# Analysis of Digital Literacy Skills of Educators at MTA DDI Manding Polewali Mandar

Fiqri Ramadhani[1*], Riana T Mangesa[2], Lu'mu Taris[3]
[1,2,3] *Universitas Negeri Makassar, Indonesia*

*Corresponding e-mail : fiqriiramadhan12@gmail.com*

| ARTICLE INFO | ABSTRACT |
|---|---|
| | This study aims to determine the level of digital literacy skills of teachers at MTs DDI Manding, Polman Regency. The research method used is quantitative research. This study applies descriptive statistical data analysis in presenting the results of data processing, using questionnaires and interviews in data collection, and using saturated sampling techniques to determine the research sample. The digital literacy skills of MTs DDI Manding teachers were reviewed from four aspects, namely Internet Searching, Hypertext Navigation, Content Evaluation, and Knowledge Assembly, and were still in the low category with a percentage of 39.38%, which indicates that teachers still lack self-development in the field of digital literacy. Based on the data collection results, it |
| | shows that the three factors that have a significant influence on teachers' digital literacy skills are Functional Skills, Communication and Interaction, and Critical Thinking. Data analysis shows that the average percentage of 22.79% is still in the insufficient category, indicating that the three factors that should support the improvement of digital literacy of MTs DDI Manding teachers are still in the insufficient category. The data collected by the researcher serves as a reference for MTs DDI Manding teachers to identify the factors that can support their digital literacy skills. The factors that influence an individual's digital literacy skills, in this case MTs DDI Manding teachers, can be used as a reference to further explore teachers' digital literacy skills to develop their creativity in teaching. |

## INTRODUCTION

Education essentially serves to open, discover, and penetrate the horizons of the world through the learning process at school (Herizal et al., 2022). In this context, the role of teachers is not limited to transferring academic knowledge, but also includes shaping the personalities of students to be characterful, broad-minded, and able to recognize and develop their talents and interests in accordance with their potential. Teachers are expected to be able to guide students to achieve their goals and dreams optimally. As times change, advances in information technology require teachers to master digital media so that their pedagogical, professional, and social competencies can continue to be honed and developed. Teachers' mastery of technology is an important factor in creating a meaningful learning process and producing superior human resources who are able to compete in the global era (Amalia, 2023; Kuntarto & Prakash, 2020; Lachner et al., 2021). The emergence of the digital era is a consequence of the rapid development of technology that has penetrated almost all human activities. This condition requires every individual, including educators, to improve their ability to understand and utilize digital technology so as not to be left behind by the continuous flow of information. This ability is known

as digital literacy, which is a set of skills that enable a person to access, understand, evaluate, and use digital technology effectively and responsibly (Schmidt et al., 2024). Digital literacy has become an essential competency because various activities related to communication, transactions, production, and distribution of information are now highly dependent on technology and the internet, which are interconnected with one another (Jones & Hafner, 2021; Nugraha, 2022).

The internet has a significant impact on the dissemination of information and digital content. Individuals and institutions can easily and quickly distribute information, both for personal and public interests. The existence of digital content has shaped new patterns of social interaction characterized by communication between internet users to fulfill specific information needs and objectives. However, digital interactions, which are mostly conducted online, not only have positive impacts but also have the potential to cause negative impacts. On the one hand, the internet offers open access to information that is vast and unlimited by space and time, thereby enriching insight and knowledge (Yamin & Fakhrunnisaa, 2022). On the other hand, the rapid flow of information also raises issues related to the credibility and quality of content circulating in the digital space (Adiarsi et al., 2021; Raharjo & Winarko, 2021). In the context of education, the use of the internet in the learning process requires students to have digital literacy skills, especially in dealing with technology-based evaluation systems such as Computer Based Tests (CBT) and the implementation of the Merdeka Curriculum, which emphasizes the use of technology in learning. Teachers have a strategic role in guiding students to be able to use technology wisely and productively (Tseng et al., 2022). This is in line with the mandate of Law of the Republic of Indonesia Number 14 of 2005, which affirms that teachers are professionals whose main duties are to educate, guide, teach, and evaluate students. Therefore, mastery of digital literacy and TPACK (Technological Pedagogical Content Knowledge) is a basic requirement for teachers in designing and implementing learning that is adaptive to the demands of the 21st century (Fakhriyah et al., 2022; Herizal et al., 2022; Zhang & Tang, 2021).

Digital media literacy can be understood as the ability to access, critically analyze, and create messages using digital media(Martin, 2021). This form of literacy is not merely oriented toward technical proficiency in operating digital tools, but also emphasizes the development of higher-order thinking skills, particularly critical and reflective thinking, in interpreting, evaluating, and responding to information encountered in digital environments(Safitri et al., 2020). In the context of education, digital media literacy enables educators to guide learners in distinguishing credible information from misleading content, understanding the intent and impact of digital messages, and producing meaningful digital content in an ethical and responsible manner. As digital media increasingly shape patterns of communication, learning, and knowledge construction, the integration of digital media literacy becomes essential for fostering informed, autonomous, and critically engaged learners. For teachers, mastery of digital media literacy supports the design of more interactive and contextual learning experiences, encourages the use of diverse digital resources, and strengthens pedagogical decision-making in technology-rich classrooms. Consequently, digital media literacy functions not only as a technical competence but also as a foundational capability that underpins effective teaching practices and the cultivation of students' critical awareness in navigating the complexities of the digital information landscape (Mawarwati & Yanti, 2023; Safitri et al., 2020). Low digital literacy, both among teachers and students, has the potential to cause errors in the use of technology and information. Therefore, improving teachers' ability to utilize technology and the internet is a strategic step in improving students' digital literacy and the overall quality of learning (Mawarwati & Yanti, 2023; Tseng et al., 2022).

Based on this description, this research is increasingly relevant because the digital literacy skills of educators are a key factor in the successful implementation of learning in the era of digital transformation, especially in madrasah-based educational units that have their own characteristics and challenges. Madrasahs are not only required to integrate technology into the learning process, but also to ensure that the use of technology is in line with educational values and character building for students. Therefore, the study entitled "Analysis of the Digital Literacy Skills of Educators at MTs DDI Manding Polewali Mandar" aims to obtain a comprehensive empirical picture of the level of teachers' digital literacy, ranging from the ability to access, understand, evaluate, to utilize technology and digital media in learning activities. In addition, this study is expected to reveal the extent to which the digital literacy of educators contributes to the creation of innovative, interactive, and contextual learning, as well as supporting the improvement of the quality of the learning process and outcomes of students. The findings of this study are expected to not only contribute academically to the development of digital literacy and education studies, but also serve as material for reflection and practical recommendations for schools, policy makers, and educators in designing strategies to strengthen digital literacy in order to respond to the challenges and needs of education in the ever-evolving digital era.

## METHOD

This study uses a quantitative research method with a descriptive approach, which aims to systematically describe the level of digital literacy competence of teachers at MTs DDI Manding Polewali Mandar based on numerical data obtained in the field. The descriptive approach was chosen because this study does not intend to test the relationship between variables or draw causal conclusions, but rather to describe the empirical conditions of teachers' digital literacy competence as they are. The research was conducted at MTs DDI Manding Polewali Mandar, located at Jalan Mangga No. 27, Madatte Village, Polewali Subdistrict, Polewali Mandar Regency. The subjects of this study were all 14 teachers working at MTs DDI Manding Polewali Mandar. Due to the relatively small population size, total sampling was used, so that the entire population was used as the research sample. The main variable in this study is teachers' digital literacy competency. Digital literacy competency in this study is operationalized into four indicators, namely: (1) Internet searching skills, (2) hypertext navigation skills, (3) content evaluation skills, and (4) knowledge assembly skills. These four indicators are used as the basis for measuring the level of teachers' digital literacy competency and as a reference in developing research instruments.

The data collection techniques used in this study were questionnaires and interviews. Questionnaires were used as the main instrument to obtain quantitative data on teachers' digital literacy competencies based on the four indicators that had been determined. The questionnaires were designed in the form of closed statements that described teachers' behaviors, habits, and abilities in utilizing digital technology, particularly in learning activities. Each indicator of digital literacy competency was represented by a number of questions arranged proportionally. Interviews were used as a supporting data collection technique to obtain more in-depth information and reinforce the questionnaire results, especially in explaining the phenomena found in the field. The questionnaire was distributed directly by handing out questionnaire sheets to all teachers at MTs DDI Manding Polewali Mandar. Respondents were asked to fill out the questionnaire based on their conditions and experiences in utilizing digital technology. Interviews were conducted directly with several teachers as selected respondents using semi-structured interview guidelines. The interview data was analyzed descriptively and used to reinforce the interpretation of the questionnaire results.

The data analysis technique used in this study was quantitative descriptive analysis using percentages. The data obtained from the questionnaire was first calculated in terms of frequency for each item and indicator, then processed using the following percentage formula:

$$P = \frac{f}{N} \times 100$$

Explanation:

P = Percentage

f = Frequency of respondents' answers

N = Number of respondents

**Table 1.** Assessment interpretation criteria

| Interval | Criteria |
|---|---|
| 81% - 100% | Very good |
| 61% - 80% | Good |
| 41% - 60% | Fair |
| 21% - 40% | Poor |
| 0 - 20% | Fail |

The percentage results were then interpreted using predetermined assessment criteria, namely: 81%–100% (Excellent), 61%–80% (Good), 41%–60% (Fair), 21%–40% (Poor), and 0%–20% (Fail). These criteria were used to assess the level of teachers' digital literacy competence for each indicator and overall.

In addition to analyzing teachers' digital literacy competence based on four main indicators, this study also analyzed the factors that influence teachers' digital literacy, namely: (1) functional skills, (2) communication and interaction, and (3) critical thinking. Data on these factors were obtained through a questionnaire designed based on the indicators for each factor. The data were analyzed using the same percentage technique as the digital literacy competency analysis, then interpreted based on predetermined assessment categories.

With this procedure, this study is expected to provide a comprehensive picture of the level of digital literacy competency of teachers at MTs DDI Manding Polewali Mandar and the factors that influence it.

## RESULTS AND DISCUSSION

Digital literacy competencies involve several interrelated skills that develop from critical thinking abilities, including the ability to evaluate information, gather and synthesize knowledge from multiple sources, and conduct effective internet searches. These competencies are classified into four dimensions: Internet searching, Hypertext navigation, Content evaluation, and Knowledge formulation (Hasliyah et al., S2023). Based on these indicators, data were collected to assess teachers' digital literacy competencies.

**Table 2.** Frequency of Digital Literacy Skills of MTs DDI Manding Teachers in the aspect of internet search

| N | Interval | Criteria | Frequency |
|---|---|---|---|
| 14 | 81% - 100% | Very good | 0 |
| | 61% - 80% | Good | 2 |
| | 41% - 60% | Fair | 10 |
| | 21% - 40% | Poor | 2 |
| | 0 - 20% | Fail | 0 |

**Table 3.** Frequency of Digital Literacy Skills of MTs DDI Manding Teachers in the aspect of directional guidance skills

| N | Interval | Criteria | Frequency |
|---|---|---|---|
| 14 | 81% - 100% | Very good | 0 |
| | 61% - 80% | Good | 4 |
| | 41% - 60% | Fair | 9 |
| | 21% - 40% | Poor | 1 |
| | 0 - 20% | Fail | 0 |

**Table 4.** Frequency of Digital Literacy Skills of MTs DDI Manding Teachers in Evaluating Information Content

| N | Interval | Criteria | Frequency |
|---|---|---|---|
| 14 | 81% - 100% | Very good | 0 |
| | 61% - 80% | Good | 0 |

| | 41% - 60% | Fair | 0 |
|---|---|---|---|
| | 21% - 40% | Poor | 3 |
| | 0 - 20% | Fail | 11 |

**Table 5**. Frequency of Digital Literacy Skills of MTs DDI Manding Teachers in the aspect of compiling knowledge

| N | Interval | Criteria | Frequency |
|---|---|---|---|
| 1 4 | 81% - 100% | Very good | 0 |
| | 61% - 80% | | 0 |
| | 41% - 60% | Good | 0 |
| | 21% - 40% | Fair | 13 |
| | 0 - 20% | Poor | 1 |

**Table 6.** Tabulation of digital literacy skills of MTs DDI Manding teachers

| No | Aspects of Digital Literacy Competence | Assessment Percentage (%) | Category |
|---|---|---|---|
| 1 | Internet Searching | Enough | Enough |
| 2 | (Internet Searching) | Enough | Enough |
| 3 | Hypertext Navigation | Not enough | Not enough |
| 4 | (Hypertextual Navigation) | Not enough | Not enough |

| Average | Content Evaluation | Not enough |
|---|---|---|

The analysis results show that the overall digital literacy competency of teachers at MTs DDI Manding (all assessment indicators) is highest in the aspect of Hypertextual Navigation with a score of 54% and lowest in the aspect of Content Evaluation with a score of 24.8%. With an average score of 39.38% in the "poor" category, this indicates that the digital literacy skills of educators at MTs DDI Manding are still lacking.

After analyzing the aspects of digital literacy skills, an analysis was conducted on the factors influencing the digital literacy skills of educators at MTs DDI Manding.

**Table 7.** Tabulation of data on factors affecting the digital literacy of teachers at MTs DDI Manding Polewali Mandar

| No | Factors Affecting Digital Literacy | Assessment Percentage (%) | Category |
|---|---|---|---|
| 1 | Functional Skills | Less | Less |
| 2 | Communication and Interaction | Less | Less |
| 3 | Critical Thinking | Less | Less |
| Average | | 22,79% | Less |

Table 7 shows the average factors that influence teachers' digital literacy skills at MTs DDI Manding Polewali Mandar. Three factors influence teachers' digital literacy skills, with the highest average score on the functional skills factor at 23.98%, with an overall average percentage of 22.79% in the poor category. The research conducted at MTs DDI Manding Polewali Mandar was carried out by distributing questionnaires and conducting interviews to obtain data and information about teachers' digital literacy competencies. Questionnaires and interviews were conducted with all teachers. The research was conducted at different grade levels to obtain data on teachers' digital literacy competencies in general. The questionnaires were distributed directly by handing out questionnaire sheets to each teacher. Teachers' digital literacy competency in teaching and learning activities in this study focused on internet searching, hypertext navigation, content evaluation, and knowledge assembly competencies. These four competencies formed the basis for determining the level of teachers' digital literacy competency.

The results of the study show that teachers' digital literacy competency levels differ in each aspect. The first aspect of digital literacy competency is internet searching competency. Internet searching is the first step in finding information. The success of users in finding the

information they need can be determined by the accuracy of the keywords they use when searching the internet. The information needed to support teaching and learning activities can be obtained by browsing, searching, or exploring the internet. Internet users can use search engines to browse and search for the information they need on the internet. Search engines are part of browsers. Browsers are programs or devices used to browse the internet. There are several types of browsers, such as Google Chrome, Mozilla Firefox, Opera Browser, and others. The use of search engines has become more frequent in distance learning during the pandemic, because the online learning process requires teachers to search for additional information to supplement their explanations or presentations of lesson material so that they can present the material more fully. The results of this study indicate that teachers at MTs DDI Manding are generally able to conduct internet searches, as reflected by a percentage score of 51%, which falls within the sufficient category. This finding suggests that teachers are familiar with basic search activities using search engines to obtain information needed for teaching and learning purposes. However, their ability to optimize search results remains limited, as teachers tend to rely on simple keyword usage and do not consistently apply more effective search strategies.

In addition, teachers' hypertext navigation skills were found to be at a sufficient level, with a percentage score of 54%. Hypertext serves as a key feature stating that distinguishes digital media from print media, as it enables non-linear navigation and access to interconnected information. Despite this, the findings indicate that teachers' understanding of hypertext remains limited, and its use in browsing activities is relatively infrequent. As a result, teachers tend to explore digital information in a linear and surface-level manner, which constrains their ability to access broader and more in-depth sources of information (Gilster, 1997). Interviews conducted with teachers to obtain more in-depth information found that teachers who knew the characteristics of hypertext, which is usually marked with blue and underlined text, did not know that the text was called hypertext, and teachers rarely used hypertext to obtain further information. The results of this study are in line with the research conducted by Heriyanto (2018), namely that the level of digital media literacy competence in terms of Hypertextual Navigation was 64.73%. Meanwhile, the competence level category for each respondent in answering the research questionnaire items was in the high category at 17.54%, the medium category at 65.79%, and the low category at 16.67%.

Based on the data obtained by researchers, it appears that teachers' hypertext navigation skills are not yet at a satisfactory level. Therefore, teachers need to improve their understanding of hypertext navigation so that they can use it to help students search for information on the internet. The third digital literacy competency is the ability to evaluate information content (Content Evaluation). The ability to evaluate information content is synonymous with teachers' critical thinking skills. This is because teachers compare and assess information obtained from the internet. In addition, the ability to evaluate information content also includes the ability of teachers to identify web pages and the validity of the information obtained. This is because the information presented on the internet is not always valid information, and many users, especially teachers, consider the information obtained to be valid. Therefore, in responding to the variety of information on the internet, teachers need to have the ability to check information content in order to obtain correct and valid information. Based on the questionnaire results, it was found that teachers' ability to evaluate content (Content Evaluation) was in the low category, with a percentage of 24.8%. This competency had the lowest percentage compared to other competencies. This was reinforced by interviews conducted with teachers, which revealed that most teachers focused on the content they were looking for without considering the source of the information. In addition, when assessing the quality of a website, teachers often visit the websites

that appear at the top of the search results. This is because teachers assume that the information that appears at the top of the search results is the most frequently visited and considered to be correct. The interviews also revealed that teachers immediately use information that is considered correct without comparing it with information from other sources. This shows that teachers are not yet accustomed to evaluating information content. Based on the questionnaire results, it was found that teachers' knowledge assembly skills were in the poor category, with a score of 27.7%. The interview results also showed that teachers' digital literacy competence in the aspect of knowledge assembly was still poor. This was evidenced by the fact that most teachers only used one source in compiling materials used for learning purposes. In addition, teachers rarely use scientific articles and research results as reference sources and more often use personal blogs or Brainly to search for information. This is because teachers feel that the sentences used in blogs are easier to understand than scientific articles or research results. Furthermore, teachers find it easier to find the information they need using Brainly, because Brainly provides accurate answers immediately without having to search first. This is because MTs DDI Manding Polewali Mandar teachers are not accustomed to compiling knowledge from various sources and prefer to use information from less reliable sources because it is easier to understand.

Based on the four aspects of digital literacy competency, it shows that teachers' digital literacy competency in all aspects of assessment received an average score of 39.38%, which is still in the poor category. This result is because of the four indicators of digital literacy competency, namely in the aspect of internet searching and other indicators, namely the ability to use hypertext navigation, check information content, and gather information, which are still in the adequate and inadequate categories. These results illustrate that teachers often use the internet and search engines to obtain information, but they do not conduct in-depth analysis of the information obtained by looking at the source or background of the information, comparing information, and using various sources to verify the accuracy of the information. This shows that teachers' digital literacy competency is still in the poor category. These results are consistent with prior research indicating that the digital literacy level remains at an intermediate category, as shown by studies measuring digital literacy indices among Indonesian populations at the *intermediate* level (Nasionalita & Nugroho, 2020).This shows that teachers' competencies need to be improved in order to keep up with technological developments, especially in the world of education. The findings of this study indicate that teachers' digital literacy competence remains relatively low, particularly in aspects related to communication and interaction in digital environments. This condition is consistent with previous studies showing that teachers' digital literacy often remains at a moderate or intermediate level when they are less active or proactive in engaging with digital forums and professional learning communities that support instructional activities. Furthermore, teachers with higher levels of digital literacy tend to demonstrate stronger motivation to continuously develop their skills and master emerging technologies, whereas limited motivation and professional engagement are associated with lower levels of digital literacy competence (Nugraha, 2022; Wiguna, 2023). An analysis of the factors affecting the digital literacy of teachers at MTs DDI Manding was conducted by distributing questionnaires based on factors that affect digital literacy skills, namely (1) Functional Skills, (2) Communication and Interaction, and (3) Critical Thinking. Using these three indicators, field data showed that the digital literacy skills of MTs DDI Manding teachers were still in the low category wThe findings of this study indicate that teachers' digital literacy competence remains relatively low, particularly in aspects related to communication and interaction in digital environments. This condition is consistent with previous studies showing that teachers' digital literacy often remains at a moderate or intermediate level when they are less active or proactive in engaging with digital forums and professional learning communities that support instructional activities. Furthermore,

teachers with higher levels of digital literacy tend to demonstrate stronger motivation to continuously develop theirAn analysis of the factors affecting the digital literacy of teachers at MTs DDI Manding was conducted by distributing questionnaires based on factors that affect digital literacy skills, namelal learning communities that support instructional activities. Furthermore, teachers with higher levels of digital literacy tend to demonstrate stronger motivation to continuously develop their. The data collected by the researcher serves as a reference for MTs DDI Manding teachers to identify factors that can support teachers' digital literacy skills. The factors that influence an individual's digital literacy skills, in this case MTs DDI Manding teachers, can be used as a reference to explore further the teachers' digital literacy skills to develop their creativity in teaching.

## CONCLUSIONS

The digital literacy skills of MTs DDI Manding teachers, which were assessed based on four main aspects, namely Internet Searching, Hypertext Navigation, Content Evaluation, and Knowledge Assembly, were generally still in the poor category with an average percentage of 39.38%. These findings indicate that teachers' digital literacy competencies have not developed optimally, particularly in their ability to search for information effectively, understand digital navigation structures, evaluate the validity of information content, and assemble knowledge from various digital sources. This condition indicates that teachers' use of digital technology is still limited and has not been fully directed towards strengthening the quality of digital literacy-based learning. In addition to reviewing the competency aspect, this study also analyzed the factors that influence teachers' digital literacy abilities, namely functional skills, communication and interaction, and critical thinking. The results of the analysis show that these three factors have an average percentage of 22.79% and are still in the insufficient category. These findings indicate that the factors supporting teachers' digital literacy are not yet functioning optimally, both in terms of mastery of basic technology skills, the use of digital media as a means of professional communication and interaction, and critical thinking skills regarding the digital information obtained, thus impacting the overall low level of teachers' digital literacy competencies.

## AKNOWLEDGMENT

## REFERENCES

Adiarsi, G. R., Stellarosa, Y., & Silaban, M. W. (2021). Literasi Media Internet di Kalangan Mahasiswa. *Humaniora*, *6*(4), 470. https://doi.org/10.21512/humaniora.v6i4.3376

Amalia, L. (2023). Penguasaan Technological Pedagogical and Content Knowledge (TPACK) Mahasiswa. *Sasangga Journal of Education and Learning*, 45–52.

Fakhriyah, F., Masfuah, S., Hilyana, F., & Mamat, N. (2022). Analysis of Technological Pedagogical Content Knowledge (TPACK) Ability Based on Science Literacy for Pre-Service Primary School Teachers in Learning Science Concept. *Jurnal Pendidikan IPA Indonesia*, 399–411.

Gilster, P. (1997). *Digital Literacy*. John Wiley & Sons.

Hasliyah, S., Sofyan, A., & Fadilah, E. (2023). Kompetensi Literasi Digital Peserta Didik pada Mata Pelajaran Biologi. *Attractive : Innovative Education Journal*, *4*(2), xxx–xxx. https://doi.org/10.51278/aj.v4i2.420

Herizal, Nuraina, Rohantizani, & Marhami. (2022). Profil TPACK Mahasiswa Calon Guru Matematika dalam Menyongsong Pembelajaran Abad 21. *Jurnal Ilmu Sosial Dan Pendidikan (JISIP)*, *6*(1), 1847–1857.

Jones, R. H., & Hafner, C. A. (2021). *Understanding Digital Literacies: A Practical Introduction* (2nd ed.). Routledge. https://doi.org/10.4324/9781003177647

Kuntarto, H. B., & Prakash, A. (2020). DIGITAL LITERACY AMONG CHILDREN IN ELEMENTARY SCHOOLS. *Diakom : Jurnal Media Dan Komunikasi*, *3*(2), 157–170. https://doi.org/10.17933/diakom.v3i2.92

Lachner, A., Fabian, A., Franke, U., Preib, J., Jacob, L., Fuhrer, C., & Thomas, P. (2021). Fostering Pre-Service Teachers' Technological Pedagogical Content Knowledge (TPACK): A Quasi-Experimental Field Study. *Computers & Education*, *174*.

Martin, A. (2021). Digital Literacy and the "Digital Society." In C. Lankshear & M. Knobel (Eds.), *Digital Literacies: Concepts, Policies and Practices* (pp. 151–176). Peter Lang.

Mawarwati, & Yanti, M. (2023). Analisis Technological Pedagogical and Content Knowledge (TPACK) Mahasiswa. *Jurnal Elementaria Edukasia*, 1138–1148.

Nasionalita, K., & Nugroho, C. (2020). Indeks Literasi Digital Generasi Milenial di Kabupaten Bandung. *Jurnal Ilmu Komunikasi*, *18*(1), 32. https://doi.org/10.31315/jik.v18i1.3075

Nugraha, D. (2022). Literasi Digital dan Pembelajaran Sastra Berpaut Literasi Digital di Tingkat Sekolah Dasar. *Jurnal Basicedu*, *6*(6), 9230–9244.

Raharjo, N. P., & Winarko, B. (2021). Analisis Tingkat Literasi Digital Generasi Milenial Kota Surabaya dalam Menanggulangi Penyebaran Hoaks. *Jurnal Komunika: Jurnal Komunikasi, Media Dan Informatika*, *10*(1), 33. https://doi.org/10.31504/komunika.v10i1.3795

Safitri, I., Marsidin, S., & Subandi, A. (2020). Analisis Kebijakan terkait Kebijakan Literasi Digital di Sekolah Dasar. *EDUKATIF : JURNAL ILMU PENDIDIKAN*, *2*(2), 176–180. https://doi.org/10.31004/edukatif.v2i2.123

Schmidt, D., Baran, E., Thompson, D., & Mishra, P. (2024). Technological Pedagogical Content Knowledge (TPACK): The Development and Validation of an Assessment Instrument for Preservice Teachers. *Journal of Research on Technology in Education*, 123–149.

Tseng, J., Chai, C., & Park. (2022). A Critical Review of Research on Technological Pedagogical and Content Knowledge (TPACK) in Language Teaching. *Computer Assisted Language Learning*, 948–971.

Wiguna, K. A. (2023). Analisis Kompetensi Literasi Digital pada Guru Sekolah Menengah Atas. *Jurnal Riset Manajemen Komunikasi*, *3*(1). https://doi.org/10.29313/jrmk.v3i1.2316

Yamin, M., & Fakhrunnisaa, N. (2022). Persepsi Literasi Digital Mahasiswa Calon Guru IAIN Palopo. *SAP (Susunan Artikel Pendidikan)*, *7*(1). https://doi.org/10.30998/sap.v7i1.13294

Zhang, W., & Tang, J. (2021). Teachers' TPACK Development: A Review of Literature. *Open Journal of Social Sciences*, 367–380.