Khizanah al-Hikmah : Jurnal Ilmu Perpustakaan, Informasi, & Kearsipan
p-ISSN: 2354-9629
e-ISSN: 2549-1334
Volume 13 Issue 1, June, 2025

Applying Constructivism Principles to Enhance Digital Media Literacy in Higher Education

Mutty Hariyati[1], Mochamad Nursalim[2], Ruqoyyah Fitri[3], Heriyanto[4], & Mochammad Riski Destrianto[5]

[1,2,3]Universitas Negeri Surabaya, Indonesia
[4]Universitas Diponegoro, Indonesia
[5]Politeknik Negeri Semarang, Indonesia
Correspondence email: 24010996023@mhs.unesa.ac.id

Notes

Submitted: 24-01-2025
Revised: 22-03-2025
Accepted: 28-04-2025

How to cite: Hariyati, M., Nursalim, M. ., Fitri, R., Heriyanto, & Destrianto, M. R. . (2025). Applying Constructivism Principles to Enhance Digital Media Literacy in Higher Education. Khizanah Al-Hikmah : Jurnal Ilmu Perpustakaan, Informasi, Dan Kearsipan, 13(1). https://doi.org/10.24252/v13i1a7

DOI: 10.24252/v13i1a7

ABSTRACT

This study explores the application of constructivist principles in the development of digital media literacy within higher education. Constructivism and digital media literacy share foundational elements, including active participation, critical thinking, contextual learning environments, and social collaboration. This research employs a qualitative approach through a literature review. Publications from 2014 to 2024 were selected based on their relevance to constructivist learning theory and digital media literacy, resulting in four core sources analyzed. The findings demonstrated that constructivist principles significantly contribute to the enhancement of digital media literacy skills, particularly in the areas of content creation, information management, digital publishing, and critical engagement. These competencies were essential for fostering independent, reflective, and responsible learners. The study concludes that constructivist-based approaches are vital for effectively integrating digital media literacy into higher education. To support this integration, it is recommended that universities embed digital media literacy into curricular frameworks and provide additional resources such as training programs through university libraries. These libraries, as central information hubs, can play a pivotal role in supporting students' digital literacy development and promoting lifelong learning.

Keywords: Digital Literacy; Digital Literacy Skills; Librarian Competencies

1. INTRODUCTION

Constructivism is a learning theory that emphasizes the process of acquiring knowledge as a constructive activity undertaken by the learner themselves (Chuang, 2021; Fernando & Marikar, 2017; Mann & MacLeod, 2015). Knowledge is not directly transferred by educators

or teachers (Pande & Bharathi, 2020; Sarbani et al., 2024). Therefore, under this principle, learners must actively participate in the process of acquiring knowledge, while educators act as facilitators who guide and provide the necessary learning media, also become a role model (Chuang, 2021). This principle has gained widespread adoption in modern education models (Pande & Bharathi, 2020), which emphasize the active role of learners, often through practical activities. In such contexts, the teacher's role is to guide the practical process.

The constructivist paradigm continues to evolve in education, as the need for learning extends beyond the walls of the classroom and requires real-life application. Individuals who excel in theory often struggle in practice and fail to provide effective solutions to real-world problems. Confronted with such realities, practice-based and student-centered learning models have been widely implemented in developed countries and subsequently adopted by other nations. Even, constructivism is regarded as the most influential educational philosophy of the 21st century. The rapid advancement of technology, particularly in the digital domain, has further increased the appeal of constructivist principles. This approach seamlessly integrates with the opportunities offered by digital technology, including social media (Schrader, 2015).

In the digital domain, the concept of information digitization has experienced significant growth, aligning with advancements in information and communication technology (Zhang & Zhu, 2016). Information from any source can now be accessed easily, inexpensively, without barriers, and without filtration, through digital media. The learning process for individuals in any field increasingly relies on digital media, including social media (Johnston, 2020) or at the very least, the initial access to knowledge is often facilitated through digital media (Zhang & Zhu, 2016). However, not all information available on digital platforms is valid, and it is not uncommon for fake news to circulate, leading to misleading information (Jones-Jang et al., 2021). If such information is blindly trusted and accepted, it can result in dangerous negative impacts (Dame Adjin-Tettey, 2022). To address this issue, a key competency that everyone must possess today is digital media literacy (Lee, 2018; Zhang & Zhu, 2016).

In the context of pervasive social media usage, individuals often inadvertently disclose extensive personal information, thereby increasing their exposure to potential risks (Jang & Kim, 2018; Lange, 2018). Some even find it difficult to stop, despite being aware of the importance of maintaining privacy (Trepte et al., 2015). This trend of oversharing highlights the critical need for digital media literacy, which teaches individuals to manage personal data wisely, understand its potential implications, and safeguard privacy in the digital realm, a concept also referred to as privacy literacy (Trepte et al., 2015). Digital media literacy has become an urgent necessity, as it relates to an individual's ability to use, seek, and process various forms of information effectively. This includes skills such as identifying accurate information, distinguishing facts from misinformation, protecting privacy, and communicating ethically. In essence, it involves analyzing information on digital platforms (Dezuanni, 2015). Such literacy is essential for adapting to and actively participating in digital society (Dezuanni, 2015; Zhang & Zhu, 2016).

Digital media literacy, defined as the ability to understand and utilize technology wisely, plays a crucial role in educational institutions, including universities (Dezuanni, 2015). Technological and informational advancements have positioned students, representatives of the current generation at the forefront of digital literacy. The rapid pace of technological development is anticipated to foster more effective and purposeful engagement with digital literacy, particularly within academic contexts. A key advantage of this engagement lies in

students' ability to access current educational resources with ease, thereby enhancing their preparedness for integration into an increasingly digitalized professional landscape. (Bond et al., 2018).

The utilization of technology in education, particularly in the realm of media literacy, is crucial for enhancing students' abilities to critically and accurately filter information (Dame Adjin-Tettey, 2022). Digital media literacy emphasizes the capacity and skills of individuals to access, comprehend, utilize, interpret, evaluate, and communicate messages from both print and electronic media (Suwana & Lily, 2017). This issue is of significant concern for stakeholders, as low literacy levels contribute substantially to poverty, unemployment, and inequality (Klapper & Lusardi, 2020; Nedungadi et al., 2018). Accordingly, the 2023 Government of Indonesia Work Plan, it delineates seven national priorities. Among these, the importance of information literacy aligns with National Priority 3: improving the quality and competitiveness of human resources (Bappenas, 2022). Recently, the Indonesian government has initiated efforts to enhance digital literacy, particularly through the Siberkreasi initiative. Siberkreasi is the National Digital Literacy Movement initiated by the Government of Indonesia, inaugurated on August 23, 2017. It aims to equip Indonesian society with digital literacy skills as a fundamental aspect of the demographic dividend (Kemkominfo, 2024). Similar programs have been established in various countries, including *MediaSmarts* in Canada (DeWaard & Hoechsmann, 2020), *eSmart* in Australia, launched by the Alannah & Madeline Foundation (McLoughlin & Burgess, 2010), and *Be Internet Awesome* in the United States, initiated by Google (Jones et al., 2024).

To support the Government of Indonesia Work Plan, university libraries can contribute significantly through academic activities, such as implementing information literacy education programs in higher education institutions across Indonesia. Comparable projects have been implemented by numerous academic libraries globally, including those in Australia (Johnston, 2020b), Nigeria (Ukwoma et al., 2016) Pakistan, and virtually all academic libraries worldwide (Dezuanni, 2010). Students in this age group are prone to easily disseminating information, potentially leading to mass panic, panic buying, hoaxes, or fake news. University libraries should begin developing digital literacy courses with content focused on fake news and evaluating information in digital environments (Johnston, 2020a). Media literacy and critical thinking skills can be taught and developed. The sooner individuals learn and understand the differences between actual reality and media-represented reality, the more likely the negative impacts of media can be mitigated. To ensure future generations possess media literacy competence and become critical consumers, a well-integrated approach to introducing these concepts to the public from an early age is necessary.

The importance of digital media literacy in higher education lies in its role in supporting students' academic success and personal development. Digital media literacy enables students to improve their comprehension and utilization of digital media by providing them with the skills necessary to grasp its operations, including the effective usage, production, analysis, and communication of information. This is essential for enhancing persons' proficiency in the judicious use of digital media (Shahzad & Khan, 2024). Enhance critical thinking abilities, as digital media literacy empowers pupils to identify credible material and prevent the dissemination of falsehoods. It instructs people to engage in critical thinking, identify informational biases, and corroborate facts prior to disseminating information (Hobbs, 2017). In educational contexts, digital media literacy enhances student access to learning resources, including e-journals, e-books, and online course materials. Students enhance their productivity in academic tasks through technology (Lv, 2022; Tempornsin et al.,

2019); they are equipped for the digital era, as digital media literacy enables them to adapt to technological advancements and capitalize on opportunities in the digital age, including the cultivation of digital communication skills and professional networking (Lv, 2022); it mitigates the adverse effects of social media, as students frequently encounter detrimental consequences such as cyberbullying or misinformation. Social media literacy enables individuals to comprehend these threats and utilize social platforms properly (Dame Adjin-Tettey, 2022; Jones-Jang et al., 2021); Enhance Efficacy in Student Activism. Socially-oriented digital media literacy aids students in the management and dissemination of pertinent information for action. Possessing robust literacy abilities enables individuals to articulate their ambitions and garner support efficiently, while eschewing sensationalism or misinformation (Kahne & Bowyer, 2019).

Digital media literacy benefits not only students but also higher education institutions. Through its application, universities can foster a more inclusive, adaptive, and contextually relevant learning environment in line with contemporary developments (Lv, 2022). By embodying these qualities, higher education institutions can address global challenges and provide the solutions required, while also producing graduates who are prepared to contribute and work in fields aligned with their interests and expertise.

Given the critical importance of digital media literacy, it is essential to analyze it from the perspective of constructivist theory. As previously explained, constructivist principles are widely adopted and developed in education for their ability to offer concrete solutions to real-world problems, because constructivism is based on problem solving. Similarly, digital media literacy is continually updated and relevant to emerging challenges. Based on this understanding, this study aims to analyze digital media literacy through a constructivist lens, exploring how constructivist principles can be applied to digital media literacy. The findings are anticipated to offer theoretical implications for librarians and educators about constructivist principles in digital media literacy.

2. METHODS

This study adopts a qualitative research approach utilizing a narrative literature review method. A narrative literature review is particularly appropriate for exploring conceptual relationships between theories and practices, allowing the researcher to interpret, organize, and synthesize findings from diverse sources without the strict procedural constraints of a systematic review (Randolph, 2009). This approach is well-suited to the present study, which seeks to interpret the application of constructivist learning principles within the context of digital media literacy in higher education.

The primary data sources include scholarly journal articles and reference books addressing themes related to digital media literacy, higher education learning, and constructivist learning theories. Literature was retrieved using databases subscribed to by the Universitas Negeri Surabaya (UNESA) library, including Cambridge e-Journals and Scopus. Keywords used during the search process included: "*digital media literacy in higher learning institution*" and "*constructivist learning*."

The review process followed a five-stage structure adapted from Randolph (2009) and Booth et al. (2016), consisting of initial topic exploration, literature search, focus refinement, data synthesis, and result presentation. This staged approach is appropriate for narrative reviews aiming to conceptually explore theoretical relationships.

The present study originated from a recognition of the increasing necessity to identify pedagogical approaches that effectively enhance digital media literacy among students in higher education. In response to the growing integration of digital technologies into academic environments, the researcher initiated a conceptual exploration to determine how educational practices might be restructured to support students' digital competencies.

To support this inquiry, the researcher conducted an extensive search for relevant theories and conceptual frameworks. Particular attention was given to literature that intersected digital media literacy, constructivist pedagogy, and higher education practices. This foundational phase ensured that the study would be grounded in established scholarly discourse while remaining open to emerging insights.

As the research progressed, the focus was refined to concentrate specifically on constructivist approaches to digital media literacy within higher education contexts. A systematic selection process was employed to curate literature published between 2014 and 2024, a decade characterized by significant technological advancements and evolving educational needs. Sources were included based on their relevance, theoretical depth, and contribution to the understanding of constructivist learning in digitally mediated environments. Publications were excluded if they were not peer-reviewed, lacked a clear connection to either higher education or constructivist principles, or contained redundant or superficial content. Ultimately, eight key sources were identified for detailed examination, chosen for their conceptual rigor and thematic alignment with the study's objectives.

These selected works were subsequently reviewed, interpreted, and subjected to thematic analysis. The researcher synthesized insights across the sources to construct a coherent and nuanced understanding of how constructivist learning principles can inform and enrich digital media literacy development. Where appropriate, additional supporting literature was integrated to fortify the conceptual framework and ensure a comprehensive interpretation of the findings.

The final stage involved the composition of this scholarly article, which presents a theoretical synthesis of constructivist pedagogy and digital media literacy in higher education. This narrative review contributes to existing scholarship by reconceptualizing digital literacy not merely as a technical skill set but as an iterative, constructivist learning process that prioritizes critical inquiry, collaboration, and contextual engagement. The review further underscores the importance of institutional support mechanisms, particularly the role of university libraries, in embedding digital literacy across both formal and informal learning environments. By offering these insights, the study suggests practical avenues for integrating constructivist principles into digital literacy initiatives, ultimately advancing the pedagogical discourse in higher education.

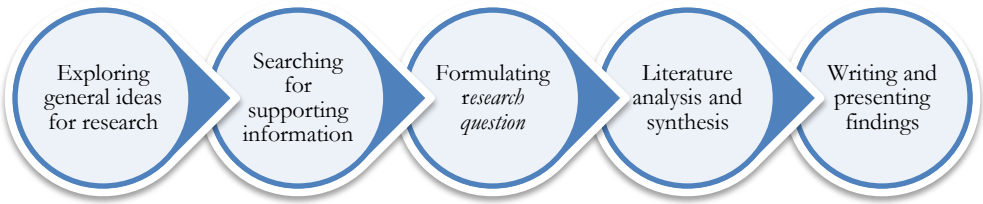

Figure 1. illustrates the research process undertaken in this study

3. RESULTS AND DISCUSSION

Based on a literature review of eight selected journals, various findings and relevancies were identified in alignment with the research theme, *"Digital Media Literacy in Higher Learning Institution and Constructivism."* The main findings of the study are presented in Table 1.

Table 1. The main research findings

No	Author	Title	Research Method	Main Findings	Relevance
1.	Reynolds (2016)	Defining, designing for, and measuring "social constructivist digital literacy" development in learners: a proposed framework	Quantitative with non-experimental survey	• Six dimensions of "social constructivist digital literacy" were found to be interrelated, supporting the theoretical framework used. • Changes in engagement at school in the first three dimensions (Create-Manage-Publish) were linked to changes in home engagement in the same dimensions, indicating transfer beyond the classroom. • Changes in school engagement in the dimensions of Socializing and Exploring/Playing were associated with changes in home engagement across dimensions, suggesting these activities can motivate home use.	Constructivism supports changes in digital literacy through the ability to create, manage, and publish.
2.	Tempornsin et al., (2019)	The Design and Development of Constructivist Web-Based Learning Environment Framework to Enhance Digital Literacy for Higher Education	Design Process and Model Development	• A constructivist web-based learning framework aimed at enhancing students' digital literacy encompasses several key aspects: (1) Psychological foundations, (2) Pedagogical foundations, (3) Contextual foundations, (4) Media and technology theory foundations, and (5) Digital literacy	Providing new insights into design for the development of educational websites based on constructivist principles to enhance digital literacy in higher education.

				foundations. • The design framework consists of four stages: 1) Activation of cognitive structures and enhancement of digital literacy. 2) Improvement of cognitive balance. 3) Support and reinforcement of cognitive structures and digital literacy. 4) Strengthening and supporting knowledge construction and the development of digital literacy.	
3.	Sarbani et al. (2024)	Digital Literacy, Elderly, and Constructivism: A Learning Approach to Enhance the Resilience of Digital Immigrants	Literature Review	• The constructivist approach aims to develop logical and analytical skills in learners based on their real-life experiences. • Constructivism is closely related to discovery learning and meaningful learning methods, both within the context of cognitive learning theory. • In the constructivist approach, educators' roles include listening to learners, interpreting their findings, observing differing opinions, and providing recognition and encouragement.	Constructivism develops logical and analytical skills based on real-life experiences, essential for digital media literacy.
4.	Somabut et al. (2016)	Media and Information Literacy of the Students Who Learn with a Digital Learning Environment Based on Constructivist Theory	Quantitative with survey	• Students displayed very positive attitudes toward learning in a constructivist theory-based digital environment, including high motivation, improved	Constructivist-based digital learning environments help students develop strong media and information literacy skills.

				understanding of the material, and acquisition of essential skills such as critical thinking, creativity, presentation, and communication. • A constructivist-based digital learning environment helped students develop strong media and information literacy (MIL) skills, with over 70% of students able to access, evaluate, and apply information effectively. • Integration of multimedia technology into constructivist learning environments enabled students to experience authentic and relevant learning while developing essential 21st-century skills.	
5	Maxmudova et al. (2024)	Improving Media Literacy Through Vitagenic Information	Mixed-methods (survey & focus group)	• The integration of vitagenic information (life experiences & practical knowledge) strengthens critical thinking and media evaluation skills among university students. • Media literacy is not only about consumption, but also about the production of meaningful media messages. • This approach also fosters healthy media habits and enhances participation in a democratic society. • A curriculum that incorporates media literacy as a	Reinforcing constructivism as an experiential approach fosters digital media literacy development in higher education through critical reflection on daily life experiences

				mandatory component is needed, supported by faculty training and interdisciplinary collaboration.	
6	Buchatska et al. (2024)	Enhancing Media Literacy Skill Building in Pedagogical Universities: Our View and Experience	Experimental (Pre-test & Post-test), Pilot Study	• Significant improvement in media literacy (↑20%), visual literacy (↑31%), and emotional resilience (↑24%) especially in advanced learners. • Use of integrated methods (flipped classroom, PBL, group projects) enhanced critical perception of media and sociocultural awareness. • Less improvement in information literacy (↑10%) and critical thinking (↑5%) indicated the need for more long-term engagement. • Training helped students recognize media manipulation, evaluate their own media habits, and develop emotional intelligence.	Supports the implementation of constructivist principles through student-centered, experience-based learning methods in media literacy development. Emphasizes the importance of active engagement, emotional intelligence, and interdisciplinary collaboration in higher education.
7	Rakhimov (2023)	Effective Methods of Developing Media Competences of Undergraduate Students	Literature Review	• Integration of media literacy education enhances students' ability to critically evaluate and interpret media content. • Active learning and collaborative strategies improve creativity, engagement, and peer interaction. • Exposure to emerging technologies (e.g., VR, AR, social media) increases technological proficiency. • Multicultural perspectives foster empathy and	Demonstrates how constructivist-based strategies like active and collaborative learning support digital literacy by enhancing critical thinking, creativity, and cultural awareness.

				broaden global awareness in media interpretation.	
8	Dongxue & Nagappan (2024)	Pedagogical Strategies in Media Literacy Education and their Alignment with Student-Centered Learning	Literature review and meta-analysis	• Pedagogical strategies emphasizing active participation, real-life application, and simulations proved effective in enhancing student engagement, knowledge acquisition, and self-efficacy. • Media literacy has evolved beyond traditional text to include multimedia and multimodal competencies necessary in modern digital environments. • Instructional design should minimize distractions and prioritize meaningful learning opportunities. • A bias toward conventional information literacy strategies was identified among librarians, indicating the need for a more balanced approach integrating both media and information literacy.	Constructivist and student-centered pedagogical strategies are effective in enhancing media literacy through experiential learning, simulations, and real-life engagement, aligning with modern educational theories.

The data analysis presented in the table above demonstrates that the principles of constructivism can enhance and strengthen digital media literacy. As explained by Reynolds (2016), who studied the diverse activities involving digital tools among high school students, the social constructivist framework was shown to transform the use of digital media through the ability to create, manage, and publish. This indicates that the principles of constructivism can foster the desired competencies in digital media literacy.

A study by Tempornsin et al. (2019) utilized a design process and model development approach to create a web-based learning environment framework applying constructivist principles. The framework aimed to enhance digital literacy in higher education. The study's findings revealed that the model framework encompasses several key aspects: (1) Psychological foundations, (2) Pedagogical foundations, (3) Contextual foundations, (4) Media and technology theory foundations, and (5) Digital literacy foundations. The implementation of the framework is structured into four stages: (1) Activation of cognitive

structures and enhancement of digital literacy, (2) Improvement of cognitive balance, (3) Support and reinforcement of cognitive structures and digital literacy, and (4) Strengthening and supporting knowledge construction and the development of digital literacy. This research contributes to the body of knowledge on developing web-based learning environment models grounded in constructivist principles to improve digital literacy. The study also highlights that merely providing advanced digitalization tools is insufficient for the educational process. A strategic approach is also necessary.

A study conducted by Sarbani et al. (2024), utilizing a literature review approach, demonstrated that constructivism can develop logical and analytical skills based on real-world experiences, which are essential for digital media literacy. The findings emphasized that constructivism enhances critical thinking skills, as it is grounded in logical and analytical reasoning derived from real-world experiences.

The fourth study, conducted by Somabut et al. (2016), examined digital media literacy among 10th-grade high school students and yielded similar results. It showed that a digital learning environment based on constructivist theory helps students develop robust media and information literacy skills, with more than 70 percent of students effectively accessing, evaluating, and applying information. Integrating multimedia technology into constructivist learning environments enables students to experience authentic and relevant learning while fostering essential 21st-century skills.

A subsequent study by Maxmudova et al. (2024) further explored the importance of lived experiences, or vitagenic information, in developing digital media literacy. Their research indicated that students who engage with media through the lens of their own experiences are more reflective and critical in their approach. This reinforces the role of constructivism in encouraging learners to not only consume media but also to produce meaningful and context-aware media content.

In another study, Buchatska et al. (2024) highlighted the effectiveness of student-centered strategies such as flipped classrooms and project-based learning in improving digital media literacy. Their findings suggested that these approaches help develop students' visual literacy, emotional intelligence, and critical perception of media. These outcomes reflect the core of constructivist pedagogy, where learning is driven by personal experience, emotional engagement, and collaborative meaning-making.

Rakhimov (2023) conducted a study focusing on active and collaborative learning as central elements of constructivism. The research demonstrated that such approaches significantly improve students' creativity, technological fluency, and cultural awareness. The study also revealed that incorporating emerging technologies such as Virtual Reality (VR) and Augmented Reality (AR) increased student engagement and helped foster empathy and global thinking.

Lastly, Dongxue & Nagappan (2024) presented a meta-analysis showing that student-centered pedagogies involving simulation, real-life application, and experiential tasks contribute to improved learning outcomes and student agency. The study also found a prevailing bias in higher education towards traditional notions of information literacy, which often neglect the broader competencies needed for digital media literacy. They argued that a constructivist rebalancing is required, one that not only emphasizes access to information but also the ability to interpret, create, and critically engage with media content.

Together, these eight studies demonstrate that constructivist principles are foundational in the development of digital media literacy. Through real-world engagement, active learning, emotional and social context, and creative production, learners are better equipped to navigate the digital world critically and effectively. Therefore, applying constructivist principles in digital media literacy education is not only beneficial but essential.

4. CONCLUSION

The study affirms that constructivist principles are fundamental to developing digital media literacy, especially in higher education. By promoting active engagement, reflection, and social collaboration, constructivism aligns naturally with how students interact with digital media in both academic and everyday contexts. Through constructivist pedagogy, students become active participants in the learning process (seeking, analyzing, and producing knowledge) thus transforming digital media literacy into a dynamic, meaning-making practice. Digital media, in this framework, serves not just as a tool but as a medium for contextual and critical learning. Educators act as facilitators, leveraging digital technologies such as web platforms, simulations, and multimedia to support experiential, emotionally resonant, and culturally relevant learning. These tools enhance both cognitive and affective learning, fostering autonomy and lifelong learning.

Social collaboration, a core value of constructivism, further reinforces digital literacy. Online interactions enable students to critically engage, co-construct knowledge, and respond to real-world issues, underscoring the participatory nature of media literacy. Moreover, integrating concepts such as vitagenic information, emotional intelligence, and reflective learning deepens students' critical thinking, empathy, and resilience, key competencies for navigating a complex digital landscape. Skills such as accessing, analyzing, creating, and reflecting are best cultivated in environments that support contextual, learner-centered approaches.

Despite challenges in implementation, including unequal access to technology and varying educator readiness (Feyzi Behnagh & Yasrebi, 2020), the constructivist approach remains a vital framework. It empowers institutions to build inclusive and transformative digital literacy programs that prepare students for informed and responsible engagement in a media-driven world.

ACKNOWLEDGEMENT

-

AUTHORS' CONTRIBUTIONS

Mutty Hariyati: Writing oiginal draft preparation. Ideas; formulation or evolution of overarching research goals and aims. **Mochamad Nursalim:** Supervision. **Ruqoyyah Fitri:** Supervision. **Heriyanto:** Supervision. **Mochammad Riski Destrianto:** Supervion.

CONFLICT OF INTERESTS

We state that there are no known conflicts of interest linked with this publication, and that there has been no significant financial assistance for this work that could have influenced its outcome.

REFERENCES

Bappenas. (2022). *Narasi RPJMN 2020*. https://jdih.Bappenas.go.id/

Bond, M., Marín, V. I., Dolch, C., Bedenlier, S., & Zawacki-Richter, O. (2018). Digital transformation in German higher education: Student and teacher perceptions and usage of digital media. *International Journal of Educational Technology in Higher Education*, *15*(1), 48. https://doi.org/10.1186/s41239-018-0130-1

Booth, A., Sutton, A., & Papaioannou, D. (2016). *Systematic Approaches to a Successful Literature Review* (2nd ed.). SAGE.

Buchatska, S., Zarichna, O., Matiienko, O., & Khurtenko, O. (2024). Enhancing media literacy skill building in pedagogical universities: Our view and experience. *East European Journal of Psycholinguistics*, *11*(1). https://doi.org/10.29038/eejpl.2024.11.1.buc

Chuang, S. (2021). The Applications of Constructivist Learning Theory and Social Learning Theory on Adult Continuous Development. *Performance Improvement*, *60*(3), 6–14. https://doi.org/10.1002/pfi.21963

Dame Adjin-Tettey, T. (2022). Combating fake news, disinformation, and misinformation: Experimental evidence for media literacy education. *Cogent Arts & Humanities*, *9*(1), 2037229. https://doi.org/10.1080/23311983.2022.2037229

DeWaard, H., & Hoechsmann, M. (2020). Landscape and Terrain of Digital Literacy Policy and Practice: Canada in the Twenty-First Century. In D. Frau-Meigs, S. Kotilainen, M. Pathak-Shelat, M. Hoechsmann, & S. R. Poyntz (Eds.), *The Handbook of Media Education Research* (1st ed., pp. 363–371). Wiley. https://doi.org/10.1002/9781119166900.ch34

Dezuanni, M. (2010). Digital Media Literacy, *Connecting Young's People Identities, Creative Production and Learning about Video Games*. In D. E. Alvermann (Ed.), Adolescents' Online Literacies : Connecting Classrooms, Media, and Paradigms. (pp. 125–143). Peter Lang.

Dezuanni, M. (2015). The building blocks of digital media literacy: Socio-material participation and the production of media knowledge. *Journal of Curriculum Studies*, *47*(3), 416–439. https://doi.org/10.1080/00220272.2014.966152

Dongxue, T., & Nagappan, R. (2024). Pedagogical Strategies in Media Literacy Education and their Alignment with Student-Centered Learning. *International Journal of Academic Research in Business and Social Sciences*, *14*(9), Pages 439-450. https://doi.org/10.6007/IJARBSS/v14-i9/22806

Fernando, S. Y., & Marikar, F. M. (2017). Constructivist Teaching/Learning Theory and Participatory Teaching Methods. *Journal of Curriculum and Teaching*, *6*(1), 110. https://doi.org/10.5430/jct.v6n1p110

Feyzi Behnagh, R., & Yasrebi, S. (2020). An examination of constructivist educational technologies: Key affordances and conditions. *British Journal of Educational Technology*, *51*(6), 1907–1919. https://doi.org/10.1111/bjet.13036

Hobbs, R. (2010). *Digital and Media Literacy: A Plan of Action*. The Aspen Institute. https://www.aspeninstitute.org/wp-content/uploads/2010/11/Digital_and_Media_Literacy.pdf

Hobbs, R. (2017). Measuring the Digital and Media Literacy Competencies of Children and Teens. In *Cognitive Development in Digital Contexts* (pp. 253–274). Elsevier. https://doi.org/10.1016/B978-0-12-809481-5.00013-4

Hobbs, R., & Jensen, A. (2009). The Past, Present, and Future of Media Literacy Education. *Journal of Media Literacy Education*. https://doi.org/10.23860/jmle-1-1-1

Jang, S. M., & Kim, J. K. (2018). Third person effects of fake news: Fake news regulation and media literacy interventions. *Computers in Human Behavior*, *80*, 295–302. https://doi.org/10.1016/j.chb.2017.11.034

Johnston, N. (2020a). Living in the World of Fake News: High School Students' Evaluation of Information from Social Media Sites. *Journal of the Australian Library and Information Association*, *69*(4), 430–450. https://doi.org/10.1080/24750158.2020.1821146

Johnston, N. (2020b). The Shift towards Digital Literacy in Australian University Libraries: Developing a Digital Literacy Framework. *Journal of the Australian Library and Information Association*, *69*(1), 93–101. https://doi.org/10.1080/24750158.2020.1712638

Jones, L. M., Mitchell, K. J., & Beseler, C. L. (2024). The Impact of Youth Digital Citizenship Education: Insights from a Cluster Randomized Controlled Trial Outcome Evaluation of the Be Internet Awesome (BIA) Curriculum. *Contemporary School Psychology*, *28*(4), 509–523. https://doi.org/10.1007/s40688-023-00465-5

Jones-Jang, S. M., Mortensen, T., & Liu, J. (2021). Does Media Literacy Help Identification of Fake News? Information Literacy Helps, but Other Literacies Don't. *American Behavioral Scientist*, *65*(2), 371–388. https://doi.org/10.1177/0002764219869406

Kahne, J., & Bowyer, B. (2019). Can media literacy education increase digital engagement in politics? *Learning, Media and Technology*, *44*(2), 211–224. https://doi.org/10.1080/17439884.2019.1601108

Kemkominfo. (2024). *SIBERKREASI Netizen Fair (SNF)*. https://gnld.siberkreasi.id/?S=siberkreasi

Klapper, L., & Lusardi, A. (2020). Financial literacy and financial resilience: Evidence from around the world. *Financial Management*, *49*(3), 589–614. https://doi.org/10.1111/fima.12283

Lange, P. G. (2018). Sharing in the digital era: Histories and consequences. *Media, Culture & Society*, *40*(7), 1101–1106. https://doi.org/10.1177/0163443717737613

Lee, N. M. (2018). Fake news, phishing, and fraud: A call for research on digital media literacy education beyond the classroom. *Communication Education*, *67*(4), 460–466. https://doi.org/10.1080/03634523.2018.1503313

Lv, Y. (2022). Cultivation of Teenagers' Digital Media Literacy and Network Legal Literacy in the Era of Digital Virtual Technology. *Scientific Programming*, *2022*, 1–9. https://doi.org/10.1155/2022/2978460

Mann, K., & MacLeod, A. (2015). Constructivism: Learning theories and approaches to research. In J. Cleland & S. J. Durning (Eds.), *Researching Medical Education* (1st ed., pp. 49–66). Wiley. https://doi.org/10.1002/9781118838983.ch6

Maxmudova, D., Khudoynazarov, E., Pazilova, M., Alyaminov, K., Abilova, G., Sherimbetova, Z., & Korabayev, S. (2024). Improving Media Literacy Among Higher Education Students Through Vitagenic Information. *Qubahan Academic Journal*, *4*(4), 411–442. https://doi.org/10.48161/qaj.v4n4a1230

McLoughlin, C., & Burgess, J. (2010). Counteracting e-bullying in Australian schools: Sustainable approaches and pedagogical issues. *Teacher Education for a Sustainable Future: Australian Teacher Education Association (ATEA) 2010 Conference Proceedings*, 1–10. https://atea.edu.au/wp-content/uploads/2010_mcloughlin_and_burgess.pdf

Nedungadi, P. P., Menon, R., Gutjahr, G., Erickson, L., & Raman, R. (2018). Towards an inclusive digital literacy framework for digital India. *Education + Training*, *60*(6), 516–528. https://doi.org/10.1108/ET-03-2018-0061

Pande, M., & Bharathi, S. V. (2020). Theoretical foundations of design thinking – A constructivism learning approach to design thinking. *Thinking Skills and Creativity*, *36*, 100637. https://doi.org/10.1016/j.tsc.2020.100637

Rakhimov, K. (2023). Effective Methods of Developing Media Competences of Undergraduate Students. *European International Journal of Pedagogics*, *3*(11), Article 11. https://doi.org/10.55640/eijp-03-11-01

Randolph, J. J. (2009). A Guide to Writing the Dissertation Literature Review. *Practical Assessment, Research & Evaluation*, *14*(13), 1–13.

Reynolds, R. (2016). Defining, designing for, and measuring "social constructivist digital literacy" development in learners: A proposed framework. *Educational Technology Research and Development*, *64*(4), 735–762. https://doi.org/10.1007/s11423-015-9423-4

Sarbani, Y. A., Mulyati, H., & Astuti, S. I. (2024). Literasi Digital, Lansia, dan Konstruktivisme: Pendekatan Pembelajaran untuk Meningkatkan Resiliensi Para Imigran Digital. *Scriptura*, *14*(1), 72–81. https://doi.org/10.9744/scriptura.14.1.72-81

Schrader, D. E. (2015). Constructivism and Learning in the Age of Social Media: Changing Minds and Learning Communities. *New Directions for Teaching and Learning*, *2015*(144), 23–35. https://doi.org/10.1002/tl.20160

Shahzad, K., & Khan, S. A. (2024). Relationship between new media literacy (NML) and web-based fake news epidemic control: A systematic literature review. *Global Knowledge, Memory and Communication*, *73*(6/7), 956–983. https://doi.org/10.1108/GKMC-08-2022-0197

Somabut, A., Chaijaroen, S., & Tuamsuk, K. (2016). Media and Information Literacy of the Students Who Learn with a Digital Learning Environment Based on Constructivist Theory. *Workshop Proceedings of the 24th International Conference on Computersin Education*, 242–249.

Suwana, F. & Lily. (2017). Empowering Indonesian women through building digital media literacy. *Kasetsart Journal of Social Sciences*, *38*(3), 212–217. https://doi.org/10.1016/j.kjss.2016.10.004

Tempornsin, J., Chaijaroen, S., & Somabut, A. (2019). The Design and Development of Constructivist Web-Based Learning Environment Framework to Enhance Digital Literacy for Higher Education. In L. Rønningsbakk, T.-T. Wu, F. E. Sandnes, & Y.-M. Huang (Eds.), *Innovative Technologies and Learning* (Vol. 11937, pp. 469–476). Springer International Publishing. https://doi.org/10.1007/978-3-030-35343-8_50

Trepte, S., Teutsch, D., Masur, P. K., Eicher, C., Fischer, M., Hennhöfer, A., & Lind, F. (2015). Do People Know About Privacy and Data Protection Strategies? Towards the "Online Privacy Literacy Scale" (OPLIS). In S. Gutwirth, R. Leenes, & P. De Hert (Eds.), *Reforming European Data Protection Law* (Vol. 20, pp. 333–365). Springer Netherlands. https://doi.org/10.1007/978-94-017-9385-8_14

Ukwoma, S. C., Iwundu, N. E., & Iwundu, I. E. (2016). Digital literacy skills possessed by students of UNN, implications for effective learning and performance: A study of the MTN Universities Connect Library. *New Library World*, *117*(11/12), 702–720. https://doi.org/10.1108/NLW-08-2016-0061

Zhang, H., & Zhu, C. (2016). A Study of Digital Media Literacy of the 5th and 6th Grade Primary Students in Beijing. *The Asia-Pacific Education Researcher*, *25*(4), 579–592. https://doi.org/10.1007/s40299-016-0285-2