Paedagoria : Jurnal Kajian, Penelitian dan Pengembangan Kependidikan
http://journal.ummat.ac.id/index.php/paedagoria
Prefix DOI: 10.31764

ISSN 2086-6356 (Print)
ISSN 2614-3674 (Online)
Vol. 15, No. 3, Juli 2024, Hal. 309-316

ASSESSING THE ENGLISH TEACHERS' DIGITAL LITERACY COMPETENCIES: A STUDY OF IN INDONESIAN JUNIOR HIGH TEACHERS

Wirda Ningsih[1], Yundri Akhyar[2]
[1]Pendidikan Agama Islam (MPI) STAI AL-Kifayah Riau, Indonesia
[2]Manajemen Pendidikan Islam (MPI), UIN Sultan Syarif Kasim Riau, Indonesia
wirdaningsih2007@gmail.com[1], Yundri.akhyar@uin-suska.ac.id[2]

INFO ARTIKEL

Riwayat Artikel:

Diterima: 23-04-2024
Disetujui: 27-06-2024

Kata Kunci:

Literasi digital
English Teacher

ABSTRAK

Abstrak: Kemampuan guru untuk menggunakan sumber daya digital secara efektif akan meningkatkan metode pengajaran mereka dan membekali siswa dengan keterampilan yang mereka perlukan di masa depan. Tujuan utama penelitian ini adalah untuk menilai kompetensi literasi digital guru bahasa Inggris di Pekanbaru. Jenis penelitian yang digunakan adalah mix method. Penelitian campuran adalah pendekatan penelitian yang menggabungkan elemen-elemen dari penelitian kuantitatif dan kualitatif dalam satu penelitian. Pengambilan sampel dilakukan secara purposive sampling. Partisipan penelitian ini adalah 56 guru bahasa Inggris dari SMPN 18 di Pekanbaru. Pengumpulan data penelitian melalui angket, wawancara dan observasi. Kuesioner didasarkan pada Alat untuk menilai literasi digital guru dengan model *DigCompEdu* dan menggunakan skala yang disukai. Penganalisa data menggunakan SPPS dan analisis tema. Hasil penelitian menunjukkan literasi digital guru pada aspek kesadaran 44,64%, eksplorasi 17,86%, integrasi 19,64%, keahlian 10,71%, kepemimpinan 5,36%, dan inovasi 1,79%. Hal ini memberikan kerangka kerja untuk menilai dan meningkatkan kompetensi literasi digital guru.

Abstract: *The ability of teachers to effectively use digital resources enhances their teaching methods and equips students with the skills they will need in the future. This study's main goal is to assess the digital literacy competencies of English teachers in Pekanbaru.The research is a mix method. The sampling was taken by purposive sampling. The participant of the research were 56 English teacher from the 18 junior high school in Pekanbaru The research data collection through questionnaires, interview and observation. The questionnaires were based Tools for assessing teacher digital literacy by DigCompEdu model and on using the liked scales. The data annalist was using SPPS and theme analysis. The result of the research are the teachers' digital literacy were in awareness 44.64%, exploration 17.86 %, integration 19.64 %, expertise 10.71%, leadership 5.36 %, and innovation 1.79 %. It provides a framework for assessing and advancing teachers' digital literacy competence.*

A. BACKGROUND

The constant advancement of technology has resulted in a significant shift in the dynamic field of education regarding the job of the English teacher. The traditional ideas of literacy have broadened beyond reading and writing to include a wider range of skills as we navigate the digital world (Kastolani, 2019). This encompasses what is now widely referred to as digital literacy (Ghafur, 2021). Because of this paradigm shift, it is necessary to reevaluate the competencies expected of English teachers in order to provide them with the skills and information they need to succeed in modern classrooms.

English teachers urgently need to acquire digital literacy competencies as a result of the confluence of technology and language teaching. The objective of this study is to investigate the various aspects of these competencies and examine the consequences for teachers, learners, and the larger educational system. Through an examination of the potential and obstacles related to incorporating digital literacy into English language instruction, this research aims to offer significant perspectives for educators, policymakers, and educational establishments (Haddade et al., 2023).

The ability to read and write was the only requirement for traditional definition of literacy

before it changed in the digital era (Zuhdi, 2023). These days, digital literacy which includes the capacity to use digital technology for navigation, critical evaluation, and content creation is an essential part of literacy overall (Juhaidi et al., 2023). As the experts on language proficiency, English teachers need to change with the times in order to produce students who are proficient in both language arts and the technologies and platforms that characterize the twenty-first century (Suyadi et al., 2022).

English teachers have a critical role as intermediaries between language instruction and technology breakthroughs in the information era, where digital technologies are seamlessly integrated into everyday life. The capacity of educators to use digital tools well improves their educational practices and gives pupils the tools they need for the future. Thus, a prerequisite for teaching English effectively in modern schools is digital literacy.

Although it is often known that digital literacy is important for teaching English, different educational contexts are now implementing it in different ways. While some educators are able to incorporate technology into their lesson plans with ease, others may struggle to keep up with the speed at which technology is developing. This discrepancy calls for a closer look at the current environment in order to pinpoint any weaknesses, difficulties, and possible areas where English teachers' digital literacy competencies could be strengthened (Akbari & Pratomo, 2022).

Examining how digital literacy competencies of English teachers affect student learning outcomes is a crucial component of the changing educational environment (Cetin, 2020). Researcher seek to identify the concrete advantages of improved digital literacy among educators by examining student performance, engagement, and attitudes about English in technologically enhanced situations. It is anticipated that the results of this study will influence the planning and execution of professional development initiatives for English language teachers. Educational institutions and policymakers can customize training activities to address the particular obstacles faced by educators in strengthening their digital literacy competencies by pinpointing specific areas of growth.

It is crucial for legislators to keep up with the evolving requirements of English teachers as the educational landscape changes (Miranda et al., 2018). The goal of this research is to provide insightful information that will help shape policies that will encourage digital literacy among English teachers and, in turn, support a more flexible and responsive educational system (Coldwell-Neilson et al., 2019).

Lack of adequate digital skills also affects the quality of students' teaching and learning outcomes. Teachers who do not have sufficient digital skills tend to be less able to provide interesting and relevant learning materials, and face difficulties in using technology to support effective evaluation and feedback. It can hinder the achievement of national educational goals and lower the desire of students to learn.

In Indonesia, many high school teachers still lack digital literacy, which hampers the use of technology in teaching. Because of this lack of digital skills, teachers face difficulties in using digital tools and platforms to make learning interactive and successful. Students are unable to make full use of technology during the learning process, potentially reducing the quality of education.

In addition, empirical data on the level of digital skills of teachers in Indonesia is limited. Effective policy formulation to enhance digital literacy among teachers is hampered by this lack of data. It is not easy for governments and other stakeholders to identify areas that require intervention and create training programmes that are tailored to real needs in the field without accurate and detailed data.

There are several researches had done in teacher digital literacy. Lestari et al.,(2022) found that Model Rasch was the instrument fulfills the necessary criteria and can be utilized as a tool to assess the digital literacy skills of instructors at MAN Palembang City. However, the research was not assest the teachers' digital literacy. Máthé et al., (2022) make research that focus on the Teachers' Digital Games Literacy. Cosby et al., (2023) study about problems in implementing digital literacy in schools. None of them discuss the topic of teachers' digital literacy competences.

The ultimate goal of this research is to The primary objective of this study is to evaluate the digital literacy skills of English teachers in Pekanbaru. This provides a framework for assessing and

enhancing the digital literacy competencies of English teachers, particularly those teaching at the junior high school level.

B. RESEARCH METHOD

The research goal is to determine the current skill sets, areas of strength, and opportunities for growth in digital literacy among English teachers The goal of this study is to clarify the complexities involved in incorporating digital literacy into English teaching. The researchers seek to shed light on the methods, materials, and approaches used by English teachers in order to offer suggestions for the successful integration of digital literacy into the larger context of language instruction.

The research is qualitative method. Data was collected through surveys methods. Surveys was provided to collect demographic information and self-assessment of digital literacy skills. The teacher were asked by answer the questionnaires based on Tools for assessing teacher digital literacy by DigCompEdu model. The teacher capability dived into six Six levels: awareness, exploration, integration, expertise, leadership, and innovation.

Each level probably corresponds to a distinct stage of expertise or advancement in using digital tools and technology in education. Allow me to provide a concise overview of each level:

Table 1. Level of Teachers' Digital Literacy Based on DigCompEdu model

Level	Indicators
Awareness	At this stage, educators are in the process of recognizing the significance of digital literacy in the field of education. While they may acknowledge the necessity of integrating technology, they may not have yet implemented it in their instructional practices.
Exploration	Educators at this stage are initiating the process of investigating and experimenting with digital tools and resources. They may engage in the exploration of various technologies in their teaching and gradually develop a fundamental comprehension of how these tools might augment the learning experience.
Integration	the assimilation of digital instruments into conventional educational methods. Teachers at this level are increasingly utilizing technology to regularly bolster and enrich their lessons. Additionally, they can be investigating methods to synchronize digital resources with curriculum objectives.
Proficiency:	Educators with skills in digital literacy have acquired a high level of skill in utilizing diverse technologies. They have the ability to proficiently incorporate digital tools into their teaching in order to actively involve students and improve learning results. Additionally, they can help their colleagues enhance their proficiency in digital literacy
Leadership	Teachers at the leadership level assume a mentoring or leadership position within their educational community. They impart their specialized knowledge to their colleagues, actively participate in the formulation of digital literacy policies, and actively contribute to developing the overarching digital strategy of their school or district.
Innovation	Teachers at the innovation level are trailblazers in the field of digital education. They proactively look for and apply state-of-the-art technologies, explore novel teaching approaches, and contribute to the wider educational community through research and innovative practices.

(Nguyen & Habók, 2024).

This framework offers a systematic approach for educators to evaluate and enhance their digital literacy skills, ultimately leading to the successful incorporation of technology in education. It is important to note that the precise information and vocabulary used may differ depending on the source or group responsible for creating this framework.

The questionairres assest the Professional engagement (PE), digital resources (DR), teaching and learning (TL), assessment (A), empowering learners (EL), and facilitating learners' digital competence (FLC) European Commission; Redecker (2017b) in (Nguyen & Habók, 2024). The level of the teacher is based on the table I bellow:

Table 2. The Teachers' Digital literacy levels

No	Level	Range
1	awareness	1-1.64
2	exploration	1.65-2.4
3	integration	2.3-2.94
4	expertise	2.95-3.59
5	leadership	3.60-4.24
6	innovation	4.25-5

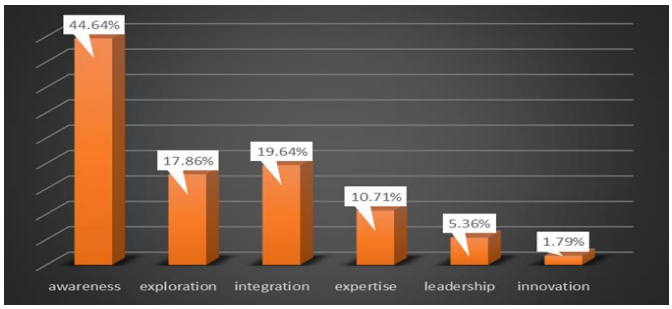
In order to accomplish the goals of this study, a purposive sample method was utilized to pick a varied group of English teachers from different junior high schools in Pekanbaru. A total of 56 English teacher from the 18 junior high school in Pekanbaru

were selected as the participants. The teachers' digital literacy was identified by analyzing the quantitative data using SPSS, a statistical tool. The qualitative data, collected through interviews and observations, was subjected to theme analysis in order to extract significant ideas and viewpoints from the participants.

C. RESULT AND DISCUSSION

The capacity of teachers to use technology and digital tools effectively in their instruction is known as teacher digital literacy competency. It includes a variety of abilities and know-how that teachers require to successfully negotiate the digital environment, improve student learning, and get ready for the digital age.

Proficiency in digital literacy is essential for teachers in today's education system, as it allows them to effectively use technology to improve teaching and engage students. This versatile collection of skills includes a wide variety of competencies that are crucial for efficiently navigating the digital world and equipping pupils for success in the modern day. Competencies in digital literacy are listed in the picture below;



The above data in Table 2 presents the distribution of digital literacy proficiency levels among a certain population, likely consisting of educators or those engaged in education. 44.64% of the section falls under the awareness level, demonstrating a widespread understanding of the importance of digital literacy. Furthermore, 17.86% of individuals are currently involved in exploration, actively engaging in experimentation with digital technologies. Approximately 19.64% of the sample has reached the integration level, indicating a strong dedication to routinely integrating technology into their teaching practices. 10.71% of individuals have achieved expertise, demonstrating a high level of ability in using different digital tools for educational reasons. Continuing along the spectrum, 5.36% of individuals are at the leadership level. This means that they not only have digital literacy abilities, but they also actively mentor others and help shape policy within the educational community. The percentage of individuals at the innovation level is 1.79%, indicating that these individuals are pioneers who actively explore and use advanced technology to enhance digital literacy practices. This analysis offers useful insights into the varying degrees of digital literacy proficiency within the group, illustrating a continuum ranging from fundamental awareness to cutting-edge innovation.

The analysis of English teachers reveals notable shortcomings in various crucial domains, including professional engagement (PE), digital resources (DR), teaching and learning (TL), assessment (A), empowering learners (EL), and facilitating learners' digital competence (FLC). In terms of professional engagement, there seems to be a lack of involvement in ongoing professional development activities and collaborative efforts within the teaching community. The low score in digital resources indicates a deficiency in incorporating technology effectively into teaching practices. In the realm of teaching and learning, there appears to be room for improvement, suggesting a need for exploring innovative pedagogical approaches and ensuring lessons are engaging and relevant. The assessment category points to challenges in evaluating student performance and providing meaningful feedback. The low empowerment of learners suggests that students may not be actively participating in their own learning journey. Lastly, the low score in facilitating learners' digital competence indicates a gap in preparing students for the digital age. Addressing these challenges may require targeted professional development programs, mentorship initiatives, and the provision of resources to enhance teachers' skills in these critical areas, ultimately fostering a more dynamic and effective English education environment.

The landscape of education is continuously evolving, with digital advancements and changing pedagogical paradigms necessitating a dynamic approach to teaching. This analysis delves into the notable shortcomings observed among English teachers across various pivotal domains, including professional engagement (PE), digital resources (DR), teaching and learning (TL), assessment (A), empowering learners (EL), and facilitating learners'

digital competence (FLC). The identification of these challenges lays the foundation for a comprehensive exploration of potential solutions to enhance the effectiveness of English education.

Professional engagement is a cornerstone of effective teaching, fostering continuous growth and collaboration within the teaching community (Hinrichsen & Coombs, 2013). The analysis reveals a deficiency in teachers' involvement in ongoing professional development activities and collaborative efforts (Falloon, 2020) . To address this, targeted programs focusing on professional development and community-building initiatives are essential(Snihovyi et al., 2018). Workshops, seminars, and peer-to-peer learning opportunities can be designed to not only enhance subject-specific knowledge but also promote a sense of shared responsibility and camaraderie among educators (Spante et al., 2018).

The low score in digital resources signifies a gap in incorporating technology effectively into English teaching practices. Embracing digital tools can enhance engagement and provide diverse learning experiences (Poole, 2015). To bridge this deficiency, educators should be equipped with training programs that emphasize the integration of digital resources into lesson planning(Lea & Jones, 2011). This involves familiarizing teachers with educational platforms, multimedia resources, and collaborative tools to create an interactive and technologically enriched learning environment (Miranda et al., 2018).

The analysis identifies a need for improvement in teaching and learning methodologies within the English education domain (Khan et al., 2022). Exploring innovative pedagogical approaches is crucial to creating an engaging and relevant learning experience for students. Professional development workshops that introduce inquiry-based learning, project-based assessments, and student-centered methodologies can empower teachers to revitalize their teaching strategies. Furthermore, fostering creativity and critical thinking skills should be central to lesson planning, ensuring a dynamic and participatory classroom environment (McGuinness & Fulton, 2019).

Challenges in evaluating student performance and providing meaningful feedback are evident in the assessment category. Addressing these challenges requires a multifaceted approach(Burton et al., 2021). Teachers should be encouraged to diversify assessment methods, moving beyond traditional exams to incorporate project-based assessments, portfolios, and peer evaluations. Training on constructive feedback mechanisms can enhance the quality of assessments, ensuring a comprehensive understanding of students' strengths and areas for improvement (Yustika & Iswati, 2020).

The low empowerment of learners implies that students may not be actively participating in their own learning journey. To foster student engagement and autonomy, English teachers should explore strategies that promote self-directed learning. Encouraging collaborative projects, incorporating student interests into lesson plans, and providing opportunities for independent research can empower students to take ownership of their education. Moreover, cultivating a positive and inclusive classroom culture is paramount in fostering a sense of belonging and motivation among learners.

The low score in facilitating learners' digital competence highlights a crucial gap in preparing students for the digital age. To address this, a comprehensive digital literacy curriculum should be integrated into English courses. This involves not only teaching basic digital skills but also fostering critical thinking regarding online information and responsible digital citizenship. Collaborations with technology experts and the integration of real-world digital applications within the curriculum can provide students with practical and relevant digital competencies.

The essence of teacher digital literacy competence is in the proficient exploitation of technology and digital tools to enhance the learning experience. This entails having expertise in using learning management systems, educational applications, multimedia materials, and collaborative platforms to design dynamic and engaging courses that are customized to meet the unique requirements of each student. By using these digital tools, educators may create a more captivating and individualized learning atmosphere that nurtures student inquisitiveness and enhances comprehension.

Moreover, the competence of teachers in digital literacy includes the ability to effectively find, assess, and incorporate digital material from many sources into their teaching methods. Teachers have a vital

role in encouraging digital citizenship and responsible use of technology by instructing students on how to critically analyze online material and differentiate between trustworthy sources and disinformation.

Teacher digital literacy competence includes media literacy, which enables educators to successfully assess and produce media material (Tangur, 2022). Teachers may boost understanding, encourage creativity, and accommodate varied learning styles by integrating multimedia components like photos, videos, and music into their classes(Aluko & Ooko, 2022).

Teacher digital literacy competence includes not just technical abilities, but also important competencies including digital communication, data literacy, and cybersecurity awareness (Kudus, 2019). Efficient communication via digital platforms allows educators to cooperate with peers, communicate with students and parents, and foster meaningful engagements inside and outside the classroom. Data literacy enables educators to gather, analyze, and understand data from digital sources in order to make informed instructional choices and enhance student achievement (Máthé et al., 2022). Meanwhile, cybersecurity awareness empowers educators with the necessary information and optimal strategies to safeguard digital assets, uphold privacy, and guarantee online safety for both themselves and their pupils(Lestari et al., 2022).

The competence of teachers in digital literacy is not fixed, but rather a flexible set of skills that need ongoing study and adjustment to stay up to date with the always changing digital environment. By developing and honing these crucial skills, instructors may adeptly traverse the digital landscape, enhance student academic achievements, and equip pupils for triumph in an ever more digitalized society.

D. CONCLUSIONS AND SUGGESTIONS

The results show that teachers' digital literacy competencies are still variable, with varying levels of awareness, exploration, integration, expertise, leadership, and innovation. This shows the need for increased digital competencies among teachers to use technology more effectively in the teaching process.

By understanding the current level of digital literacy, training and professional development programmes can be designed to support teachers in developing the necessary skills in the use of educational technology. Furthermore, improving the teachers' digital literature can encourage them to play a leading role in the integration of technology in schools, which not only improves the quality of teaching but also provides positive examples to students in using technology for effective learning.

English instructors encounter several crucial areas that require improvement: professional development involvement, competency in digital tools, implementation of new teaching methods, effective assessment techniques, empowerment of learners, and development of digital skills. Specific treatments such as focused training in digital literacy and instructional design are essential. Mentorship programs that match seasoned educators with beginners offer essential assistance and foster cooperation. Utilizing contemporary instructional approaches such as project-based learning, flipped classrooms, and gamification enhances the learning experience and enhances student engagement. These tactics enable educators to establish interactive educational settings that equip students with the necessary skills for success in the modern digital age. They promote the development of critical thinking, communication abilities, and a strong enthusiasm for learning in a globally interconnected world.

REFERENCES

Akayoğlu, S., Satar, H. M., Dikilitaş, K., Cirit, N. C., & Korkmazgil, S. (2020). Digital literacy practices of Turkish pre-service EFL teachers. Australasian Journal of Educational Technology, 36(1), 85–97. https://doi.org/10.14742/ajet.4711

Akbari, T. T., & Pratomo, R. R. (2022). Higher education digital transformation implementation in Indonesia during the COVID-19 pandemic. Jurnal Kajian Komunikasi, 10(1), 52. https://doi.org/10.24198/jkk.v10i1.38052

Biggins, D., Holley, D., & Zezulkova, M. (2017). Digital Competence and Capability Frameworks in Higher Education: Importance of Life-long Learning, Self-Development and Well-being. EAI Endorsed Transactions on E-Learning, 4(13), 152742. https://doi.org/10.4108/eai.20-6-2017.152742

Burton, L. J., Summers, J., Lawrence, J., Noble, K., & Gibbings, P. (2021). Digital literacy in higher education: The rhetoric and the reality Lorelle J. Burton, Jane

Summers, Jill Lawrence, Karen Noble, and Peter Gibbings. Business, Management and Accounting, 1(1), 1–19.

Cetin, E. (2020). Digital storytelling in teacher education and its effect on the digital literacy of pre-service teachers. Thinking Skills and Creativity, 39(4), 100760. https://doi.org/10.1016/j.tsc.2020.100760

Coldwell-Neilson, J., A Armitage, J., J Wood-Bradley, R., Kelly, B., & Gentle, A. (2019). Implications of Updating Digital Literacy – A Case Study in an Optometric Curriculum. Issues in Informing Science and Information Technology, 16, 033–049. https://doi.org/10.28945/4285

Elphick, M. (2018). The impact of embedded ipad use on student perceptions of their digital capabilities. Education Sciences, 8(3), 1–12. https://doi.org/10.3390/educsci8030102

Falloon, G. (2020). From digital literacy to digital competence: the teacher digital competency (TDC) framework. Educational Technology Research and Development, 68(5), 2449–2472. https://doi.org/10.1007/s11423-020-09767-4

Ghafur, H. S. (2021). Analysis of ICT Development Supporting the E-Learning Implementation on Nadhatul Ulama Universities in Indonesia. Journal of Social Studies Education Research, 12(4), 121–143.

Haddade, H., Nur, A., Rasyid, M. N. A., & R., A. R. (2023). Quality assurance strategies of higher education in digital era: an Anthropology of education study in Islamic higher education institution. Quality Assurance in Education, 14(4), 65–87. https://doi.org/10.1108/QAE-05-2023-0084

Hinrichsen, J., & Coombs, A. (2013). The five resources of critical digital literacy: A framework for curriculum integration. Research in Learning Technology, 21(1063519), 1–16. https://doi.org/10.3402/rlt.v21.21334

Juhaidi, A., Fitria, A., Hidayati, N., Syaifuddin, Ridhahani, Aseri, A. F., Umar, M., Aseri, M., & Riza, M. (2023). Digital Citizenship of Generation Z in Indonesia: Does Islamic Higher Education Matter? Journal of Higher Education Theory and Practice, 23(13), 165–181. https://doi.org/10.33423/jhetp.v23i13.6325

Kastolani, K. (2019). Digital Reorientation of Islamic Higher Education in Indonesia. AKADEMIKA: Jurnal Pemikiran Islam, 24(1), 151. https://doi.org/10.32332/akademika.v24i1.1618

Khan, N., Sarwar, A., Chen, T. B., & Khan, S. (2022). Connecting digital literacy in higher education to the 21st century workforce Nasreen Khan Abdullah Sarwar Tan Booi Chen Recommended citation : Connecting digital literacy in higher education to the 21st century workforce. Knowledge Management & E-Learning, 14(1), 46–61.

Lea, M. R., & Jones, S. (2011). Digital literacies in higher education: Exploring textual and technological practice. Studies in Higher Education, 36(4), 377–393. https://doi.org/10.1080/03075071003664021

McGuinness, C., & Fulton, C. (2019). Digital literacy in higher education: A case study of student engagement with e-tutorials using blended learning. Journal of Information Technology Education: Innovations in Practice, 18, 1–28. https://doi.org/10.28945/4190

Miranda, P., Isaias, P., & Pifano, S. (2018). Digital Literacy in Higher Education: A Survey on Students' Self-assessment. Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 10925 LNCS, 71–87. https://doi.org/10.1007/978-3-319-91152-6_6

Muflihin, A. (2020). Peran Guru Pendidikan Agama Islam Dalam Meningkatkan Literasi Digital Siswa Sebagai Kecakapan Abad 21. TA'DIBUNA: Jurnal Pendidikan Agama Islam, 3(1), 91. https://doi.org/10.30659/jpai.3.1.91-103

Nastiti, D., & Permana, I. A. (2023). The Role Of Teachers In Digital Literacy Development. Pandawa : Pusat Publikasi Hasil Pengabdian Masyarakat, 1(3), 144–153.

Nguyen, L. A. T., & Habók, A. (2024). Tools for assessing teacher digital literacy: a review. In Journal of Computers in Education (Vol. 11, Issue 1). Springer Berlin Heidelberg. https://doi.org/10.1007/s40692-022-00257-5

Poole, A. H. (2015). How has your science data grown? Digital curation and the human factor: a critical literature review. Archival Science, 15(2), 101–139. https://doi.org/10.1007/s10502-014-9236-y

Reisoğlu, İ., & Çebi, A. (2020). How can the digital competences of pre-service teachers be developed? Examining a case study through the lens of DigComp and DigCompEdu. Computers and Education, 156(103), 1–16. https://doi.org/10.1016/j.compedu.2020.103940

Snihovyi, O., Ivanov, O., & Kobets, and V. (2018). ICT in Education, Research and Industrial Applications. CEUR Workshop Proceedings, 2105(October), 50–64.

Spante, M., Hashemi, S. S., Lundin, M., & Algers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use. Cogent Education, 5(1), 1–21. https://doi.org/10.1080/2331186X.2018.1519143

Suyadi, Nuryana, Z., Sutrisno, & Baidi. (2022). Academic reform and sustainability of Islamic higher education in Indonesia. International Journal of Educational Development, 89(1), 1–11. https://doi.org/10.1016/j.ijedudev.2021.102534

Tejedor, S., Cervi, L., Pérez-Escoda, A., & Jumbo, F. T. (2020). Digital literacy and higher education during COVID-19 lockdown: Spain, Italy, and Ecuador. Publications, 8(4), 1–17. https://doi.org/10.3390/publications8040048

Yu, Z. (2022). Sustaining Student Roles, Digital Literacy, Learning Achievements, and Motivation in Online Learning Environments during the COVID-19 Pandemic. Sustainability (Switzerland), 14(8), 1–14. https://doi.org/10.3390/su14084388

Yustika, G. P., & Iswati, S. (2020). Digital Literacy in Formal Online Education: A Short Review. Dinamika Pendidikan, 15(1), 66–76. https://doi.org/10.15294/dp.v15i1.23779

Zuhdi, M. (2023). Constructing the Concept of Student Well-Being within Indonesian Islamic Higher Education. Religions, 14(11), 1–12.