Transforming Guidance and Counseling Services to Enhance Junior High School Students' Digital Literacy in the 21st Century: A Systematic Review

Widya Novi Angga Dewi *, Edy Purwanto, Mulawarman Mulawarman
Universitas Negeri Semarang, Indonesia
widyanovi311@students.unnes.ac.id*

Submitted:
2025-04-20

Revised:
2025-06-03

Published:
2025-09-19

Keywords:
Digital Literacy, Digital Transformation, Guidance And Counseling, Junior High School, Systematic Literature Review.

Copyright holder:
© Author/s (2026)

This article is under:

How to cite:
Dewi, W. N. A., Purwanto, E., & Mulawarman, M. (2026). Transforming Guidance and Counseling Services to Enhance Junior High School Students' Digital Literacy in the 21st Century: A Systematic Review. *Bulletin of Counseling and Psychotherapy,* 8(2).
https://doi.org/10.51214/002026081914000

Published by:
Kuras Institute

E-ISSN:
2656-1050

ABSTRACT: The rapid development of digital technology in the 21st century has transformed the educational landscape, requiring students to possess comprehensive digital literacy skills. Consequently, the role of guidance and counseling (BK) services has become increasingly important in supporting students' academic, social, and emotional adaptation in digital environments. This study aims to synthesize research trends, challenges, and future directions related to the transformation of BK services in enhancing digital literacy among junior high school students through a Systematic Literature Review (SLR). The review analyzed 10 articles published between 2018 and early 2026 using the PRISMA framework, sourced from major academic databases such as Scopus, ScienceDirect, and Taylor & Francis. The findings reveal a indicate a clear shift from conventional to digital-based counseling services, including the integration of e-counseling, digital platforms, and technology-supported interventions. Key trends include the digitalization of counseling services, the transformation of counselors into digital literacy facilitators, and the growing importance of digital literacy as a core 21st-century competency. However, several challenges remain, such as digital competence gaps, limited infrastructure, and increasing digital risks including cyberbullying. Future research directions emphasize the development of AI-based counseling models and the integration of digital well-being to support students' psychological resilience. This study concludes that innovative and adaptive BK services are essential for fostering critical, ethical, and responsible digital citizens.

INTRODUCTION

The development of digital technology in the 21st century has brought fundamental changes to various aspects of human life, including the education system. The integration of digital technology has changed not only how people access information but also how they learn, interact, and construct knowledge. In this context, digital literacy has become a key competency that students must possess to adapt to the demands of the digital era. Digital literacy is no longer defined solely as the technical ability to use devices, but also encompasses critical thinking skills, information literacy, digital communication, and ethical awareness in the use of technology (van Laar et al., 2019). Since 2018, students' digital literacy has improved significantly, in line with the rapid integration of technology into everyday life. Research shows that in 2018–2019, students' digital literacy was still dominated by basic technical skills, while critical thinking skills and digital ethics had

not yet developed optimally (Hatlevik et al., 2018). This indicates that although access to technology has increased, its use has not been fully effective. Furthermore, attention to digital literacy is increasing as adolescents use the internet and social media more widely. Research shows that despite increasing access to technology, students' ability to evaluate information and understand digital contexts remains relatively low (Hatlevik et al., 2018).

A major transformation occurred in 2020–2021 when the COVID-19 pandemic forced the education system to shift to online learning. The COVID-19 pandemic became a major catalyst in accelerating digital transformation in education. Online learning requires students to develop higher digital literacy competencies quickly. However, various studies have revealed that this condition also creates new challenges, such as disparities in technology access, low information evaluation skills, and an increased risk of digital fatigue and cyberbullying (Adedoyin & Soykan, 2023). This is a significant concern, considering that junior high school students are at a stage of cognitive and social development that is vulnerable to negative influences from the digital environment, such as the spread of hoaxes, cyberbullying, and social media addiction. In this context, guidance and counseling services are playing a crucial role in helping students adapt academically and psychosocially.

In the 2022–2024 period, digital literacy began to be understood as a multidimensional competency encompassing cognitive, social, and emotional aspects. Recent studies have shown that digital literacy relates not only to the ability to use technology but also to critical thinking skills, information literacy, and ethical awareness in the use of digital media (Ghomi & Redecker, 2019). In line with these developments, guidance and counseling services have begun to transform by integrating digital technology into service practices, such as e- counseling and the use of digital platforms for psychological interventions (Holmes et al., 2019). However, implementing this transformation still faces obstacles, particularly related to counselors' readiness and digital competencies.

Furthermore, in 2025–2026, technological developments such as artificial intelligence (AI) will further reinforce the urgency of adaptive and reflective digital literacy. Global research and reports indicate that integrating AI in education requires students not only to use technology but also to understand its ethical, social, and cognitive implications. Therefore, guidance and counseling services must transform to be more innovative and responsive to the dynamics of technological development.

In the educational context, guidance and counseling services play a highly strategic role in supporting the development of students' digital literacy. Guidance and counseling not only assist students academically, but also in personal, social, and emotional development. As technology evolves, these services must transform by integrating digital approaches into practice, such as e-counseling, the use of digital media, and the development of counseling-based digital literacy programs (Holmes et al., 2019). Although numerous studies have discussed digital literacy and technology integration in education, most previous research has primarily focused on digital learning, technological competence, or online instructional practices in general. Few studies have examined how guidance and counseling services can transform to enhance junior high school students’ digital literacy. In addition, previous studies rarely provide a comprehensive synthesis regarding research trends, implementation challenges, and future directions of digital-based counseling services. Therefore, this study seeks to fill this gap by conducting a systematic literature review on how guidance and counseling services are transforming to improve students’ digital literacy in the 21st century.

Most research focuses on aspects of digital learning or technological competency in general, without in-depth examination of the strategic role of guidance and counseling services in this context. Furthermore, there is limited research that systematically identifies approaches, strategies, and challenges in integrating digital literacy into guidance and counseling services, particularly at the junior high school level.

Overall, the 2018–2026 period shows a shift from basic digital literacy to more complex, critical, and contextual literacy. Based on this gap, this study aims to conduct a systematic literature review to identify research trends, approaches, and challenges in transforming guidance and counseling services to improve junior high school students' digital literacy in the 21st century. This research is expected to contribute theoretically to the development of digital literacy and guidance and counseling studies, as well as to the design of services that are more adaptive to the development of digital technology.

Study Aim and Hypothesis

This study aims to examine social support, spiritual intelligence, and wellbeing-life satisfaction as simultaneous predictors of grief. The hypothesis is that social support, well-being-life satisfaction, and spiritual intelligence are simultaneous predictors of grief.

METHODS

Design

This study used a Systematic Literature Review (SLR) to identify, evaluate, and synthesize studies on transforming guidance and counseling services to improve junior high school students' digital literacy in the 21st century. The review process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to ensure a systematic, transparent, and replicable article selection process.

The results of the literature synthesis were grouped based on the following research questions:

Research Question 1: What are the key research trends in the transformation of guidance and counseling services to improve students' digital literacy?

Research Question 2: What obstacles are faced in implementing digital literacy in guidance and counseling services?

Research Question 3: What future research can be developed regarding the integration of digital literacy and guidance and counseling services?

Eligibility Criteria

The inclusion criteria consisted of: (1) studies involving junior high school students or equivalent populations; (2) studies discussing digital literacy, digital competence, or guidance and counseling services related to digital literacy improvement; (3) empirical studies and systematic reviews published in reputable academic journals; (4) articles published between 2018 and early 2026; and (5) articles written in English or Indonesian. Exclusion criteria included studies unrelated to digital literacy or guidance and counseling services, non-empirical articles, conference proceedings, theses, dissertations, and studies published outside the specified period.

Information Sources and Database Search

The articles were collected from major academic databases, including Scopus, ScienceDirect, and Taylor & Francis. The literature search was conducted using keywords such as “digital literacy,” “guidance and counseling,” “school counseling,” “junior high school,” “21st-century skills,” and “educational technology.” Boolean operators such as AND and OR were used to broaden and refine the search results.

Tabel 1. Inclusion and Exclusion

Criteria	Inclusion	Exclusion
Population	Research involving junior high school students (SMP) or equivalent (junior high school students).	Research that only involves elementary school students, high school students, college students, or the general population without focusing on junior high school students.
Outcome	Research that discusses improving digital literacy, digital competence, or guidance and counseling service skills in improving digital literacy in the 21st century era.	Research that does not measure or discuss digital literacy or is not related to guidance and counseling services.
Document Type	Scientific articles published in reputable academic journals.	Books, conference proceedings , theses, dissertations, non-academic reports, and unindexed documents .
Publication Year	Articles published between 2018–2026	Articles published before 2018
Language	English or Indonesian	Besides English and Indonesian
Article Type	Relevant empirical research articles (quantitative, qualitative, or mixed methods) and systematic literature reviews	Opinion articles, editorials, book reviews, and non-empirical articles.
Database	Articles obtained from major scientific databases: Scopus, ScienceDirect, and Taylor & Francis.	Articles originating from sources that lack academic credibility or are not indexed in scientific databases.

Selection Process

The article selection process followed the PRISMA procedure. Initially, all identified records were screened based on title, abstract, publication year, language, and relevance to the research topic. Duplicate and irrelevant articles were excluded. Subsequently, full-text articles were assessed for eligibility according to the predetermined inclusion and exclusion criteria. Finally, 10 articles were selected for further analysis.

Data Extraction Process

The selected articles were analyzed systematically by extracting information related to research objectives, methodologies, participants, findings, challenges, and future directions concerning digital literacy and guidance and counseling services. The extracted data were then categorized according to the research questions to identify research trends, implementation challenges, and potential future developments in digital-based counseling services.

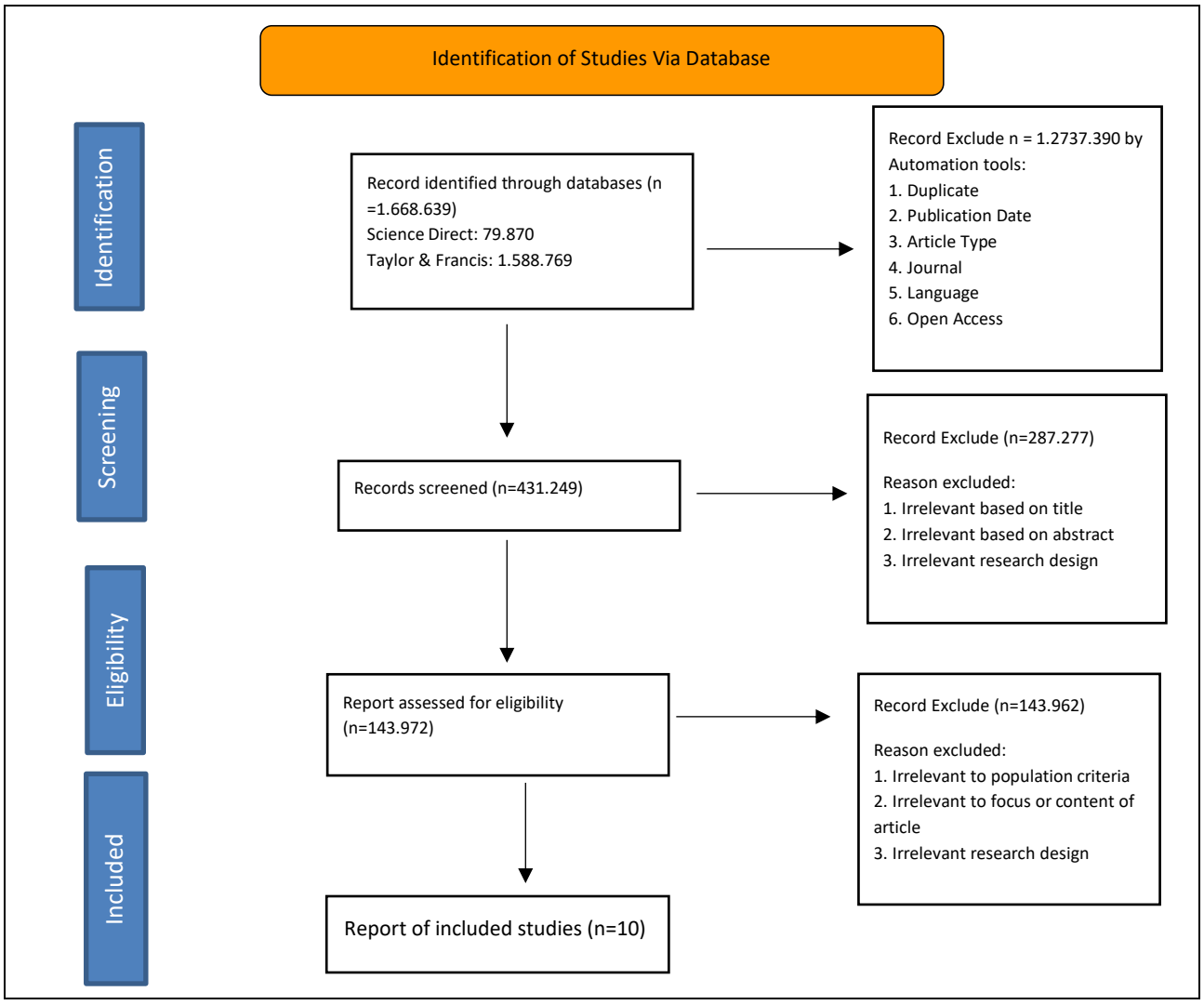


Figure 1. PRISMA Flow

RESULTS AND DISCUSSION

Results

Based on a literature search through major academic databases such as Scopus, ScienceDirect, and Taylor & Francis, we identified several articles relevant to the transformation of guidance and counseling services and digital literacy. After applying inclusion and exclusion criteria, a total of 13 scientific articles published between 2018 and 2026 were selected for further analysis in this study. These selected studies reflect the development of research at the intersection of guidance and counseling, digital literacy, and educational technology.

The findings indicate that digital literacy has become an essential component in supporting students' academic, social, and personal development, particularly at the junior high school level. From a disciplinary perspective, the reviewed articles span several fields, including education, counseling psychology, digital communication, and educational technology. This suggests that the transformation of guidance and counseling services in the digital era is inherently multidisciplinary and continues to evolve alongside rapid technological advancements. In terms of research methodology, the analyzed studies employed a variety of approaches. Most studies used experimental and quantitative approaches (n = 5) to measure the effectiveness of digital-based counseling interventions in improving students' digital literacy. Additionally, survey and correlational studies (n = 3) examined students' digital competence and behavior in online environments.

Furthermore, mixed-method studies (n = 3) combined quantitative and qualitative data to provide a more comprehensive understanding of how digital tools are integrated into counseling practices. Meanwhile, qualitative studies and literature reviews (n = 2) explored conceptual frameworks and the transformation of counseling roles in the digital age.

Overall, these findings indicate that research on transforming guidance and counseling services focuses not only on improving students' digital skills but also on the need for innovation in counseling practices, the role of school counselors, and the integration of technology to support student development in the 21st century.

Table 2. Article Result

No	Authors	Title	Method & Instrument	Sample & Population	Finding	Country
1	Mega et al. (2024)	Digital Literacy as an Indicator of Adolescent Mental Health and Implementation for the Role of School Counselor	Systematic Literature Review	Teenagers (Junior High School)	Digital literacy is related to mental health and the role of counsellors.	Indonesia
2	Chan & Sung (2025)	Enhancing Digital Literacy in Secondary Education Through Counseling	Survey; Questionnaire	100 Junior High School Students	Literacy increases through Guidance and Counseling.	Spanish
3	Helsper et al. (2024)	Children's Digital Literacy and Online Risk	Survey	120 Junior High School Students	Reducing online risks.	English
4	Taba et al. (2022)	Adolescents' self-efficacy and digital health literacy	Mixed-Method	21 Students (12–17 years old)	Digital literacy is still low in information evaluation.	Global
5	Buchan et al. (2024)	Navigating the digital world: digital literacy program for youth	Experiment	Youth (Equivalent to Junior High School)	Program to improve students' digital literacy.	Canada
6	Arkan & Bal (2025)	Digital literacy and digital well-being	Systematic Review	Middle School (Dominant Junior High School)	Digital literacy is related to students' well-being and self-control.	Global
7	Van Laar et al. (2019)	The relationship between 21st-century skills and digital skills	Systematic Review	School Students (including Junior High School)	Digital literacy includes technical, cognitive, and social aspects.	Dutch

No	Authors	Title	Method & Instrument	Sample & Population	Finding	Country
8	Hatlevik et al. (2018)	Students' ICT self-efficacy and digital competence	Survey	School Students (Dominantly Junior High School)	Self-efficacy influences digital literacy.	Norway
9	Kuhn et al. (2023)	Understanding Digital Inequality: A Theoretical Kaleidoscope	Review	Students & teenagers (Including Junior High School)	Digital inequality affects student literacy.	Global
10	Pangrazio & Selwyn (2019)	What is digital literacy? A critical perspective	Systematic Literature Review (Analysis of 13 studies; Predominantly Cross-Sectional)	Teenagers (Junior High School/Adolescents)	Digital literacy includes critical, ethical, and social aspects in the use of technology.	Global

Discussion

Based on a Systematic Literature Review (SLR) process using the PRISMA framework, this study analyzed 30 scientific articles published between 2018 and 2026 that were relevant to the transformation of guidance and counseling services in improving digital literacy among junior high school students. The number of publications has increased significantly since 2020, driven by the acceleration of educational digitalization during the COVID-19 pandemic, which forced schools to adopt technology more widely in learning and support services (OECD, 2020; König et al., 2020).

In this context, guidance and counseling services have shifted from conventional to digital-based services, changing not only interaction methods but also the overall paradigm of educational services. Most studies use a quantitative approach to measure students' digital literacy, while others use a qualitative approach to understand students' and teachers' experiences in using technology (Scherer et al., 2021; Tang et al., 2021).

Research Question 1: What are the key research trends in the transformation of guidance and counseling services to improve students' digital literacy?

Digitalization of Guidance and Counseling Services

The transformation of guidance and counseling services to be digital-based is a major trend in current research, especially in distance learning situations during the pandemic, which encourages the use of technology as the primary medium of interaction between students and counselors (Trust & Whalen, 2020). Research shows that the use of digital platforms such as counseling apps and social media allows services to be more flexible and accessible to students, especially those with limited access to face-to-face services (Bond et al., 2021) . In this context, digitizing guidance and counseling services not only increases efficiency but also expands the reach of educational services (Scherer et al., 2021). In addition, studies show that in online learning situations, students tend to be more comfortable communicating through digital media than in person, thereby increasing the effectiveness of counseling services (Marciano et al., 2022; Best et al., 2020).

Digital Literacy as a 21st Century Competency

Digital literacy is a primary focus of research because it is a crucial competency for navigating the digital era. Studies show that digital literacy encompasses technical, cognitive, and social skills for effectively using technology (Van Laar et al., 2019). In the current digital information landscape,

students are required to critically evaluate information and avoid misinformation, a key challenge in modern education (Siddiq et al., 2019; Tang et al., 2021). Furthermore, digital literacy encompasses the ability to maintain digital security and ethics, particularly in the face of risks such as cyberbullying and data misuse (Lievens et al., 2018) . Research shows that students with high digital literacy have better critical thinking skills and are able to adapt to technological changes effectively (Hatlevik et al., 2018).

Digital Counseling and Technology Innovation

Digital counseling is an important innovation in guidance and counseling services, especially in pandemic situations that limit face-to-face interactions (Richards et al., 2020; Anthony et al., 2020). Research shows that internet-based counseling can improve students' psychological well-being and provide an effective alternative service in emergencies (Keles et al., 2020; Marciano et al., 2022). Furthermore, the use of technology also allows for better data integration and analysis within counseling services (Holmes et al., 2019) .

Transformation of the Role of Guidance and Counseling Teachers

The role of guidance and counseling teachers has undergone significant changes in the digital era, where they not only act as counselors but also as digital literacy facilitators (Ghomi & Redecker, 2019) . Research shows that teachers' digital competence is a key factor in the successful integration of technology into education (Trust & Whalen, 2020) . However, in real-world settings, many teachers still face difficulties adapting to technology, necessitating ongoing training (Williamson, 2020) . Research trends show that digitalization of guidance and counseling services, digital literacy as a core competency, and the transformation of teachers' roles are the main focus of research.

Research Question 2: Obstacles faced in implementing digital literacy in guidance and counseling services.

Digital Competency Gap

The current digital competency gap is no longer simply about access to devices, but rather about the dichotomy between technical proficiency and depth of critical thinking. Research shows a significant gap between students' and teachers' digital skills; students often possess high operational technical skills but remain very weak in critical thinking (van Laar et al., 2019) . This phenomenon confirms that fluency in navigating digital interfaces does not automatically correlate with the ability to evaluate the credibility of information. In line with this, (Sulthon et al., 2025) highlighted that digital literacy in educational institutions is still dominated by the technical dimension, so students often fail to identify bias or ethical implications in the post-truth era.

The mismatch between the pedagogical competence of teachers and the technical skills of students creates obstacles in the process of effective knowledge transfer (Ndibalema, 2025). Although digital literacy has a major contribution to improving cognitive abilities, this transformation does not occur spontaneously. (Furbani et al., 2025) emphasize that the contribution of digital literacy to critical thinking requires structured methodological guidance. Therefore, the adoption of a comprehensive digital competency framework is needed to ensure that technology is not only used as a visual or administrative tool, but as a strategic instrument for achieving in-depth information literacy (Reddy et al., 2020). Without synergy between students' technical proficiency and critical guidance from teachers, the use of technology will only stop at the surface level without having a significant impact on intellectual quality.

Infrastructure and Technology Access

Infrastructure limitations are a major challenge in implementing digital literacy, especially in developing countries (Williamson, 2020). This obstacle often manifests as unequal distribution of

hardware and stable internet access between urban and rural areas, ultimately widening the digital divide. According to Muniandy & Kamsin (2024), inadequate technological infrastructure in remote schools not only hinders access to information but also reduces teachers' motivation to adopt digital pedagogical innovations. This problem is exacerbated by high infrastructure maintenance costs, which often do not align with regional education budget allocations.

Saeed et al. (2021) stated that technology access is not only about the availability of tools, but also about the quality of connectivity that enables effective synchronous and asynchronous learning. This lack of infrastructure often forces educational institutions to use minimalist, less interactive platforms, limiting the full potential of digital literacy to improve learning quality. Therefore, investment in basic infrastructure must be seen as an absolute prerequisite before moving on to developing a more complex digital curriculum (Thiyaharajan et al., 2021).

Digital Ethics and Risks

Students face various digital risks such as cyberbullying and social media addiction (Lievens et al., 2018). In addition to these direct psychological impacts, digital risks also extend to data privacy issues and the unfiltered spread of harmful content. Lievens et al. (2018) revealed that a lack of awareness of their "digital footprint" makes students vulnerable to data exploitation by third parties and manipulative social media algorithms. This risk is exacerbated by the fear of missing out (FoMO) phenomenon, which triggers compulsive behavior and blurs the boundaries between private and public spaces in cyberspace.

Violations of digital ethics occur not only in interactions between individuals in cyberspace but also arise from users' inability to evaluate the veracity of circulating information. Research shows that low digital literacy makes students vulnerable to inadvertently spreading misinformation due to a lack of ability to sort, verify, and critically evaluate information sources (Harefa et al., 2025). Therefore, digital literacy education must integrate digital citizenship values that emphasize moral responsibility, online empathy, and identity protection as the primary defense against the increasingly complex dynamics of the cyber ecosystem (Pangrazio & Sefton-Green, 2021).

Teacher Readiness

Teachers still need reinforcement through structured training programs to effectively integrate technology into learning. Research shows that Technological Pedagogical Content Knowledge (TPACK) based training significantly improves digital competence and teacher confidence in using technology in the classroom, and (Sun et al., 2025). This suggests that teacher readiness depends not only on technical skills but also on pedagogical self-efficacy in managing technology-based learning.

increase in self-efficacy has been shown to be strongly correlated with the ability to integrate technology into learning, where factors such as material mastery and confidence in using technology contribute significantly to strengthening TPACK competencies (Zahwa et al., 2021). Teachers with strong TPACK competencies tend to be better able to design innovative learning and utilize technology contextually to improve the quality of learning interactions (Istiningsih, 2022).

The success of technology integration depends heavily on the ongoing support of the school ecosystem. According to (Instefjord & Munthe, 2017), incidental or "one-off" training has proven less effective than establishing a community of practice where teachers can share experiences and technical solutions. The risk of technology integration failure increases when there is a disconnect between the school's digital vision and the actual capabilities of teachers in the field. Therefore, teacher professional development strategies must transform from mere instrumental workshops to ongoing mentoring focused on adapting digital-based curriculum (Spiteri & Rundgren, 2020).

Research Question 3: Research development in the integration of digital literacy and guidance and counseling services.

Digital Guidance and Counseling Model

Developing digital-based guidance and counseling (CDC) services shows that service transformation requires more than moving face-to-face practice online. It also requires designing a digital ecosystem capable of maintaining the quality of the therapeutic relationship between counselors and clients. Research shows that the quality of the therapeutic alliance in telecounseling can be comparable to face-to-face services if supported by appropriate interaction design (Davis et al., 2023). Furthermore, online counseling offers significant flexibility in space and time, although it still faces challenges such as limited nonverbal cues and trust issues (Buğa et al., 2026).

In the context of developing a digital guidance and counseling model, the integration of artificial intelligence (AI) and chatbots is a crucial innovation for improving service accessibility. AI-based chatbots can provide real-time, personalized, and ongoing psychological support, thus bridging the gap between the number of professional counselors (Chang, 2024). In fact, experimental studies have shown that empathy-based counseling chatbots can significantly reduce stress levels and psychological sensitivity in students (Trappey et al., 2022).

Furthermore, digital-based interventions such as mental health apps and online counseling programs have been shown to be effective in reducing psychological problems in college students, including academic stress and burnout (Eseadi, 2022). Furthermore, integrated digital platform-based approaches such as a combination of therapeutic content, social support, and counselor interactions have shown potential in improving social and cognitive functioning and reducing clinical symptoms in college students (Dwan-O'Reilly et al., 2025).

From a user perspective, college students have demonstrated positive attitudes and high interest in utilizing digital mental health services, primarily due to ease of access, time efficiency, and perceived improved security compared to conventional services (Gbollie et al., 2023) . However, implementation effectiveness remains dependent on user acceptance and the integration of human support into digital systems, as most users still desire direct counselor involvement (Topooco et al., 2022).

Teacher Competency Development

Continuous training is a key requirement to ensure teachers are able to adapt to the ever-evolving dynamics of technology (Petko et al., 2025). The focus of this development is no longer simply on basic ICT literacy, but rather on mastering professional digital competencies that include technology-based instructional design skills and student data protection. Instefjord & Munthe (2017) emphasize that teacher professional development must be directed at meeting digital competency standards for educators that align with global education policies, where teachers act as facilitators of students' independent learning in the digital space. Without a systematic training structure, technology integration tends to be sporadic and does not have a long-term impact on the quality of learning outcomes.

The success of this competency development is heavily influenced by institutional policy support and a collaborative culture within schools. According to Ghomi & Redecker (2019) , the most effective training utilizes a project-based and hands-on approach , allowing teachers to directly apply digital tools in real-life classroom scenarios. However, challenges such as time constraints and a lack of incentives for innovative teachers remain significant barriers to this transformation process.

Digital Well-being

Digital literacy needs to encompass mental well-being so that individuals can manage the psychological stress that arises from online interactions (Lievens et al., 2018). The concept of digital well-being has shifted from simply limiting screen time to developing self-regulation skills to cope

with information overload. Gui et al. (2017) emphasize that effective digital well-being depends heavily on an individual's ability to balance online social connectedness with the need for conscious disconnection to prevent cognitive fatigue. In this regard, digital literacy is no longer simply an information-seeking tool, but rather a psychological survival strategy in an increasingly competitive digital ecosystem.

Mental health risks are often triggered by passive social media use, such as social comparison; according to Kozlova & Pikhart (2021), educational interventions should teach specific digital coping strategies to mitigate the negative impacts of artificially curated content. This aligns with findings Abeele (2020), which state that digital well-being is multidimensional, encompassing physical, emotional, and social aspects that must be integrated into formal educational curricula. Therefore, the development of future digital well-being models must prioritize empowering users to control algorithms, rather than simply being controlled by platform features (Büchi, 2024).

New Technology

AI and other digital technologies are beginning to be used in education (Holmes et al., 2019). This use has rapidly evolved from mere technical aids to autonomous systems capable of personalizing learning experiences. According to (Büchi, 2024) , the effectiveness of these technologies depends largely on how the systems are able to adapt to individual learning behaviors in real time.

A recent study by Banihashem et al. (2025) emphasizes that while AI offers efficiency in providing automated feedback and assessment, its success is largely determined by the teacher's pedagogical role. Other researchers, such as Kasneci et al. (2023), warn of the risk of diminishing critical thinking and self-regulation skills if students rely too heavily on AI tools without proper guidance. Therefore, current AI integration is beginning to focus on the "Human-AI Collaboration" model, which balances the speed of technology with the depth of human thought.

Implications

This study has theoretical and practical implications for the transformation of guidance and counseling services in the digital era. The findings indicate that digital literacy should be understood as a multidimensional competency encompassing not only technical skills but also critical thinking, information evaluation, digital communication, ethical awareness, and digital well-being. Therefore, school counselors need to expand their roles from conventional counseling providers to facilitators of students' responsible and critical engagement with digital environments by integrating digital literacy, online safety, information evaluation, cyberbullying prevention, data privacy, and healthy technology use into guidance and counseling programs. The findings also highlight the importance of continuous professional development for counselors, particularly in digital competencies, online counseling practices, ethical technology use, and data protection. At the institutional level, schools need to provide adequate technological infrastructure and supportive policies to ensure that digital counseling services are accessible, safe, and sustainable. Furthermore, the increasing use of artificial intelligence presents opportunities for improving the accessibility and personalization of counseling services, but its implementation should remain human-centered and consider privacy, ethical responsibility, student safety, and the importance of counselor–student relationships.

Limitations and Further Research

This study has several limitations that should be considered when interpreting its findings. The review was limited to studies published between 2018 and early 2026 and written in English or Indonesian, and the literature search focused on Scopus, ScienceDirect, and Taylor & Francis; therefore, relevant studies published in other languages, periods, or databases may not have been captured. In addition, the reviewed studies employed diverse research designs, populations, and

approaches to measuring digital literacy and digital-based counseling, which limits direct comparison and prevents strong causal conclusions from being drawn. Future research should therefore employ more rigorous empirical designs, including experimental and longitudinal studies, to examine the effectiveness and sustainability of digital guidance and counseling interventions in improving students' digital literacy, critical information evaluation, digital well-being, and responsible online behavior. Further studies should also investigate differences across geographical, socioeconomic, and school contexts and develop validated digital guidance and counseling models that integrate digital literacy, digital well-being, ethical technology use, and emerging technologies such as artificial intelligence while maintaining counselor involvement, confidentiality, student safety, and the quality of counselor–student relationships.

CONCLUSION

This study concludes that transforming guidance and counseling services is an urgent need in the 21st century to support junior high school students' digital literacy. Guidance and counseling services have evolved from merely academic support to being at the forefront of developing students' cognitive, social, and ethical competencies in the virtual world. Although the digitalization of services (such as e-counseling) increases accessibility and flexibility, their success depends heavily on counselors' digital readiness and the availability of equitable infrastructure. The biggest challenge today is no longer simply access to technology, but bridging students' technical abilities with critical thinking skills to mitigate digital risks.

REFERENCES

Abeele, M. (2020). Digital Wellbeing as a Dynamic Construct. *Communication Theory*, *31*. https://doi.org/10.1093/ct/qtaa024

Arkan, Z., & Bal, M. (2025). The relationship between school-age students' literacy skills and digital well-being: a systematic review. *BMC Psychology*, *13*(1), 1240. https://doi.org/10.1186/s40359-025-03573-4

Banihashem, s. K., Noroozi, O., & Khalil, M. (2025). Artificial Intelligence in higher education: Impact depends on support, pedagogy, human agency, and purpose. *Innovations in Education and Teaching International*, 1–6. https://doi.org/10.1080/14703297.2025.2539579

Bond, M., Bedenlier, S., Marín, V., & Händel, M. (2021). Emergency remote teaching in higher education: mapping the first global online semester. *International Journal of Educational Technology in Higher Education*, *18*. https://doi.org/10.1186/s41239-021-00282-x

Buchan, M. C., Bhawra, J., & Katapally, T. R. (2024). Navigating the digital world: development of an evidence-based digital literacy program and assessment tool for youth. *Smart Learning Environments*, *11*(1), 8. https://doi.org/10.1186/s40561-024-00293-x

Büchi, M. (2024). Digital well-being theory and research. *New Media & Society*, *26*, 172–189. https://doi.org/10.1177/14614448211056851

Buğa, A., Özdemir, M., & Bozbayındır, F. (2026). Exploring psychological counselors' perspectives on the characteristics and dynamics of online counseling. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2025.1708309

Chan, A., & Sung, C. (2025). Enhancing students' digital literacy skills through their technology use in a course-based research project: a Hong Kong case study. *Asia Pacific Education Review*. https://doi.org/10.1007/s12564-025-10038-1

Chang, Y. (2024). Applications of AI-powered Conversational Chatbot for Mental Health. *Highlights in Science, Engineering and Technology*. https://doi.org/10.54097/4vcjj296

Davis, K., Zhao, F., Janis, R., Castonguay, L., Hayes, J., & Scofield, B. (2023). Therapeutic alliance and clinical outcomes in teletherapy and in-person psychotherapy: A noninferiority study during the COVID-19 pandemic. *Psychotherapy Research*, *34*, 589–600.

https://doi.org/10.1080/10503307.2023.2229505

Dwan-O'Reilly, M., Harrington, S., Gavin, C., Godfrey, E., Cowman, M., Gleeson, C., O'Mahony-Sinnott, A., McCormack, J., Frawley, E., Burke, T., O'Connor, K., Birchwood, M., Heary, C., Alvarez-Jimenez, M., & Donohoe, G. (2025). Moderated Online Social Therapy (MOST) in Help-Seeking Young People: Pilot Randomized Controlled Study. *Journal of Medical Internet Research*, *27*. https://doi.org/10.2196/73269

Eseadi, C. (2022). An online counseling intervention for Nigerian undergraduates with academic burnout. *International Journal of Research in Counseling and Education*. https://doi.org/10.24036/00514za0002

Furbani, W., Purnawanti, F., Dewi, A., Sari, N., & Thoriq, T. (2025). Digital Literacy and Critical Thinking Skills of Students in the Era Industry 4.0. *Juwara: Jurnal Wawasan Dan Aksara*, *5*, 136–148. https://doi.org/10.58740/juwara.v5i1.382

Gbollie, E. F., Bantjes, J., Jarvis, L., Swandevelder, S., Du Plessis, J., Shadwell, R., Davids, C., Gerber, R., Holland, N., & Hunt, X. (2023). Intention to use digital mental health solutions: A cross-sectional survey of university students attitudes and perceptions toward online therapy, mental health apps, and chatbots. *Digital Health*, *9*. https://doi.org/10.1177/20552076231216559

Ghomi, M., & Redecker, C. (2019). *Digital Competence of Educators (DigCompEdu): Development and Evaluation of a Self-assessment Instrument for Teachers' Digital Competence*. https://doi.org/10.5220/0007679005410548

Gui, M., Fasoli, M., & Carradore, R. (2017). *"Digital Well-Being". Developing a New Theoretical Tool For Media Literacy Research*. *9*. https://doi.org/10.14658/pupj-ijse-2017-1-8

Harefa, E., Obe, A. P., Sihite, B., Naibaho, M., Laia, E. F., Gaurifa, M., Bawamenewi, R. R., Taratangbuk, A., Simamora, R. M., Ndraha, I. S., & Naibaho, N. F. (2025). Challenges and Opportunities in Using Social Media to Build Digital Literacy in Public Education: A Review-Based Perspective. *Jurnal Penelitian Pendidikan IPA*. https://doi.org/10.29303/jppipa.v11i5.11016

Hatlevik, O., Throndsen, I., Loi, M., & Guðmundsdóttir, G. (2018). Students' ICT self-efficacy and computer and information literacy: Determinants and relationships. *Computers & Education*, *118*, 107–119. https://doi.org/10.1016/j.compedu.2017.11.011

Helsper, E., Veltri, G., & Livingstone, S. (2024). Parental mediation of children's online risks: The role of parental risk perception, digital skills and risk experiences. *New Media & Society*, *27*, 5986–6005. https://doi.org/10.1177/14614448241261945

Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education. Promise and Implications for Teaching and Learning.*

Instefjord, E. J., & Munthe, E. (2017). Educating digitally competent teachers: A study of integration of professional digital competence in teacher education. *Teaching and Teacher Education*, *67*, 37–45. https://doi.org/10.1016/j.tate.2017.05.016

Istiningsih, I. (2022). Impact of ICT integration on the development of vocational high school teacher TPACK in the digital age 4.0. *World Journal on Educational Technology: Current Issues*. https://doi.org/10.18844/wjet.v14i1.6642

Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., & Kasneci, G. (2023). ChatGPT for Good? On Opportunities and Challenges of Large Language Models for Education. *Learning and Individual Differences*, *103*, 102274. https://doi.org/10.1016/j.lindif.2023.102274

Kozlova, D., & Pikhart, M. (2021). The Use of ICT in Higher Education from the Perspective of the University Students. *Procedia Computer Science*, *192*, 2309–2317. https://doi.org/10.1016/j.procs.2021.08.221

Kuhn, C., Khoo, S.-M., Czerniewicz, L., Lilley, W., Bute, S., Crean, A., Abegglen, S., Burns, T., Sinfield, S., Jandrić, P., Knox, J., & MacKenzie, A. (2023). Understanding Digital Inequality: A Theoretical Kaleidoscope. *Postdigital Science and Education*, *5*(3), 894–932. https://doi.org/10.1007/s42438-023-00395-8

Lievens, E., Livingstone, S., McLaughlin, S., O'Neill, B., & Verdoodt, V. (2018). *Children's Rights and Digital Technologies* (pp. 1–27). https://doi.org/10.1007/978-981-10-3182-3_16-1

Mega, N., Saputra, A., Ramli, M., Sobri, A. Y., & Madihie, A. (2024). *Digital Literacy as an Indicator of Adolescent Mental Health and Implementation for the Role of School Counselor : A Systematic Literature Review*. *2022*.

Muniandy, V., & Kamsin, I. (2024). Readiness and Challenges in Implementing Digital Learning. *International Journal of Academic Research in Business and Social Sciences*, *14*. https://doi.org/10.6007/IJARBSS/v14-i11/23668

Ndibalema, P. (2025). Digital literacy gaps in promoting 21st century skills among students in higher education institutions in Sub-Saharan Africa: a systematic review. *Cogent Education*, *12*(1), 2452085. https://doi.org/10.1080/2331186X.2025.2452085

Pangrazio, L., & Sefton-Green, J. (2021). Digital Rights, Digital Citizenship and Digital Literacy: What's the Difference? *Journal of New Approaches in Educational Research*, *10*, 15–27. https://doi.org/10.7821/naer.2021.1.616

Pangrazio, L., & Selwyn, N. (2019). 'Personal data literacies': A critical literacies approach to enhancing understandings of personal digital data. *New Media & Society*, *21*, 419–437. https://doi.org/10.1177/1461444818799523

Petko, D., Mishra, P., & Koehler, M. J. (2025). TPACK in context: An updated model. *Computers and Education Open*, *8*, 100244. https://doi.org/https://doi.org/10.1016/j.caeo.2025.100244

Reddy, P., Sharma, B., & Chaudhary, K. (2020). Digital Literacy: A Review of Literature. *International Journal of Technoethics*, *11*, 65–94. https://doi.org/10.4018/IJT.20200701.oa1

Saeed, R., Alshurideh, M., Salloum, S., Alhamad, A. Q., & Gaber, T. (2021). Acceptance of Google Meet during the Spread of Coronavirus by Arab University Students. *Informatics*, *8*, 1–17. https://doi.org/10.3390/informatics8020024

Spiteri, M., & Chang Rundgren, S.-N. (2020). Literature Review on the Factors Affecting Primary Teachers' Use of Digital Technology. *Technology, Knowledge and Learning*, *25*. https://doi.org/10.1007/s10758-018-9376-x

Stroebe, W., Zech, E., Stroebe, M. S., & Abakoumkin, G. (2005). Does Social Support Help in Bereavement? *Journal of Social and Clinical Psychology*, *24*(7), 1030–1050. https://doi.org/10.1521/jscp.2005.24.7.1030

Sulthon, E. A., Ummah, R., Khovia, K., & Shofiyah, S. (2025). *Innovating Critical Thinking and Digital Literacy in Post-Truth Education*. 133–144.

Sun, H., Sukor, N., Said, N., & Dai, X. (2025). Research on the Effectiveness of TPACK Training Module for University Teachers in Qingdao. *International Journal of Academic Research in Progressive Education and Development*. https://doi.org/10.6007/ijarped/v14-i1/24358

Taba, M., Allen, T. B., Caldwell, P. H. Y., Skinner, S. R., Kang, M., McCaffery, K., & Scott, K. M. (2022). Adolescents' self-efficacy and digital health literacy: a cross-sectional mixed methods study. *BMC Public Health*, *22*(1), 1223. https://doi.org/10.1186/s12889-022-13599-7

Thiyaharajan, M., S., A., K S, A., & Jha, G. (2021). Students' perception and preference for online education in India during COVID -19 pandemic. *Social Sciences & Humanities Open*, *3*. https://doi.org/10.1016/j.ssaho.2020.100101

Topooco, N., Fowler, L., Fitzsimmons-Craft, E., DePietro, B., Vázquez, M., Firebaugh, M.-L., Ceglarek, P., Monterubio, G., Newman, M., Eisenberg, D., Wilfley, D., & Taylor, C. (2022). Digital interventions to address mental health needs in colleges: Perspectives of student stakeholders. *Internet Interventions*, *28*. https://doi.org/10.1016/j.invent.2022.100528

Trappey, A., Lin, A., Hsu, K., Trappey, C., & Tu, K. (2022). Development of an Empathy-Centric Counseling Chatbot System Capable of Sentimental Dialogue Analysis. *Processes*. https://doi.org/10.3390/pr10050930

Trust, T., & Whalen, J. (2020). Should Teachers be Trained in Emergency Remote Teaching? Lessons Learned from the COVID-19 Pandemic. *Journal of Technology and Teacher Education*, *28*, 189–199. https://doi.org/10.70725/307718pkpjuu

van Laar, E., Deursen, A. J. A. M., Van Dijk, J. A. G. M., & Haan, J. (2019). Determinants of 21st-century digital skills: A large-scale survey among working professionals. *Computers in Human Behavior*, *100*. https://doi.org/10.1016/j.chb.2019.06.017

Williamson, B. (2020). Making markets through digital platforms: Pearson, edu-business, and the (e)valuation of higher education. *Critical Studies in Education*, *62*, 1–17. https://doi.org/10.1080/17508487.2020.1737556

Zahwa, I., Saptono, S., & Dewi, P. (2021). The Interrelation Among Course Mastery, Technology Integration Self Efficacy, and Technological Pedagogical Content Knowledge (TPACK) of Prospective Science Teachers. *Journal of Innovative Science Education*, *9*. https://doi.org/10.15294/jise.v9i2.40177