggung jawab dalam lingkungan digital yang kompleks. Penelitian ini bertujuan untuk merumuskan kerangka konseptual literasi sosial digital dalam pendidikan menengah melalui sintesis kajian literatur dan analisis konseptual. Metode penelitian yang digunakan adalah kajian literatur kualitatif dengan menelusuri artikel ilmiah dan sumber akademik relevan dari berbagai basis data bereputasi. Data dianalisis menggunakan teknik analisis konten dan analisis konseptual untuk mengidentifikasi definisi, dimensi, serta karakteristik literasi sosial digital. Hasil penelitian menunjukkan bahwa literasi sosial digital merupakan kompetensi multidimensional yang mencakup komunikasi etis digital, kolaborasi sosial daring, empati dan kesadaran sosial digital, berpikir kritis terhadap informasi digital, serta tanggung jawab dan partisipasi digital. Penelitian ini menghasilkan kerangka konseptual dan operasional literasi sosial digital yang dapat dijadikan landasan bagi pengembangan kurikulum, strategi pembelajaran, dan asesmen di pendidikan menengah. Kerangka ini diharapkan mampu mendukung pembentukan peserta didik yang kritis, beretika, dan bertanggung jawab dalam menghadapi tantangan masyarakat digital.

Kata Kunci: Literasi Sosial Digital; Pendidikan Menengah; Kajian Literatur; Kerangka Konseptual

Abstract

The rapid advancement of digital technology has significantly transformed students' patterns of social interaction, particularly at the secondary education level. This condition calls for the strengthening of literacy that is not only oriented toward technical skills but also encompasses social, ethical, and critical dimensions in the use of digital technology. Digital social literacy has therefore emerged as a crucial concept for equipping students with the ability to interact responsibly within complex digital environments. This study aims to formulate a conceptual framework of digital social literacy in secondary education through a synthesis of the literature and conceptual analysis. The research employed a qualitative literature review by examining scholarly articles and relevant academic sources retrieved from reputable databases. Data were analyzed using content analysis and conceptual analysis techniques to identify the definitions, dimensions, and characteristics of digital social literacy. The findings indicate that digital social literacy is a multidimensional competence encompassing ethical digital communication, online social collaboration, digital empathy and social awareness, critical thinking toward digital information, as well as digital responsibility and participation. This study proposes a conceptual and operational framework of digital social literacy that can serve as a theoretical foundation for curriculum development, instructional strategies, and assessment in secondary education. The framework is expected to support the development of students who are critical, ethical, and responsible in responding to the challenges of digital society.

Keywords: Digital Social Literacy; Secondary Education; Literature Review; Conceptual Framework



1. Introduction

The rapid advancement of digital technology has fundamentally transformed the ways individuals interact, communicate, and build social relationships, particularly among adolescents who are in a dynamic phase of social and emotional development. In the context of secondary education, students are increasingly engaged in various digital spaces, such as social media, online learning platforms, and technology-based collaborative environments, which directly influence how they construct identities, express themselves, and interact with others (Korkmaz & Kilic, 2024). This condition indicates that literacy in the digital era can no longer be understood merely as technical proficiency in operating digital devices or applications, but must encompass a broader understanding of the social, ethical, and critical dimensions of technology use (Choudhary & Bansal, 2022) (Samaniego, 2023). Students are required to communicate ethically, respect diversity, and demonstrate reflective and responsible behavior in digital interactions. Therefore, strengthening literacy that is oriented toward social and ethical dimensions has become increasingly important to ensure that students are not only competent users of technology, but also individuals who are able to participate in digital society in a healthy and meaningful manner (Taylor & DiGiacomo, 2023).

Digital social literacy has emerged as an integrative concept that combines digital literacy with social literacy, emphasizing students' abilities to communicate ethically, collaborate constructively, demonstrate empathy, and make responsible decisions in digital interactions. This concept is not solely oriented toward the mastery of technology, but also toward the development of attitudes, values, and social awareness required for healthy and meaningful participation in digital society (Jashari et al., 2024) (Sposab & Rieckmann, 2024). In the context of secondary education, digital social literacy becomes a key competence, as students are in a stage of social and emotional development that is particularly vulnerable to various dynamics and risks of online interaction. However, digital social literacy still faces significant conceptual challenges (Koren, 2023). The concept is often intertwined with related terms such as media literacy, digital citizenship, information literacy, and social-emotional learning, each of which has distinct focuses and theoretical frameworks. This conceptual fragmentation has led to inconsistencies in understanding, indicator formulation, and implementation strategies of digital social literacy in secondary schools (Chen & Xiao, 2024). Consequently, efforts to develop curricula and evaluate learning outcomes tend to be fragmented and difficult to measure comprehensively, highlighting the need for clearer conceptual clarification and more systematic synthesis.

Numerous previous studies indicate that digital social literacy is a crucial competence in secondary education, given the increasing intensity of students' social interactions in digital environments. (Kumar et al., 2024) (Solier & Soto, 2024) emphasize that digital literacy encompasses not only technical aspects but also cognitive, critical, and social abilities in interpreting digital information. Furthermore, (Morey et al., 2023) developed the concept of digital citizenship, highlighting ethics, social responsibility, and active participation in digital environments. Research by (Agustin et al., 2022) reinforces the urgency of integrating media literacy and social literacy to address the challenges of misinformation and online social risks among adolescents. In the educational context, (D. L. Sharma et al., 2024) (Nuryati et al., 2023) draw attention to the gap between students' technical digital skills and their digital social-ethical competencies at the secondary school level. Meanwhile, more recent research by (Menegale et al., 2024) Pangrazio and underscores the need for a more integrated conceptual framework to understand digital social literacy as a contextual and sustainable social practice in secondary education.

Nevertheless, much of the existing research still addresses these concepts in isolation, indicating a clear research gap that calls for a comprehensive synthesis of the literature and in-depth conceptual analysis.

Secondary education represents a critical developmental phase for the formation of students' social identities, moral values, and digital behavior patterns (Wandi et al., 2023) (Murti et al., 2024) (Rosenberg, 2024). At this stage, adolescents are confronted with various digital challenges, such as the spread of misinformation, cyberbullying, social polarization, and the decline of ethical communication in online spaces (Liu & Chen, 2024) (Maulina et al., 2023) (Franayanti et al., 2023). Therefore, schools play a strategic role in fostering digital social literacy as part of efforts to prepare students to participate responsibly in a democratic and civilized digital society.

The main challenge in the development of digital social literacy in secondary education lies in the absence of a comprehensive and operational conceptual understanding. Digital social literacy is still often interpreted in a fragmented manner, either as technical skills in using digital technologies or as a component of character education without clear integration. This gap is further exacerbated by curricular orientations and instructional practices that tend to prioritize cognitive and technological aspects, while the social, ethical, and reflective dimensions of digital interaction remain insufficiently structured (Sumartini et al., 2024) (Karakose et al., 2024). As a result, students may demonstrate relatively strong digital skills, yet lack adequate digital social competencies to navigate the complexities of online interactions. In addition, the implementation of digital social literacy in secondary schools faces challenges related to teachers' readiness, educational policies, and the rapidly evolving digital environment (Nikolova et al., 2024). Teachers continue to encounter limited conceptual and instructional guidance for integrating digital social literacy across subject areas. At the same time, the accelerating flow of information, the prevalence of misinformation, cyberbullying, and social polarization in digital media demand adaptive and sustainable educational approaches (Handayani et al., 2024). These challenges highlight the need for a clear and contextually grounded conceptual framework as a foundation for developing learning strategies, assessment practices, and educational policies that can strengthen students' digital social literacy in a holistic manner.

This study offers a conceptual solution through a systematic literature review and conceptual analysis to formulate a more comprehensive, integrated, and contextually relevant understanding of digital social literacy in secondary education, thereby bridging the conceptual fragmentation that has persisted in both educational theory and practice. The researcher's interest in addressing this topic is grounded in the urgency of strengthening students' social, ethical, and digital responsibility competencies amid the increasing complexity of online interactions, while the conceptual frameworks currently employed in schools remain inconsistent and tend to emphasize technical aspects alone. By synthesizing diverse theoretical perspectives and findings from previous studies, this research aims to formulate an operational definition of digital social literacy, identify its core dimensions and characteristics, and map its implications for teaching practices and educational policies in secondary education as a foundation for developing a systematic, applicable, and sustainable conceptual framework.

2. Research Method

This study employs a systematic literature review combined with conceptual analysis. The research data consist of scholarly articles and academic sources relevant to digital

social literacy in secondary education. The literature was analyzed through stages of selection, content analysis, and conceptual synthesis to formulate an integrated framework of understanding (Yosawati et al., 2024). This type of research focuses on examining and synthesizing theories, concepts, and findings from previous studies related to digital social literacy in secondary education. The approach was selected because the purpose of the study is not directed toward hypothesis testing or the collection of empirical field data, but rather toward the development of a comprehensive and integrated conceptual understanding (Sukmayadi et al., 2023). Through a systematic review of the literature, this study seeks to identify patterns of thought, theoretical frameworks, and emerging research trends in the field of digital social literacy, which can serve as a foundation for the formulation of a conceptual framework that is relevant to the needs of secondary education.

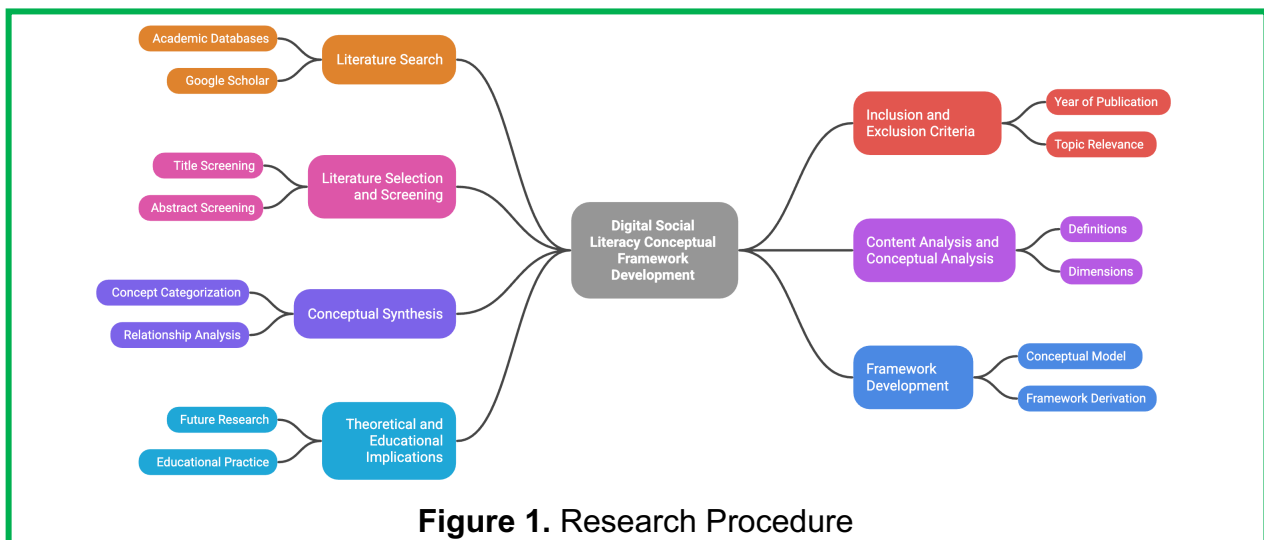


Figure 1. Research Procedure

Data collection was conducted through a systematic search of relevant and credible academic literature, including scholarly journal articles, academic books, and educational policy documents obtained from reputable databases such as Scopus, Web of Science, Google Scholar, and ERIC. The data collection process was guided by predefined inclusion and exclusion criteria, including year of publication, relevance to the topic of digital social literacy, and the secondary education context. The identified literature was then selected through a staged screening process involving titles, abstracts, and full-text reviews to ensure the relevance, substance, and quality of the sources. This procedure aimed to obtain a representative and relevant body of literature as the basis for subsequent conceptual analysis.

Data analysis was conducted using content analysis and conceptual analysis techniques applied to the selected body of literature in order to obtain an in-depth and systematic understanding of digital social literacy. At this stage, the researcher carefully examined the literature to identify and compare various definitions, dimensions, characteristics, and theoretical approaches to digital social literacy employed in previous studies. This process involved coding key concepts, themes, and recurring patterns related to social, ethical, and critical aspects of digital interaction. Subsequently, the identified concepts were categorized into meaningful groups and the relationships among them were examined through a process of conceptual synthesis, allowing the researcher to map connections, overlaps, and distinctions across different perspectives. The results of this analytical process were then used to formulate a systematic, coherent, and integrative conceptual framework of digital social literacy that reflects the complexity of digital

interactions in secondary education. In addition, the analysis enabled the derivation of theoretical and educational implications that may serve as valuable references for the development of future research agendas, the formulation of educational policies, and the design of instructional practices aimed at strengthening digital social literacy in secondary education contexts.

3. Results and Discussion

3.1 Results

This study produces a clearer, more integrated, and contextually grounded conceptual formulation of digital social literacy for secondary education through the synthesis of various definitions and approaches previously dispersed across digital literacy, media literacy, digital citizenship, and social-emotional learning. The results of the analysis identify the core dimensions of digital social literacy, including ethical digital communication, online social collaboration, digital empathy and social awareness, critical thinking toward digital information, as well as digital responsibility and participation. These findings are articulated in an operational conceptual framework that can serve as a theoretical foundation for curriculum development, instructional strategies, and assessment instruments in secondary education, while also providing theoretical and practical implications for future research and the integration of digital social literacy into educational policies and practices.

Conceptual Formulation of Digital Social Literacy

The findings of this study indicate that digital social literacy is a multidimensional concept that cannot be understood partially as merely a set of technical skills. Based on a synthesis of the literature, digital social literacy is conceptualized as an integrated competence encompassing students' abilities to communicate ethically, collaborate constructively, demonstrate empathy, and engage in critical and reflective thinking within digital interactions. These findings highlight that digital social literacy functions as a bridge between the mastery of digital technologies and the development of socially responsible attitudes within the digital environment of secondary education.

The conceptual analysis identifies core dimensions of digital social literacy, including ethical digital communication, online social collaboration, digital empathy and social awareness, critical digital information literacy, as well as digital responsibility and participation. These dimensions demonstrate that digital social literacy represents a contextual social practice that evolves in response to the dynamics of digital environments and the developmental characteristics of students. Consequently, digital social literacy should not be regarded as a static competence, but rather as one that requires adaptive and sustainable learning approaches. This study also produces a conceptual framework of digital social literacy that can serve as a theoretical foundation for curriculum development, instructional strategies, and assessment instruments in secondary education. The framework provides a more systematic direction for integrating social, ethical, and critical dimensions into digital-based learning, while also opening avenues for future empirical research to examine and further develop digital social literacy. In this regard, the study contributes to strengthening the theoretical foundations of digital social literacy as a crucial component in preparing students to face the challenges of digital society in a responsible and ethical manner.

The conceptual framework of digital social literacy in secondary education is designed to provide a systematic understanding of the key competencies that need to be developed

to enable students to navigate the dynamics of digital interaction. This framework is derived from a synthesis of the literature and conceptual analysis of various approaches to digital literacy, social literacy, and digital citizenship, which are then integrated into dimensions that align with the developmental characteristics of secondary school students. Table 1 presents the core dimensions of digital social literacy along with their conceptual descriptions and implementation focus within the context of secondary education.

Table 1. Conceptual Framework of Digital Social Literacy in Secondary Education

Dimension	Conceptual Description	Focus in Secondary Education
Ethical Digital Communication	The ability to communicate politely, responsibly, and respectfully in digital spaces	Social media ethics, cyberbullying prevention
Online Social Collaboration	The ability to collaborate and build constructive social relationships through digital platforms	Online group work, collaborative projects
Digital Empathy and Social Awareness	Sensitivity to emotions, perspectives, and the social impact of digital interactions	Character education and tolerance development
Critical Thinking toward Digital Information	The ability to evaluate the credibility, accuracy, and bias of digital information	Information literacy and anti-disinformation
Digital Responsibility and Participation	Awareness of rights, responsibilities, and roles as digital citizens	Digital citizenship and social participation

Based on Table 1, digital social literacy is understood as a multidimensional competence encompassing ethical digital communication, online social collaboration, digital empathy and social awareness, critical thinking toward digital information, as well as digital responsibility and participation. Each dimension represents interconnected skills and attitudes that collectively shape students' responsible, reflective, and socially oriented digital behavior. For instance, ethical digital communication and online social collaboration emphasize the importance of respectful interaction and constructive cooperation within increasingly complex and open digital environments. Furthermore, the focus on secondary education within each dimension indicates that strengthening digital social literacy is not merely theoretical, but also practical and applicable in instructional contexts. The integration of issues such as social media ethics, cyberbullying prevention, information literacy, and active digital citizenship enables schools to design learning experiences that are contextual and meaningful. Accordingly, this conceptual framework can serve as a foundation for curriculum development, instructional strategies, and assessment practices aimed at fostering students' critical, ethical, and responsible participation in digital society.

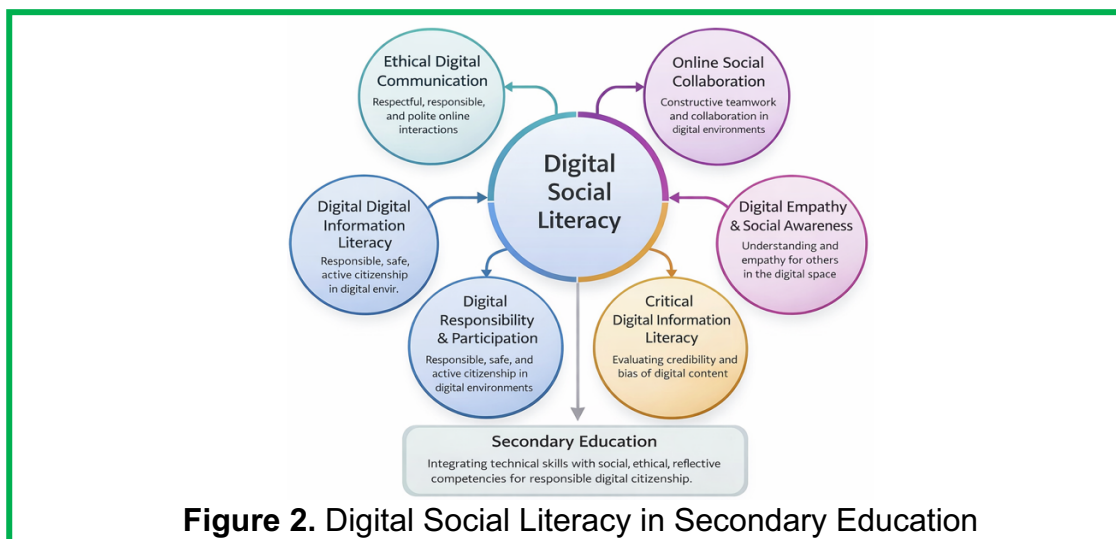


Figure 2. Digital Social Literacy in Secondary Education

Based on the figure, digital social literacy is positioned at the center of the framework and is surrounded by five core dimensions, namely ethical digital communication, online social collaboration, digital empathy and social awareness, critical digital information literacy, and digital responsibility and participation. Each dimension represents an essential and interconnected aspect in shaping students' digital behavior. The relationships illustrated through directional arrows emphasize that digital social literacy is not linear in nature, but rather a dynamic process involving continuous interaction among cognitive, social, and ethical competencies in the use of digital technology. Furthermore, the framework places secondary education as the primary context for the implementation of digital social literacy. The emphasis on integrating technical skills with social, ethical, and reflective competencies indicates that digital social literacy learning should be designed in a holistic and contextual manner. Accordingly, this conceptual framework can serve as a reference for curriculum development, instructional strategies, and assessment practices aimed at equipping students to become critical, empathetic, and responsible digital citizens in responding to the challenges of digital society.

Identification of the Core Dimensions and Characteristics of Digital Social Literacy

This study identifies the core dimensions and characteristics of digital social literacy that are relevant to the context of secondary education. The results of the literature review and conceptual analysis indicate that digital social literacy does not function as a single competence, but rather as a multidimensional construct that reflects the complexity of students' interactions in digital spaces. Each identified dimension represents the skills and attitudes required for students to adapt to the social, ethical, and informational dynamics of an increasingly evolving digital environment. The identified dimensions of digital social literacy include ethical digital communication, online social collaboration, digital empathy and social awareness, critical thinking toward digital information, as well as digital responsibility and participation. Ethical digital communication emphasizes respectful, responsible, and inclusive interaction in online contexts, while online social collaboration highlights the ability to work constructively with others through digital platforms. Meanwhile, digital empathy and social awareness contribute to students' sensitivity to the social impact of digital interactions, whereas critical thinking toward digital information and digital responsibility emphasize evaluative skills and awareness as active and responsible digital citizens.

These findings provide a more operational framework for understanding digital social literacy as a contextual and sustainable social practice in secondary education. The framework aligns with the developmental characteristics of students at this educational level, who are in the process of forming social identities, moral values, and patterns of digital behavior. Accordingly, the identification of these dimensions and characteristics can serve as a foundation for designing learning activities, assessment practices, and educational policies oriented toward strengthening students' digital competencies in a holistic and meaningful manner.

Table 2. Operational Framework of Digital Social Literacy in Secondary Education

Digital Social Literacy Dimension	Characteristics of Secondary School Students	Implications for Learning and Assessment
Ethical Digital Communication	Students are in the process of forming social identities and communication ethics	Social media ethics instruction, attitude assessment, and digital reflection
Online Social Collaboration	Developing collaboration skills and social relationships	Online collaborative projects and group work assessment

Digital Empathy and Social Awareness	Sensitive to social recognition and diversity	Character education, tolerance development, and case-based digital discussions
Critical Thinking toward Digital Information	Beginning to develop reflective and evaluative thinking skills	Information literacy, misinformation analysis, and critical thinking assessment
Digital Responsibility and Participation	Developing awareness as digital citizens	Digital citizenship education, online social participation, and digital action projects

Table 2 illustrates the relationship between the dimensions of digital social literacy, students’ developmental characteristics, and their implications for learning and assessment in secondary education. Each dimension is structured based on the understanding that secondary school students are in a critical phase of forming social identities, moral values, and patterns of digital behavior. Therefore, digital social literacy is not viewed merely as a technical skill, but as a social practice that develops alongside students’ cognitive, social, and emotional maturity within digital interaction contexts. Furthermore, the table demonstrates that each dimension of digital social literacy can be operationalized concretely in teaching and assessment practices. Instruction in social media ethics, online collaborative projects, the strengthening of empathy through case-based digital discussions, and the development of critical thinking toward digital information serve as examples of contextual and meaningful implementation. Accordingly, this operational framework can be used as a reference for designing learning activities, assessment strategies, and educational policies oriented toward strengthening students’ digital competencies in a holistic, sustainable, and contextually relevant manner in response to the challenges of digital society.

The operational visualization of digital social literacy represents the interconnections among key concepts involved in the development of secondary school students’ digital competencies. This visualization emphasizes that digital social literacy is constructed from a range of interrelated elements, including technical, social, ethical, and critical capacities. The presentation in the form of keywords is intended to highlight the core focal points that serve as the foundation for strengthening digital social literacy within instructional contexts.



Based on Figure 3, the terms “digital” and “social” appear as the central focus, surrounded by supporting concepts such as communication, ethics, social awareness, participation, critical thinking, and assessment. This illustrates that digital social literacy does not function as a single, isolated skill, but rather as an integrated set of competencies oriented toward social practices in digital spaces. The presence of concepts such as *online*

projects, information, and developing underscores the importance of activity-based learning and continuous developmental processes in fostering students' digital social literacy. Furthermore, the visualization demonstrates that the operationalization of digital social literacy in secondary education needs to be implemented contextually through learning activities, collaborative projects, and assessment practices that emphasize ethical and critical dimensions. The integration of communication, social participation, and the evaluation of digital information indicates that digital social literacy must be developed holistically, in alignment with the formation of students' social identities, moral values, and patterns of digital behavior. Accordingly, Figure 3 provides a conceptual representation that reinforces the understanding of digital social literacy as a relevant, applicable, and sustainable competence in secondary education.

Conceptual Framework of Digital Social Literacy

The findings of this study result in a conceptual framework of digital social literacy developed through a synthesis of the literature and conceptual analysis of various approaches to digital literacy, social literacy, and digital citizenship. This framework positions digital social literacy as a multidimensional competence that integrates technical digital skills with social, ethical, and reflective aspects of online interaction. Accordingly, digital social literacy is understood not merely as the mastery of technology, but as a social practice that shapes how students communicate, collaborate, and participate responsibly in digital spaces.

The resulting conceptual framework provides a strong theoretical foundation for curriculum development in secondary education. Through the mapping of the dimensions and characteristics of digital social literacy, the framework can be used as a reference for formulating learning outcomes, instructional materials, and the integration of digital social literacy across subject areas. This approach enables the systematic and contextual strengthening of students' digital competencies, aligned with their cognitive, social, and moral developmental needs at the secondary education level. Moreover, the framework has practical implications for the development of instructional strategies and assessment instruments. Teachers can utilize the framework to design project-based learning, digital case discussions, and online collaborative activities that emphasize ethical communication, empathy, and critical thinking. In terms of assessment, the framework opens opportunities for the development of authentic assessments that evaluate not only technical knowledge, but also students' attitudes, behaviors, and responsibilities in digital interactions.

This conceptual framework of digital social literacy makes a significant contribution to the development of future research and the formulation of educational policies. The framework can serve as a foundation for empirical studies aimed at examining the effectiveness of digital social literacy implementation, while also functioning as a reference for the design of digitally oriented educational policies and programs. Accordingly, this study contributes to strengthening the theoretical and conceptual foundations of digital social literacy as a strategic component in preparing students to face the challenges of digital society in a critical, responsible, and ethical manner. In addition, the keyword co-occurrence network visualization is employed to map the conceptual relationships among key terms in the study of digital social literacy in secondary education. This visualization is constructed based on the results of bibliometric analysis of relevant literature, thereby providing a structural overview of research foci, conceptual interconnections, and emerging thematic trends within the field.

practices, and assessment processes. The articulation of each dimension—from ethical digital communication to digital responsibility and participation—demonstrates that digital social literacy should be developed through contextual, collaborative, and sustainable learning approaches. This framework also reinforces the argument that strengthening digital social literacy cannot be achieved in an isolated or incidental manner, but instead requires a holistic approach involving school policies, pedagogical strategies, and authentic assessment. Accordingly, the findings of this study not only enrich the theoretical foundations of digital social literacy, but also provide strategic direction for the development of secondary education that is adaptive to the dynamics of digital society.

The findings of this study are consistent with previous research emphasizing that digital social literacy is a multidimensional construct that cannot be reduced to technical skills alone. A number of studies indicate that the integration of ethical, social, and critical aspects constitutes a key element in the development of students' digital literacy (Sari et al., 2024) (Raza & Pate, 2023). Research on digital citizenship also highlights the importance of responsibility, participation, and ethical behavior in digital interactions as integral components of formal education (Jansen et al., 2024). In addition, studies on media and information literacy underscore the need for critical thinking skills to address misinformation and the complexity of digital ecosystems (M. Sharma, 2024) (Ghafar et al., 2023). Within the context of secondary education, research by (Portero & Bravo, 2022) reveals a gap between students' technical digital skills and their digital social-ethical competencies. In line with this perspective, (Al-Zuraiji et al., 2024) emphasize the need for an integrated conceptual framework that views digital literacy as a contextual and sustainable social practice. Consequently, this study not only reinforces previous findings but also extends them through the formulation of a more systematic and contextually relevant conceptual framework of digital social literacy for secondary education.

The identification of the dimensions and characteristics of digital social literacy in this study demonstrates that secondary school students' digital competence should be understood as a complex and interconnected social practice. Each identified dimension does not stand alone, but rather forms an integrated whole that reflects how students interact, build relationships, and make meaning of information in digital spaces. These findings reinforce the view that the primary challenge of digital education lies not merely in technological mastery, but in students' ability to navigate digital interactions in an ethical, empathetic, and critical manner. Accordingly, digital social literacy functions as a bridging framework that connects students' cognitive, social, and moral development in responding to the continuously evolving dynamics of digital society. Furthermore, the operational framework developed in this study indicates that the dimensions of digital social literacy can be translated concretely into contextual learning and assessment practices in secondary education. The emphasis on students' developmental characteristics makes digital social literacy highly relevant to learners' real needs, such as social identity formation, the need for social recognition, and the enhancement of reflective and evaluative capacities. These implications underscore that strengthening digital social literacy requires holistic, activity-based, and sustainable pedagogical approaches, including collaborative projects, digital case-based discussions, and authentic assessment. Thus, the findings of this study provide a strategic contribution to guiding educational practices toward the development of digital competencies that are not only technically proficient, but also socially and ethically mature.

The identified dimensions and characteristics of digital social literacy are consistent with previous research emphasizing that students' digital literacy should be understood as

a social practice integrated with ethical, collaborative, empathetic, and critical dimensions. (Muchunguzi, 2024) (Samur & Akman, 2023) argue that digital literacy encompasses cognitive and critical dimensions beyond technical skills, while (Abdulkarim et al., 2022) highlight the importance of responsibility and participation as core elements of digital citizenship. Studies by (Kreinsen et al., 2024) (Cahyono & Rizqi, 2024) further demonstrate that critical thinking toward digital information is essential for addressing misinformation and online social risks among adolescents. In the context of secondary education, (Septian et al., 2023) identify a gap between students' technological proficiency and their digital social-ethical competencies, indicating the need for more holistic instructional approaches. Moreover, (Laupichler et al., 2022) emphasize that digital literacy should be understood as a contextual social practice that evolves in accordance with cultural dynamics and students' developmental trajectories. Accordingly, the findings of this study not only confirm previous research, but also extend it through the formulation of more operational and contextually relevant dimensions of digital social literacy for secondary education.

The conceptual framework of digital social literacy developed in this study reveals an urgent need to view digital literacy as a social practice integrated with ethical, social, and reflective dimensions. This finding underscores that digital literacy approaches focusing solely on technological mastery are no longer sufficient to address the complexity of students' interactions in digital spaces. In the context of secondary education, digital social literacy plays a strategic role in shaping how students communicate, collaborate, and participate responsibly, alongside the ongoing formation of their social identities and moral values. Accordingly, this conceptual framework reinforces a paradigm shift in digital education toward a more holistic approach that emphasizes character development and social responsibility within digital environments. Moreover, the alignment between the proposed conceptual framework and the results of the keyword co-occurrence network visualization indicates that research on digital social literacy is evolving in an integrative and cross-approach manner. The prominence of keywords related to *framework*, *curriculum*, *assessment*, and *development* suggests that central issues in digital social literacy research extend beyond theoretical concerns to include implementation in educational practice. The interconnected thematic clusters further demonstrate that the development of digital social literacy requires synergy among conceptual formulation, pedagogical strategies, and educational policies. Therefore, the conceptual framework produced in this study functions not only as a theoretical contribution, but also as an analytical and practical foundation for curriculum development, instruction, assessment, and future research aimed at preparing students to face the challenges of digital society in a critical, responsible, and ethical manner.

The conceptual framework of digital social literacy generated in this study is consistent with previous research emphasizing the importance of integrating social, ethical, and critical dimensions within digital literacy. (Hamid et al., 2022) assert that digital literacy involves reflective and critical thinking in interpreting information, rather than merely technical skills. (Pizzolitto et al., 2023) further reinforces that responsibility and ethics constitute the core of digital citizenship that must be cultivated through formal education. In the educational context, (Prabandari et al., 2024) highlights the urgency of media literacy as a means of fostering students' critical awareness and social participation, while (Sanga & Aziakpono, 2023) conceptualize digital literacy as a contextual and continuously evolving social practice. Thus, the findings of this study not only confirm earlier research, but also extend it through the formulation of a more systematic and applicable conceptual framework of digital social literacy for secondary education.

4. Conclusion

This study concludes that digital social literacy is an integrated and multidimensional competence that cannot be reduced to the mastery of technical digital skills alone. Digital social literacy is understood as a social practice that integrates ethical communication skills, social collaboration, empathy and social awareness, critical thinking toward information, as well as digital responsibility and participation. In the context of secondary education, digital social literacy plays a strategic role as a bridge between the use of digital technology and the formation of students' social identities, moral values, and patterns of digital behavior. Therefore, strengthening digital social literacy has become a fundamental necessity in addressing increasingly complex digital interaction challenges, such as misinformation, cyberbullying, and the degradation of ethical online communication. In addition, this study produces both conceptual and operational frameworks of digital social literacy that can serve as theoretical and practical foundations for curriculum development, instructional strategies, and assessment instruments in secondary education. The frameworks emphasize that the development of digital social literacy should be carried out through holistic, contextual, and sustainable approaches, including activity-based learning, collaboration, reflection, and authentic assessment. Accordingly, this study contributes to strengthening the conceptual foundations of digital social literacy and provides strategic direction for secondary education practices in preparing students to participate critically, responsibly, and ethically in digital society.

References

- Abdulkarim, A., Ratmaningsih, N., Anggraini, D. N., & Sopianingsih, P. (2022). The Model of Mobile Application-Based Learning in Social Sciences Learning to Enhance Students' Digital Literacy. In *Advances in Social Science, Education and Humanities Research*. Atlantis Press. <https://doi.org/10.2991/assehr.k.220108.113>
- Agustin, F., Yusuf, F. N., & Setyarini, S. (2022). Promoting Students' Intercultural Awareness Through Digital Storytelling in EFL Challenging Interactions. In *Advances in Social Science, Education and Humanities Research* (pp. 197–205). Atlantis Press SARL. https://doi.org/10.2991/978-2-494069-91-6_30
- Al-Zuraiji, R. I. A., Shariatmadari, M., Al-Shareefi, H. J. S., & Kasiri, Z. A. (2024). Design and Validation of a Conceptual Model for Media Literacy-Based Virtual Education in Cyberspace: A Novel Approach to Teaching Biology in Iraq's Educational System. In *Management, Education and Development in Digital Age* (Vol. 1, Issue 3, pp. 294–318). KMAN Publication Incorporation. <https://doi.org/10.61838/medda.1.3.18>
- Cahyono, T. D., & Rizqi, R. M. (2024). The Impact of Digital Marketing, Financial Literacy, And Digital Literacy on Purchasing Intent for Online Products. In *Indonesian Business Review* (Vol. 7, Issue 2, p. 83). Prasetiya Mulya Publishing. <https://doi.org/10.21632/ibr.7.2.83-93>
- Chen, X., & Xiao, Y. (2024). Pathways to digital reading literacy among secondary school students: A multilevel analysis using data from 31 economies. In *Computers & Education* (Vol. 218, p. 105090). Elsevier BV. <https://doi.org/10.1016/j.compedu.2024.105090>
- Choudhary, H., & Bansal, N. (2022). Addressing Digital Divide through Digital Literacy Training Programs: A Systematic Literature Review. In *Digital Education Review* (Issue 41, pp. 224–248). Edicions de la Universitat de Barcelona.

<https://doi.org/10.1344/der.2022.41.224-248>

- Franayanti, M. Y., Saliman, S., & Amika, W. (2023). Exploring the Digital Literacy in the field of education: How lower secondary schools use Instagram for promotion in the Indonesian city of Yogyakarta. In *Proceedings of the 2nd International Conference of Humanities and Social Science, ICHSS 2022, 17 December 2022, Surakarta, Central Java, Indonesia*. EAI. <https://doi.org/10.4108/eai.17-12-2022.2338685>
- Ghafar, N. A., Rahmatullah, B., Razak, N. A., Muttallib, F. H. A., Adnan, M. H. M., & Sarah, L. L. (2023). Systematic literature review on digital courseware usage in Geography subjects for secondary school students. In *Journal of ICT in Education* (Vol. 10, Issue 1, pp. 25–38). Universiti Pendidikan Sultan Idris. <https://doi.org/10.37134/jictie.vol10.1.3.2023>
- Hamid, S., Aftab, M. J., & Rehman, N.-. (2022). Situation Analysis of Digital Literacy of Public-School Teachers in Punjab. In *Global Digital & Print Media Review* (pp. 50–62). Humanity Only - HO. [https://doi.org/10.31703/gdpmr.2022\(v-i\).06](https://doi.org/10.31703/gdpmr.2022(v-i).06)
- Handayani, S., Sudardi, B., Widodo, S. T., & Hardini, T. I. (2024). Indonesian-French Critical Intercultural Literacy Through Digital Comics. In *Advances in Social Science, Education and Humanities Research* (pp. 283–298). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-321-4_20
- Jansen, J., Kaledinova, E., & Wolter, A. (2024). A literature review of supply chain finance in a digital and sustainable environment: A conceptual framework. In *London Journal of Social Sciences* (Issue 7, pp. 13–22). UKEY Consulting and Publishing Ltd. <https://doi.org/10.31039/ljss.2024.7.185>
- Jashari, X., Fetaji, B., & Guetl, C. (2024). Assessing Digital Literacy Skills in Secondary and Higher Education: A Comprehensive Literature Survey of Validated Instruments. In *2024 47th MIPRO ICT and Electronics Convention (MIPRO)* (pp. 688–692). IEEE. <https://doi.org/10.1109/mipro60963.2024.10569399>
- Karakose, T., Polat, H., Tülübaş, T., & Demirkol, M. (2024). A Review of the Conceptual Structure and Evolution of Digital Leadership Research in Education. In *Education Sciences* (Vol. 14, Issue 11, p. 1166). MDPI AG. <https://doi.org/10.3390/educsci14111166>
- Koren, N. (2023). Conceptualizing political information literacy among young people: A systematized review of the literature. In *Education, Citizenship and Social Justice*. SAGE Publications. <https://doi.org/10.1177/17461979231189186>
- Korkmaz, O., & Kilic, H. C. (2024). Secondary School Students' Digital Literacy Skills, Social Media Addictions and Attitudes to Social Media Use. In *International Journal of Technology in Education* (Vol. 7, Issue 4, pp. 883–902). ISTES Organization. <https://doi.org/10.46328/ijte.809>
- Kreinsen, M., Grospietsch, F., & Schulz, S. (2024). Towards Conceptual Change in Computer Science Education: an Introduction to Conceptual Change Texts. In *Proceedings of the 19th WiPSCE Conference on Primary and Secondary Computing Education Research* (pp. 1–2). ACM. <https://doi.org/10.1145/3677619.3678124>
- Kumar, V., Choudhary, S. K., & Singh, R. (2024). Environmental socio-scientific issues as contexts in developing scientific literacy in science education: A systematic literature review. In *Social Sciences & Humanities Open* (Vol. 9, p. 100765). Elsevier BV.

<https://doi.org/10.1016/j.ssaho.2023.100765>

- Laupichler, M. C., Aster, A., Schirch, J., & Raupach, T. (2022). Artificial intelligence literacy in higher and adult education: A scoping literature review. In *Computers and Education: Artificial Intelligence* (Vol. 3, p. 100101). Elsevier BV. <https://doi.org/10.1016/j.caeai.2022.100101>
- Liu, Y., & Chen, J. (2024). The Dilemma of Farmers' Digital Literacy Enhancement in Digital Rural Construction and Path Analysis. In *Advances in Social Science, Education and Humanities Research* (pp. 219–226). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-253-8_27
- Maulina, R., Dhewanto, W., & Faturohman, T. (2023). The integration of Islamic social and commercial finance (IISCF): Systematic literature review, bibliometric analysis, conceptual framework, and future research opportunities. In *Heliyon* (Vol. 9, Issue 11). Elsevier BV. <https://doi.org/10.1016/j.heliyon.2023.e21612>
- Menegale, M., Fazzi, F., & Haring, N. (2024). Introduction Multiliteracies and Global Citizenship in Language Education: The Interplay of Young Adult Literature, Digital Social Reading, and Digital Storytelling. In *ELLE* (Issue 3). Edizioni Ca Foscari. <https://doi.org/10.30687/elle/2280-6792/2024/03/000>
- Morey, T., Foster, D., & Ewing, J. (2023). Virtual mentoring in agricultural education: Describing digital literacy, technology self-efficacy, and attitudes toward technology of secondary agricultural educators. In *Journal of Agricultural Education* (Vol. 64, Issue 1, pp. 12–27). American Association for Agricultural Education. <https://doi.org/10.5032/jae.v64i1.27>
- Muchunguzi, S. (2024). The centrality of Digital Literacy to Citizen Interaction with E-government Services in Tanzania. In *Journal of Policy and Leadership* (Vol. 10, Issue 1, pp. 45–64). Mzumbe University. <https://doi.org/10.70563/jpl.v10i1.4>
- Murti, A. D., Hernani, H., & Fatimah, S. S. (2024). Analysis of Indonesian Students Scientific Literacy Ability in Chemistry Learning: A Systematic Literature Review. In *Journal of Education and Learning Research* (Vol. 2, Issue 1, pp. 43–51). Yayasan Global READ Center. <https://doi.org/10.62208/jelr.2.1.p.43-51>
- Nikolova, N., Zafirova-Malcheva, T., Kirilova, B., & Mihnev, P. (2024). Development of digital competences in the Bulgarian secondary school context—a literature review of good practices. In *Frontiers in Education* (Vol. 9). Frontiers Media SA. <https://doi.org/10.3389/educ.2024.1434797>
- Nuryati, N., Hufad, A., & Rusdiyani, I. (2023). Systematic Literature Review: Trends Literacy Numeration in Maritime Materials Teaching Materials in the Digital Era. In *Pancasila International Journal of Applied Social Science* (Vol. 2, Issue 1, pp. 99–109). PT. Riset Press International. <https://doi.org/10.59653/pancasila.v2i01.511>
- Pizzolitto, E., Za, S., & Antonucci, G. (2023). Higher Education and Sustainable Development: A Literature Analysis and Conceptual Overview. In *Higher Education for the Sustainable Development Goals: Bridging the Global North and South* (pp. 39–55). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-80382-525-020231003>
- Portero, G. H., & Bravo, P. C. (2022). The use of ICT in Secondary Music Education and its relationship with teachers' beliefs. In *Digital Education Review* (Issue 42, pp. 1–15).

- Edicions de la Universitat de Barcelona. <https://doi.org/10.1344/der.2022.42.1-15>
- Prabandari, R. C. S. W., Fitria, H., & Effendi, D. (2024). The Effect of Digital Literacy and Character Education on Increasing the Quality of Learning. In *Journal of Social Work and Science Education* (Vol. 5, Issue 2, pp. 612–623). Yayasan Sembilan Pemuda Indonesia. <https://doi.org/10.52690/jswse.v5i2.798>
- Raza, M., & Pate, A. (2023). Digital Professional Competence (DProCom) for Higher Education: A Systematic Review of Literature. In *Qlantic Journal of Social Sciences and Humanities* (Vol. 4, Issue 4, pp. 385–392). Qlantic e Publications. <https://doi.org/10.55737/qjssh.532019821>
- Rosenberg, A. L. (2024). Institutional Ethnography and Cellphilmimg: Supporting Critical Digital Literacy Practices in Secondary Education. In *Studies in Arts-Based Educational Research* (pp. 185–198). Springer Nature Singapore. https://doi.org/10.1007/978-981-97-3218-0_12
- Samaniego, J. M. (2023). A cartography of digital literacy. Conceptual categories and main issues in the theorization and study of digital literacies. In *Digital Education Review* (Issue 43, pp. 68–86). Edicions de la Universitat de Barcelona. <https://doi.org/10.1344/der.2023.43.66-84>
- Samur, H., & Akman, O. (2023). Analysis of Environmental Literacy Levels of Social Studies Pre-Service Teachers. In *International Journal on Social and Education Sciences* (Vol. 5, Issue 3, pp. 605–625). ISTES Organization. <https://doi.org/10.46328/ijoneses.588>
- Sanga, B., & Aziakpono, M. (2023). FinTech and SMEs financing: A systematic literature review and bibliometric analysis. In *Digital Business* (Vol. 3, Issue 2, p. 100067). Elsevier BV. <https://doi.org/10.1016/j.digbus.2023.100067>
- Sari, G. I., Winasis, S., Pratiwi, I., Nuryanto, U. W., & Basrowi. (2024). Strengthening digital literacy in Indonesia: Collaboration, innovation, and sustainability education. In *Social Sciences & Humanities Open* (Vol. 10, p. 101100). Elsevier BV. <https://doi.org/10.1016/j.ssaho.2024.101100>
- Septian, R. D., Martini, T., Hidayat, Y., & Hendrayana, Y. (2023). Students Critical Thinking Skills in Physical Education Learning: A Systematic Literature Review. In *Journal of Physical Education For Secondary Schools* (Vol. 3, Issue 2, pp. 227–234). Universitas Pendidikan Indonesia (UPI). <https://doi.org/10.17509/jpess.v3i2.82607>
- Sharma, D. L., S, M. K., Gupta, M. A., Gupta, D. U., Jayaswal, M. P., & Tyagi, T. (2024). Digital Media Literacy Education And Social Development: A Study On The Need Of Digital Media Literacy Education Among The School Students Of Tonk District Of Rajasthan State In India. In *Educational Administration Theory and Practices*. Green Publication. <https://doi.org/10.53555/kuey.v30i2.2720>
- Sharma, M. (2024). Integration and Utilization of Digital Technology in Music Education: Conceptual Case Studies Analysis. In *IICE Official Conference Proceedings* (pp. 117–127). The International Academic Forum (IAFOR). <https://doi.org/10.22492/issn.2189-1036.2024.10>
- Solier, P. M. S., & Soto, V. V. (2024). Educación artística STEAM en la formación universitaria. Robótica creativa para la alfabetización visual y digital. In *European Public & Social Innovation Review* (Vol. 9, pp. 1–20). Forum XXI.

<https://doi.org/10.31637/epsir-2024-847>

- Sposab, K., & Rieckmann, M. (2024). *Development of Sustainability Competencies in Secondary School Education. A Scoping Literature Review*. MDPI AG. <https://doi.org/10.20944/preprints202410.0054.v1>
- Sukmayadi, T., Abdulkarim, A., Komalasari, K., & Halimi, M. (2023). Conceptual Model of Citizenship Learning Projects Based on Data Literacy in Citizenship Education Course. In *Advances in Social Science, Education and Humanities Research* (pp. 659–667). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-096-1_70
- Sumartini, A. R., Suprapti, N. W. S., Piartrini, P. S., & Sukaatmadja, I. P. G. (2024). Digital financial literacy and self-efficacy in increasing intention to use digital bank with the technology acceptance model theory approach. In *International research journal of management, IT and social sciences* (Vol. 11, Issue 6, pp. 252–263). Scientific and Literature Open Access Publishing. <https://doi.org/10.21744/irjmis.v11n6.2474>
- Taylor, C., & DiGiacomo, D. (2023). Approaches to information literacy conceptualisation in primary, secondary, and higher education contexts. In *Journal of Information Literacy* (Vol. 17, Issue 1). CILIP Information Literacy Group. <https://doi.org/10.11645/17.1.3258>
- Wandi, W., Mardianti, F., Suwarma, I. R., & Liliawati, W. (2023). Theory and Practice of Conceptual Understanding in Physics Education: A Literature Review and Bibliometric Analysis of the Recent Decades. In *Kasuari: Physics Education Journal (KPEJ)* (Vol. 6, Issue 2, pp. 107–117). Jurusan Pendidikan Fisika FKIP Unipa. <https://doi.org/10.37891/kpej.v6i2.483>
- Yosawati, R. A., Ansorayah, S., & Anoegrajekti, N. (2024). Exploring the Characteristics of Mass Media Coverage: A Critical Discourse Analysis Study to Improve Digital Literacy. In *Electronic Journal of Education, Social Economics and Technology* (Vol. 5, Issue 2, pp. 305–314). SAINTIS Publishing. <https://doi.org/10.33122/ejeset.v5i2.394>