

TRANSFORMATION OF ISLAMIC RELIGIOUS EDUCATION AND ETHICS THROUGH DIGITAL LITERACY OF TEACHERS IN ELEMENTARY SCHOOLS

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Abstract: This study aims to analyze the application of teachers' digital literacy in the transformation of Islamic Religious Education and Ethics in elementary schools, including planning, implementation, utilization of digital resources and media, evaluation, as well as supporting and inhibiting factors. The research uses a qualitative approach with a multi-case case study design at SD Negeri 3 Labuhan Ratu, SD Negeri 1 Kampung Baru, and SD Negeri 1 Sepang Jaya. Data was obtained through observation, semi-structured interviews, and documentation, then analyzed through case analysis and cross-case analysis. The validity of the data was strengthened through triangulation of sources and techniques. The results of the study showed that the three schools have implemented digital literacy in the planning, implementation, and evaluation of learning. Teachers utilize video, PowerPoint, internet, laptops, projectors, and Smart TVs according to learning objectives and needs. The application of digital literacy also includes digital skills, ethics, security, and culture. The similarities between cases can be seen in the basic pattern of their application, while the differences are in the type of media, the availability of facilities, and the equitable distribution of teachers' digital competencies. The findings show that the application of digital literacy does not only depend on the availability of technology, but also on the ability of teachers to integrate it with learning needs.

Keywords: Digital Literacy; Education and Ethics Teachers; Islamic Religious; Learning Transformation

Introduction

The development of digital technology has encouraged changes in the implementation of education, including at the elementary school

level. Digitalization of education is not only related to the use of digital learning devices and resources, but also requires teachers to be able to design learning, choose sources, manage activities, and use technology in accordance with pedagogical goals. Systematic studies show that teachers' digital competencies cover various dimensions, ranging from technology-based learning planning, the use of digital resources, the implementation of learning activities, to the use of technology to support student competence.¹ However, research also shows that the measurement of teachers' digital competence still emphasizes the ability to use technology as a learning resource rather than the ability to use it to develop student-centered learning activities.² In the Indonesian context, strengthening teachers' competence in digitizing learning is also part of educational transformation efforts, so digital skills need to be understood as part of pedagogical competence, not just technical skills.

In Islamic Religious Education (PAI) and Ethics, the use of technology has more specific characteristics because learning is not only directed at mastering knowledge, but also at understanding religious values, ethics, and character formation of students. Teachers need to have the ability to choose relevant digital sources while considering their truthfulness, credibility, and suitability with Islamic values. The latest study on digital literacy in PAI shows that strengthening digital literacy needs to go hand in hand with Islamic values and character education.³ This is important because the digital space provides access to diverse religious information, so students need

¹ Ove Edvard, Monica Johannesen, and Ø Leikny, "Examining Dimensions of Teachers' Digital Competence: A Systematic Review Pre- and during COVID-19," *Heliyon* 9, no. October 2022 (2023), <https://doi.org/10.1016/j.heliyon.2023.e16677>.

² Juan Enrique Hinojosa Claro, Magdalena, Carolina Castro-Grau, Juan Manuel Ochoa and Patricio Cabello, "Systematic Review of Quantitative Research on Digital Competences of In-Service School Teachers," *Computers & Education* 215 (2024): 105030.

³ Handaru Kusbiantoro, Ahmad Syafiq, and Akh Fad Firdosi, "Strengthening Digital Literacy in Islamic Religious Education: A Systematic Literature Review," *Dalam Pendidikan Agama Islam (PAI) Dan Budi Pekerti, Penggunaan Teknologi Memiliki Karakteristik Yang Lebih Spesifik Karena Pembelajaran Tidak Hanya Diarahkan Pada Penguasaan Pengetahuan, Tetapi Juga Pada Pemahaman Nilai Agama, Etika, Dan Pembentukan Karakter* 8 (2026): 67–82, <https://doi.org/10.22373/fitrah.v8i1.10399>; S I Pujiono et al., *Pendidikan Karakter* (CV. Oke Terbitkan Indonesia, 2026); Mas Muhammad Badrut Tamam and Muh Sabilar Rosyad, "Membentuk Perilaku Moderasi Beragama Siswa Melalui Internalisasi Nilai-Nilai Islam Di SMP Mambaus Sholihin 7 Bintang," *Jurnal Al-Fatih* 8, no. 1 (2025): 402–16, <https://doi.org/10.61082/alfatih.v8i1.487>.

teachers' guidance to understand and use information appropriately and responsibly. Thus, the digital competence of PAI teachers is not only related to the ability to operate technology, but also the ability to integrate technology, religious materials, and the purpose of character formation in the learning process.

The existing literature has provided a basis that teachers' digital competence can support the quality of learning, but the results of the study show that there are still some conceptual and empirical problems. A systematic review of teachers' digital competencies found that previous research used various digital competency concepts and still relied heavily on data based on teachers' perceptions or self-reports.⁴

Research over the past three years has shown increasing academic attention to teachers' digital literacy and the integration of technology in Islamic Religious Education and Ethics learning. Nopitasari et al., researched digital literacy in the context of elementary school teacher education and showed the importance of digital literacy as a competency that needs to be developed in the education of prospective teachers.⁵ In the context of Islamic Religious Education and Ethics, the research of Mintasih, Sukiman, and Purnama uses a qualitative approach to examine the integration of digital technology in Islamic Religious Education and Ethics learning. The research emphasizes the importance of teachers' digital competence, digital content development, equitable distribution of infrastructure, and learning models that combine conventional learning with technology.⁶ Furthermore, Yusniar et al. examined the digital literacy competencies of Islamic Religious Education teachers through the Teacher Working Group (KKG) program in Sabang City.

The results of the study show that the digital literacy competencies of Islamic Religious Education and Ethics teachers are still diverse, ranging from the ability to use basic technology to the ability to integrate technology creatively and effectively in learning.

⁴ Nola Susilowati, "Digital Literacy on Increasing the Pedagogical Competence for Teachers in Primary School," *Penelitian Pendidikan* 42, no. 2 (2025): 163–69.

⁵ Banu Setyo Adi, Sugeng Riyanto, And Rahayu Condoro Murti, 'Digital Literacy : Perceptions Of Primary School Teacher Education Students', *Elementary School Scientific*, 7.1 (2023), 27–34
<<https://doi.org/10.23887/jisd.v7i1.48400>>.

⁶ Diyah Mintasih And Sigit Purnama, 'Integration Of Digital Technology In Islamic Religious Education Learning : A Qualitative Study On Teachers ' Competence And Implementation Models In Secondary Schools', *Islamic Education*, 13.1 (2024), 85–96
<<https://doi.org/10.14421/jpi.2024.131.85-96>>.

These findings show that improving teachers' digital literacy competencies is an important part in supporting the use of technology in the learning process of Islamic Religious Education and Ethics.⁷ Furthermore, Asfaraini and Nuroh analyzed the digital literacy skills of teachers in elementary schools. The results of the study show that teachers' digital literacy skills contribute positively to the learning process, especially in the use of technology to increase students' learning motivation. However, its implementation still faces obstacles in the form of technological limitations, lack of supporting facilities, and the need for sustainable digital literacy training.

The findings confirm that improving teachers' digital competence is one of the important aspects in supporting learning transformation in elementary schools.⁸ Research by Rahimi et al. also shows that digital literacy in Islamic education is related to teachers' strategies in building students' character amid the increasing use of social media.⁹ Thus, previous research has provided an overview that digital literacy has an important position in teacher competence, technology integration, and the development of Islamic Religious Education and Ethics learning.

However, previous research still discusses digital literacy more from the aspects of teacher competence, technology readiness, training, and technology utilization in general. The aspect that still needs to be clarified is how these competencies are manifested in the learning practices of PAI and Ethics as a whole, starting from learning planning, selection and development of digital learning resources, the use of digital media and platforms, interaction with students, to learning evaluation.¹⁰ Thus, the issue that needs to be studied is no longer just

⁷ Aisyah Yusniar, Salami, Zulfatmi, 'Optimizing the Digital Literacy Competency of Pai Teachers through the Sabang City KKG Program', *Fitrah*, 6 (2024), 155–77 <<https://doi.org/https://doi.org/10.22373/Fitrah.V6i2.6030>>.

⁸ Adawiyah Asfaraini and Ermawati Zulikhatin Nuroh, 'Analysis of Teachers' Digital Literacy Skills in Elementary Schools', *Jiip (Scientific Journal of Education)*, 8 (2025), 7074–87 <<https://doi.org/https://doi.org/10.54371/jiip.V8i7.8362>>.

⁹ Nur Syakirah Binti Mohd. Adan Rahimi, Rahmat Saputra, Suroto, "Implementation of Digital Literacy in Islamic Education: Teachers Strategies for Character Building in the Era of Growing Social Media Use," *Fitrah: Journal of Islamic Education* 6, no. 1 (2025): 177–91, <https://doi.org/https://doi.org/10.53802/fitrah.v6i1.1129>; Nadya Yulianty et al., *Psikologi Belajar* (CV. Oke Terbitan Indonesia, 2026).

¹⁰ Katerina Tzafilkou, Maria Perifanou, and Anastasios A Economides, "Assessing Teachers' Digital Competence in Primary and Secondary Education : Applying a New Instrument to Integrate Pedagogical and Professional Elements," *Education and*

the level of teachers' digital ability, but how these abilities are used in PAI and Ethics learning practices. The contribution of this research lies in an in-depth analysis of how teachers' digital literacy is manifested in changes in PAI and Ethics learning practices, paying attention to the use of technology, digital resource management, learning strategies, interactions, and evaluation.

Based on this description, this study aims to analyze the learning transformation of Islamic Religious Education and Ethics through the digital literacy of teachers in elementary schools. The research is directed to find out how teachers use digital technology in learning planning and implementation, how teachers choose and utilize digital learning resources, how technology is used in learning interactions, and factors that support and hinder its implementation. Thus, the research questions asked are: (1) how is teachers' digital literacy applied in the planning and implementation of PAI and Ethics learning in elementary schools? (2) how do teachers choose and utilize digital resources and media in PAI and Ethics learning? and (3) what are the factors that support and hinder the application of teachers' digital literacy in the transformation of PAI and Ethics learning?

Literature Review

Teachers' digital literacy in this study is understood as the ability of teachers to use digital technology appropriately to support the learning process. To explain the relationship between digital literacy and pedagogical practice, this study uses the European Framework for the Digital Competence of Educators (DigCompEdu) as the main theoretical framework. DigCompEdu views educators' digital competence as the ability to use technology effectively in professional and pedagogical contexts. This framework covers six areas, namely professional engagement, digital resources, teaching and learning, assessment, empowering learners, and facilitating learners' digital competence. Thus, teachers' digital literacy is not only seen from the ability to operate devices, but also from how technology is used to support learning practices.¹¹

In this study, the four areas of DigCompEdu that are most related to learning practices are used as the basis for analysis, namely

Information Technologies 28, no. 12 (2023): 16017–40, <https://doi.org/10.1007/s10639-023-11848-9>.

¹¹ Emre Suzer and Mustafa Koc, "Teachers' Digital Competency Level According to Various Variables: A Study Based on the European DigCompEdu Framework in a Large Turkish City," *Education and Information Technologies* 10 (2024): 22057–83.

digital resources, teaching and learning, assessment, and empowering learners. Digital resources are related to the ability of teachers to search, select, evaluate, create, and manage digital learning resources. Teaching and learning is related to the use of technology in the delivery of materials, guidance, interaction, collaborative learning, and independent learning. Assessment includes the use of technology in assessment and providing feedback, while empowering learners are related to the use of technology to increase student involvement in learning. This division shows that teachers' digital competencies are directly related to pedagogical actions carried out during learning.¹²

Previous research shows that teachers' digital competencies need to be understood through their application in learning practices, not just through the ability to use technological devices. Alptekin and Taneri's research on elementary school teachers shows that teachers have utilized various digital technologies in learning, but their use is still more directed to support the presentation of materials, while the use of technology for collaborative activities, digital content production, and assessment is still limited. These findings show that the mastery of technology has not always been followed by wider use to support the pedagogical process. Therefore, the study of teachers' digital literacy needs to pay attention to how technology is used in various stages of learning and how its use supports student interaction and engagement.¹³

Based on the DigCompEdu framework, the observation indicators of this study are directed at the tangible form of the use of technology in PAI and Ethics learning. In the aspect of digital resources, observation looks at how teachers choose and use digital learning resources. In the teaching and learning aspect, observation is directed at the use of technology in delivering materials, learning activities, interactions, and guidance of students. In the assessment aspect, observation looks at the use of technology in assessment and providing feedback, while the empowering learner aspect is used to see the involvement of students in technology-based learning activities. Interview questions are developed from these indicators, including the reasons why teachers choose digital sources or media, how to integrate

¹² Charlott Rubach A, Isabell Runge, Rebecca Lazarides and Katharina Scheiter, Dirk Richter a, "Teacher-Reported Instructional Quality in the Context of Technology-Enhanced Teaching: The Role of Teachers' Digital Competence-Related Beliefs in Empowering Learners," *Computers & Education* 198 (2023): 104761.

¹³ Zeliha Alptekin, "Technology Integration in Pedagogical Processes : Digital Competence and Teaching Practices of Primary School Teachers in Turkey," *Discover Education RESEARCH* 4 (2025): 351.

technology in learning, the use of technology for assessment, and how to involve students through technology. Thus, the theoretical framework directly becomes the basis for the preparation of research instruments.¹⁴

Furthermore, DigCompEdu is used as a basis for coding and interpreting research data. The data from observation and interviews are categorized based on the aspects of digital resources, teaching and learning, assessment, and empowering learners. These categories are used to identify the forms of application of teachers' digital competencies in PAI and Ethics learning practices, including the use of digital resources, learning implementation, assessment, student involvement, and factors that support and hinder its implementation. Thus, this study not only describes the use of technology by teachers, but analyzes how these digital competencies are realized in pedagogical practices based on a theoretical framework that has been determined.¹⁵

Method

This study uses a qualitative approach with a multicase case study design to deeply understand teachers' practices, strategies, and experiences in using digital literacy in Islamic Religious Education and Ethics learning. The research was conducted in three State Elementary Schools, namely SD Negeri 3 Labuhan Ratu, SD Negeri 1 Kampung Baru, and SD Negeri 1 Sepang Jaya. The three schools were positioned as different cases to obtain an overview of the application of digital literacy in different school contexts. A total of 994 students were used as an overview of the school context, while the research informants were PAI and Budi Pekerti teachers who were directly involved in the use of digital technology.

The research analysis unit is the practice of teachers' digital literacy in PAI and Ethics learning, including the selection and use of digital resources, the use of media and technology in learning, digital communication, and the use of technology in evaluation. Case limits are set for PAI and Ethics teachers, learning activities, and the use of

¹⁴ Mario Rubén Chifla-villón et al., "Multidimensional Assessment and Validation of Digital Competencies in University Teacher Education: A Confirmatory Factor Analysis," *FRONTIERS IN EDUCATION*, no. July (2025): 1–11, <https://doi.org/10.3389/feduc.2025.1597095>.

¹⁵ Jo Tondeur Els Tanghe, Katie Goeman, Annelies Raes, Tijs Rotsaert, Tammy Schellens, Katrien Struyven and Adriaan Herremans, "Mapping Teacher Education Strategies to Develop Digital Competence Targets: A Cross-Framework Analysis," *COMPUTER AND EDUCATION* 254 (2026): 105699.

digital technology in each school. The aspects analyzed refer to the DigCompEdu framework, especially digital resources, teaching and learning, assessment, and empowering learners.¹⁶

Data were obtained through observation, semi-structured interviews, and documentation. Informants were selected purposively based on their direct involvement in PAI and Ethics learning as well as the use of digital technology. Purposive selection of informants was appropriately used in case study research to obtain information from participants who had direct experience with the phenomenon being studied.¹⁷ Data were analyzed in stages through data condensation, data presentation, and conclusion drawn. After each case was analyzed separately (within-case analysis), a cross-case analysis was carried out by comparing the three schools based on the same category to identify similarities, differences, and patterns of application. The within-case and cross-case analysis approaches allowed the study to maintain the characteristics of each case while finding patterns that emerged among several cases.¹⁸

The validity of the data is carried out through triangulation of sources and techniques by comparing the results of interviews, observations, and documentation. Triangulation is used to see the suitability of information from various sources and data collection techniques so that findings do not depend only on one source of information. In multi-case studies, the use of multiple sources of evidence and cross-case analysis can help strengthen the accuracy of interpretation and identify similarities and differences between cases.¹⁹ Thus, the credibility of the findings is strengthened through the examination of data from various sources, techniques, and cases.

¹⁶ Levon Momdjian, Marni Manegre, and Mar Gutiérrez, "Bridging the Digital Competence Gap : A Comparative Study of Preservice and In - Service Teachers in Lebanon Using the DigCompEdu Framework," *Technology, Knowledge and Learning* 30, no. 2 (2025): 655–83, <https://doi.org/10.1007/s10758-024-09794-7>.

¹⁷ Lisa McKenna Raghunathan, Kalpana and Monica Peddle, "Factors in Integrating Academic Electronic Medical Records in Nursing Curricula: A Qualitative Multiple Case Studies Approach," *NURSE EDUCATION TODAY* 120 (2023): 105626.

¹⁸ Sebastian Käss And Others, *Short And Sweet: Multiple Mini Case Studies As A Form Of Rigorous Case Study Research, Information Systems And E-Business Management* (Springer Berlin Heidelberg, 2024), XXII <<https://doi.org/10.1007/978-3-662-60067-2>>.

¹⁹ Margarithe Charlotte Schlunegger, Maya Zumstein-Shaha, and Rebecca Palm, "Methodologic and Data-Analysis Triangulation in Case Studies: A Scoping Review," *Western Journal of Nursing Research* 46, no. 8 (2024): 611–22, <https://doi.org/10.1177/01939459241263011>.

Results and Discussion

Digital Literacy Implementation and Cross-Case Patterns in Islamic Religious Education and Ethics Learning

The results of the research at SD Negeri 3 Labuhan Ratu, SD Negeri 1 Kampung Baru, and SD Negeri 1 Sepang Jaya show that the digital literacy of Islamic Religious Education and Ethics teachers has been applied at the planning, implementation, and evaluation stages of learning. In the planning stage, the three schools showed a relatively similar pattern, namely teachers considered learning objectives, materials, characteristics of students, and the availability of digital media and devices. At the implementation stage, technology is used to support the delivery of materials and student involvement, while at the evaluation stage, teachers use observation of the learning process and learning outcomes to determine learning achievement.²⁰ Thus, the application of digital literacy in the three schools has the same framework, but the level of utilization is different according to the condition of the teacher's digital facilities and competencies.

At SD Negeri 3 Labuhan Ratu, the application of digital literacy can be seen through the use of learning videos, PowerPoint, the internet, laptops, and other digital devices. Teachers plan the use of media by considering the purpose and learning materials as well as the condition of the available facilities. In its implementation, technology is not only used to deliver materials, but is also directed to develop students' digital skills and familiarize them with the use of technology ethically, safely, and responsibly.²¹ Evaluation is carried out through observation of student involvement, learning assessment, and learning outcomes. The findings show that the use of technology has been placed as part of the learning process, not just as a tool for delivering material.

In SD Negeri 1 Kampung Baru, the pattern of implementing digital literacy is also found at the planning, implementation, and evaluation stages. Teachers consider the learning objectives, materials, characteristics of students, and the media to be used. The media used include PowerPoint, internet, laptops, and projectors. In its application,

²⁰ Tessa Consoli, Maria Luisa, and Schmitz Chiara, *Quality of Technology Integration Matters: Positive Associations with Students' Behavioral Engagement and Digital Competencies for Learning, Education and Information Technologies*, vol. 30 (Springer US, 2025), <https://doi.org/10.1007/s10639-024-13118-8>.

²¹ Lingxi Li, Jana Patricia M Valdez, and Yingqiao Du, "Digital Citizenship Education at the Early Childhood Level: How Is It Implemented? A Systematic Review," *International Journal of Child Care and Education Policy* 19 (2025): 1–18.

teachers pay attention to aspects of digital skills, digital ethics, digital safety, and digital culture. Evaluation is carried out through observation of the learning process and student learning outcomes. In addition to the learning process, schools also show good academic and non-academic achievements, including support for the implementation of ANBK, the acquisition of BOS Performance, and the achievement of Islamic Religious Education. These findings show that the use of digital literacy takes place in a school environment that provides support for academic activities and student development.

At SD Negeri 1 Sepang Jaya, teachers also plan the use of technology based on the materials and needs of students. In its implementation, teachers utilize Smart TVs, projectors, laptops, the internet, and learning videos and apply aspects of digital skills, digital ethics, digital safety, and digital culture. Evaluation is carried out through learning observation and assessment of learning outcomes. However, unlike the other two schools, the results of interviews and observations show that there are limitations in the equitable distribution of teachers' digital competencies and the availability of several learning devices. The limitations of projectors, Smart TVs, and sound systems cause the use of technology to not be carried out optimally in all learning activities. Thus, the implementation of digital literacy in this school has taken place, but its intensity and equity are still influenced by the condition of facilities and teacher competence.

If the three schools are treated as three cases, a cross-case pattern is found that the digital literacy of Islamic Religious Education and Ethics teachers has basically become part of the learning process. The main similarities are found in the three stages of implementation, namely planning, implementation, and evaluation. The three schools both plan based on learning objectives and materials, use digital devices in the implementation of learning, and evaluate through student learning processes and outcomes.

Although they have the same basic pattern, there are differences in the form of media used, facility support, equitable distribution of teachers' digital competencies, and the level of technology utilization. SD Negeri 3 Labuhan Ratu shows the use of various digital media that support students' learning and digital skills development. SD Negeri 1 Kampung Baru shows the application of broader aspects of digital literacy, namely digital skills, digital ethics, digital safety, and digital culture, which runs in tandem with the school's various academic and non-academic achievements. Meanwhile, SD Negeri 1 Sepang Jaya has a similar implementation pattern, but its use is still influenced by the

limitations of devices and the equitable distribution of teachers' digital competencies.

The following matrix shows a systematic comparison of the three cases.

Table 1. A comparison matrix of the three cases systematically

Aspects	SD Negeri 3 Labuhan Ratu	SD Negeri 1 Kampung Baru	SD Negeri 1 Sepang Jaya	Similarities and Differences
Planning	Adapt technology to learning objectives and materials.	Adapting technology to goals, materials, and students.	Adapting technology to the material and needs of students.	Equation: the use of technology is planned according to the needs of learning.
Implementation	Using video, PowerPoint, the internet, and a laptop.	Using PowerPoint, the internet, laptop, and projector.	Using Smart TVs, projectors, laptops, internet, and video.	Similarity: using technology in learning. Difference: the type of media used is different.
Digital literacy	Pay attention to skills, ethics, and safe use of technology.	Implementing digital skills, digital ethics, digital safety, and digital culture.	Implementing digital skills, digital ethics, digital safety, and digital culture.	Similarity: all three pay attention to the appropriate and responsible use of technology.
Evaluation	Through observation, assessment, and learning outcomes.	Through the learning process and learning outcomes.	Through observation and learning outcomes.	Equation: evaluation is carried out through learning processes and outcomes.
Supporting conditions	The use of technology is supported by the available facilities.	Supported by school facilities and achievements.	There are still limitations in the facilities and equitable distribution of teachers' digital competencies.	The difference: the support of facilities and the competence of teachers are not the same.

Based on the cross-case matrix, there are three main patterns. First, the same pattern, namely that the three schools have integrated digital literacy in the planning, implementation, and evaluation of learning. Second, different patterns, namely the level of technology utilization is influenced by the type and availability of devices and the equitable distribution of teachers' digital competencies. Third,

contextual patterns, namely the conditions in which each school produces a different form of technology utilization even though it has the same framework for implementing digital literacy.

Cross-case comparisons also show that the existence of digital devices alone does not describe the overall application of digital literacy. The use of technology in learning is related to how teachers choose media, use it according to learning objectives, pay attention to digital ethics and safety, and evaluate learning processes and outcomes. Therefore, differences between schools are more visible in the level of utilization, support of facilities, and equitable distribution of teacher competencies, while the similarities can be seen in the basic framework of the application of digital literacy in learning.

Thus, the three schools not only showed three separate descriptions of research locations, but also provided comparative findings that the application of digital literacy has the same basic pattern with different implementation conditions. SD Negeri 3 Labuhan Ratu, SD Negeri 1 Kampung Baru, and SD Negeri 1 Sepang Jaya both integrate technology in learning, but the characteristics of facilities, teacher competence, and media use form variations in each case.

Digital Literacy as a Driver of Pedagogical Transformation in Islamic Religious Education and Ethics Learning

The findings of the study show that the application of teachers' digital literacy occurs through the planning, implementation, and evaluation of learning. All three schools use technology in learning, but the form of use is adjusted to the conditions of each school. SD Negeri 3 Labuhan Ratu uses video, PowerPoint, internet, and laptops, while SD Negeri 1 Kampung Baru uses PowerPoint, internet, laptops, and projectors. SD Negeri 1 Sepang Jaya uses Smart TVs, projectors, laptops, internet, and learning videos. These differences show that the use of technology in learning is adjusted to the media and facilities available in each school.

Differences between schools can also be seen in the application of digital literacy of teachers. All three schools pay attention to the appropriate, ethical, safe, and responsible use of technology. SD Negeri 1 Kampung Baru and SD Negeri 1 Sepang Jaya apply aspects of digital skills, digital ethics, digital safety, and digital culture, while SD Negeri 3 Labuhan Ratu shows the application of digital skills and the use of technology ethically, safely, and responsibly. Thus, teachers' digital

literacy is not only related to the ability to use devices, but also to how technology is used according to the needs of learning and students.²²

In the evaluation aspect, the three schools have the same pattern, namely observing the learning process and looking at the learning outcomes of students. The difference is more visible in the supporting conditions for the implementation of digital literacy. SD Negeri 3 Labuhan Ratu and SD Negeri 1 Kampung Baru have the support of facilities that can be used in digital learning, while SD Negeri 1 Sepang Jaya still faces the limitations of several devices and the equitable distribution of teachers' digital competencies. These conditions show that the availability of facilities and teacher competencies also supports the implementation of digital literacy in learning.

Findings on school achievement also show that there are differences in conditions in each case. SD Negeri 3 Labuhan Ratu shows achievements through TKA scores and PAI Performance achievements, while SD Negeri 1 Kampung Baru shows achievements through ANBK, BOS Performance, and Islamic Religious Education achievements. SD Negeri 1 Sepang Jaya has A accreditation, but still faces limitations in the use of several devices and equitable distribution of teachers' digital competencies. These findings show that school achievements need to be seen together with the condition of facilities, teacher competence, school support, and the ongoing learning process.

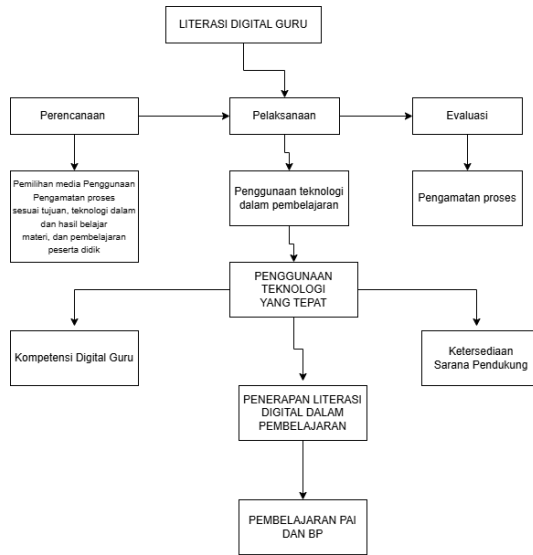
Overall, the cross-case analysis shows that the three schools have the same pattern of digital literacy implementation, namely technology is used in the planning, implementation, and evaluation of learning. The difference lies in the type of media used, the availability of facilities, and the equitable distribution of teachers' digital competencies. Therefore, the transformation of learning through digital literacy is not only characterized by the existence of devices such as laptops, projectors, videos, or Smart TVs, but also by the use of technology that is tailored to learning goals and needs.

Based on the results of research and cross-case analysis in the three schools, the findings of the next research can be understood through a theoretical framework that describes the relationship between teachers' digital literacy, the learning process, digital

²² Agung Ilham Prastowo, Muh Sabilar Rosyad, and M Idris Nasrullah, "The Concept of Deep Learning in The Perspective of Philosophy and Its Implementation in Schools," *JALIE: Journal of Applied Linguistics and Islamic Education* 9, no. 2 (2025): 345–66, <https://doi.org/10.33754/jalie.v9i2.1720>; Muh Sabilar Rosyad, "Keterampilan Dasar Mengajar Pada Mata Pelajaran Pendidikan Agama Islam," *QOSIM: Jurnal Pendidikan, Sosial & Humaniora* 2, no. 2 (2024): 1–10.

competence, and the availability of supporting facilities. This theoretical framework is used to clarify how digital literacy is applied in the planning, implementation, and evaluation stages of learning.

Figure 1. Theoretical Framework



Conclusion

Based on the results of research on SD Negeri 3 Labuhan Ratu, SD Negeri 1 Kampung Baru, and SD Negeri 1 Sepang Jaya, it can be concluded that the digital literacy of Islamic Religious Education and Ethics teachers has been applied in the planning, implementation, and evaluation of learning. Teachers use various digital sources and media, such as videos, PowerPoint, the internet, laptops, projectors, and Smart TVs, which are tailored to the goals, materials, and needs of students. The application also includes the appropriate, ethical, safe, and responsible use of technology.

Cross-case analysis showed that there was a similar pattern in the three schools, but there were differences in the type of media, availability of facilities, and equitable distribution of teachers' digital competencies. Thus, the application of digital literacy in PAI and Ethics learning is not only related to the ability to use technological devices, but also to the ability of teachers to choose sources, integrate technology in learning, guide students, and conduct evaluations. These findings show that the transformation of digital-based learning is

influenced by teachers' ability to utilize technology according to learning needs and the support of available facilities.

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