Implementation of Technology-Based Learning Objectives in Deep Learning by Islamic Education Teachers: The Perspective of the Vice Principal for Curriculum at State Senior High School 9 Pontianak

M. Syukri[1*], Wahab[1]

[1]Institut Agama Islam Negeri Pontianak, Indonesia
[*]Corresponding Author Email: syukrialponty@gmail.com

ABSTRACT

This study aims to analyse the implementation of technology-based learning objectives in in-depth learning by Islamic Education teachers from the perspective of the Deputy Headmaster for Curriculum at State Senior High School 9 Pontianak. This study uses a qualitative approach with a case study method. Data were collected through in-depth interviews with the main informant, namely the Deputy Headmaster for Curriculum, referred to in this study as the Deputy Headmaster for Curriculum, and supported by observations of Islamic Education teachers. The data were then analysed using Miles and Huberman's method, which includes data reduction, data presentation, conclusion drawing and verification. The results of the study show that Islamic Education teachers have begun to utilise technology in the learning process, such as the use of Canva, Wayground (Quiziz) and YouTube. However, this implementation is still dominant in the aspect of material delivery and does not yet fully support the achievement of deep learning that integrates cognitive, affective and spiritual aspects. The deputy headmaster for curriculum assessed that the main supporting factors were the availability of digital infrastructure and adaptive school policies, while the inhibiting factors included the low digital literacy of some teachers and limited time in designing project-based learning.

Keywords: Deep Learning, Learning Objectives, Technology-Based Learning.

How to Cite:
Syukri, M., & Wahab, W. (2025). Implementation of technology-based learning objectives in deep learning by Islamic education teachers: The perspective of the vice principal for curriculum at State Senior High School 9 Pontianak. *Muaddib: Islamic Education Journal, 8*(2), 164-173.

https://doi.org/10.19109/muaddib.v8i2.31886

INTRODUCTION

The development of education in Indonesia in recent years has prioritized the achievement of 21st century competencies, the education system in Indonesia is increasingly directed to optimize the use of technology in the learning process to achieve more holistic, adaptive, and productive learning goals (Suwardhani et al., 2025). Challenges and opportunities for education in Indonesia in technology have the potential to increase learning motivation, student engagement, and access to learning resources, although there are still significant gaps in terms of infrastructure, teacher competence, and learning strategies that are in line with national learning goals (Subroto, Supriandi, Wirawan, & Rukmana, 2023). Thus, the implementation of technology-based learning goals in Indonesia is not only about the availability of digital devices or platforms, but also how the technology is actively used by teachers and educational units to realize the expected learning outcomes in the Independent Curriculum and other national education policies.

Particularly in terms of Islamic religious education in Indonesia, Islamic Religious Education teachers face complex challenges in implementing learning objectives that do not focus solely on cognitive and psychomotor skills, but must also emphasise the values of attitude and spirituality in students. The paradigm shift in 21st-century learning requires Islamic Religious Education teachers to be able to instil Islamic values through an approach that is adaptive to the characteristics of the digital generation (Rohili, 2025). The use of technology is one of the strategic means of internalising Islamic values in a contextual, interactive and relevant manner to the lives of today's students (Rohmiati, 2025). The use of digital technology in Islamic Education learning can not only increase learning participation, but also strengthen moral and spiritual understanding if integrated with the right pedagogical approach (Nasution, 2024). In its development, the digital learning transformation policy emphasises the importance of integrating technology into religious education to shape students who are both religious and digitally literate (Azhar, 2024). Thus, the success of Islamic Education teachers in implementing technology-based learning objectives is not only measured by their ability to operate digital devices, but also by the extent to which technology can become a medium for fostering religious awareness, noble character, and spiritual literacy amid the globalisation of values.

The implementation of technology-based learning objectives must be directed appropriately according to the needs of students. The implementation can be in three stages, the first is planning, the second is planning, and the third is evaluation (Ratnasari, Pratiwi, & Dongoran, 2023). In addition, it is also possible to use the ADDIE model which has five stages: the first is needs analysis, the second is designing, the third is developing, the fourth is implementing and learning, and the fifth is evaluating (Nengsih, Suhirman, Nurdin, & Rahmi, 2025). In its implementation, there are several factors that are obstacles in its implementation, either from teachers, students, or facilities and infrastructure (Clarisya, Sholehah, Hifdil, & Solihin, 2025).

Although the government has provided various digital platform-based curriculum policies and training to improve teachers' digital competencies, the implementation of technology-based learning objectives by Islamic Education teachers in the field is still not optimal. Many teachers still maintain a conventional teacher-centred approach, such as lecturing, without utilising the potential of technology to enrich the learning experience of students (Husain, 2025; Putri & Susanti, 2022). The contributing factors include limited digital literacy, minimal technology-based pedagogical training, and weak implementation supervision from school management, including the Deputy Headmaster for Curriculum who is responsible for supervising the quality

of learning (Iskandar, Setiawan, Maksum, Nisphia, & Amelia, 2023). Thus, this problem is crucial to be studied to understand how the implementation of technology-based learning goals by islamic education teachers is perceived from the perspective of school curriculum management.

The implementation of technology in deep learning has a strategic position as one of the tools to facilitate a more effective and responsive learning process to the needs of students, because technology will help teachers in providing digital-based teaching materials that are easy and accessible so as to motivate students to think actively through technology-based learning that can contain images, videos, and more interactive audio (Parikesit, Adha, Hartino, & Ulpa, 2021). Furthermore, the application of technology as an innovative learning source and media can stimulate students' interest and attention and facilitate communication between teachers and students, so that the learning process becomes more meaningful and contextual (Laelatul Munawaroh, Rokmanah, & Syachruroji, 2023). In addition, technology integration has been proven to increase student engagement and learning motivation through dynamic digital learning innovations, such as the use of online platforms and multimedia learning resources, which have a positive impact on student learning outcomes in the classroom (Ishtiaq et al., 2025). Thus, the position of technology is not only a tool, but also a paradigm changer for learning towards personalized, effective, and oriented learning goals for students in today's digital era.

From the above description, this study was designed to comprehensively investigate the central role of the Deputy Headmaster for Curriculum at State Senior High School 9 Pontianak as the main manager and supervisor in managing curriculum implementation at the school level, with a particular emphasis on how his strategic views influence deep learning practices and the use of technology by Islamic Education teachers. The novelty of this study lies in its integrative analysis of the structural role of the Deputy Headmaster for Curriculum, the dynamics of needs-based decision-making, and the transformation of digital pedagogical practices of Islamic Education teachers, which have tended to be examined separately in previous studies. The main objective of this study is to analyse the extent to which the proposed curriculum policy is effective in the field, bridging the potential gap between policy planning at the managerial level and the reality of classroom practice. Specifically, this study will describe the implementation supervision mechanisms applied by the Deputy Headmaster for Curriculum, evaluate the effectiveness of the facilities and support provided to encourage digital literacy and technology-based pedagogy among Islamic Education teachers, and identify systemic obstacles, both in terms of human resources and infrastructure, that may hinder the achievement of quality learning objectives at State Senior High School 9 Pontianak.

METHOD

This study uses a qualitative approach with an exploratory case study design, located at State Senior High School 9 Pontianak, to explore in depth the role of the Deputy Headmaster for Curriculum in implementing technology-based learning objectives in in-depth learning by Islamic Education teachers. The main research subject is the Deputy Headmaster for Curriculum as a key informant, supported by data from observations of Islamic Religious Education teachers' teaching and school documents, which will be collected through in-depth interviews, document observation (Lesson Plans and monitoring and evaluation reports), and observations of Islamic Religious Education teachers' teaching, and analysed using Huberman's Miles method, which begins with reducing data, presenting data, drawing conclusions and verifying them. Huberman, which begins with reducing data, presenting data, drawing conclusions, and verifying them.

RESULT AND DISCUSSION

The Deputy Headmaster for Curriculum's View on Technology-Based Learning Objectives in Deep Learning

Based on the interview results, the Deputy Headmaster for Curriculum believes that technology-based learning in deep learning is an important direction in the transformation of 21st century education. According to him, the use of technology is not only intended to replace traditional methods, but also to strengthen the achievement of learning objectives that are more conscious, meaningful, and enjoyable in accordance with the concept of deep learning. In the context of Islamic Religious Education, which emphasises a balance between cognitive, affective, and spiritual aspects, technology should not only be used as a teaching aid but also as a medium that facilitates students to think critically and internalise Islamic values deeply. The Deputy Head of Curriculum confirmed that the integration of technology in Islamic Religious Education learning needs to be directed specifically towards deep learning that fosters conceptual understanding and spiritual awareness through guided digital exploration.

The views of the Deputy Headmaster for Curriculum show an awareness that changes in education in the digital age require changes not only in facilities, but also in the orientation of learning objectives to be more in-depth. The use of technology must be able to encourage students to think critically and creatively, as well as foster a deeper understanding (Maulidiya & Aziza, 2024). In this case, technology also acts as a facilitator medium for the growth of spiritual awareness and moral reflection which is the core of religious education (Benu, Weraman, & Mage, 2025).

The use of interactive digital tools and communication platforms can be used by teachers to design learning experiences that encourage the exploration of ethical values, discussions of moral dilemmas, and journals of personal reflection (Subasman, 2024). In this way, students not only receive information alone, but also must actively engage in the process of internalizing values, strengthening their relationship with spiritual beliefs, and honing their moral compass in the context of modern life.

Active involvement in the process of internalizing values, and strengthening a relationship with spiritual beliefs points to a process in which individuals not only know or accept spiritual values, but also consciously and intentionally integrate those values into themselves (Irsyad, Sukardi, & Nurlaila, 2022). Internalization of values is the process of incorporating a value into a part of personality, beliefs, and self-awareness, which is then manifested in daily attitudes and behaviors (Wardani & Hestiningtyas, 2021). In addition to internalizing values in the learning process, the teacher must be able to design learning objectives that will be used as a measuring tool to see student changes and understand student characteristics (Rahmah, Wahab, & Kurniawan, 2025).

Implementation of Technology-Based Learning Objectives in Deep Learning by Islamic Education Teachers

In the view of the Deputy Headmaster for Curriculum, Islamic Education teachers at State Senior High School 9 Pontianak have made initial efforts to implement technology-based learning, particularly through the use of platforms such as Canva, Wayground (Quiziz) and YouTube. However, most of the use of technology is still focused on the presentation of material, not yet touching on the dimension of deep learning. The Deputy Headmaster for Curriculum explained that Islamic Education teachers often find it difficult to design learning activities that guide students through a reflective process. The Deputy Headmaster for Curriculum also assessed that Islamic Education learning needs to make greater use of

technology to encourage collaboration, Islamic value-based social projects, and online discussions that build students' moral awareness.

Table 1 Results of Islamic Education Teacher Supervision

Teacher's Code	Technology Mastery Level	Notes
T1	Proficient	Teachers are able to effectively integrate digital media, online platforms, and multimedia learning resources to support deep learning. Student participation and engagement are high.
T2	Need to Strengthen	Teachers have used several digital media, but have not been consistent in utilizing technology to encourage deep and interactive learning. And teachers are still limited in the use of technology; Guidance is needed to select and integrate digital learning media that is in accordance with the goals of technology-based learning.

The views of the Deputy Headmaster for Curriculum indicate that the implementation of technology-based learning by Islamic Education teachers at State Senior High School 9 Pontianak has progressed, although it is still in its early stages. The Deputy Headmaster for Curriculum acknowledged the adaptive efforts of Islamic Education teachers in utilising various digital platforms such as Canva, Wayground (Quiziz), and YouTube as learning support media. This shows the awareness and commitment of teachers to the demands of educational transformation in the digital era. However, the use of technology should not be instrumental and oriented towards the presentation of material alone, but technology should be used as a visual and evaluative tool in building a deep learning process (Repu, Waso, Maria Jesica Soy Saputra, Anselmus Fegi Rembo, & Awe, 2025). In this context, Islamic Education teachers still face challenges in implementing it in in-depth learning that guides students to be conscious, meaningful and enjoyable, and able to transfer the Islamic values they have learned.

These limitations can be understood as part of the transition process towards a deep learning paradigm, in which teachers do not merely act as conveyors of information, but rather as learning designers (Magdalena, Utari, & Setiani, 2021). These findings indicate the need to improve the pedagogical competence of Islamic Education teachers, particularly in terms of planning technology-based activities that promote conceptual understanding and spiritual awareness among students. Through this approach to more reflective and collaborative learning, technology can be utilised as an aid to reinforce Islamic values and character in the context of in-depth learning.

Technology-based activity planning can offer significant opportunities for achieving deep learning by meaningfully integrating cognitive, affective, and spiritual aspects (Rahmandani, Hamzah, Handayani, & Kurniawan, 2025). Through the use of interactive digital tools, teachers can design learning experiences that not only strengthen students' conceptual understanding and critical thinking skills, but also foster intrinsic motivation, positive attitudes, and awareness of underlying ethical and spiritual values (Astuti, Sumarni, Setiadi, & Irawan, 2025). Thus, technology serves as a powerful medium to realize holistic education that is relevant to the concepts of deep learning and the demands of the 21st century.

Technology in the concept of deep learning is capable of providing an adaptive and data-rich learning environment. Through digital platforms, students can access a variety of learning resources and interact with the material in depth, going beyond traditional rote learning. Technology facilitates a personalised approach, allowing students to learn at their own pace and in their own style, which is essential in deep learning that emphasises conceptual understanding, critical thinking, and the application of knowledge in real-world contexts(Ingkavara, Panjaburee, Srisawasdi, & Sajjapanroj, 2022).

Supporting and Inhibiting Factors

According to the Deputy Head of Curriculum, there are a number of factors that support the implementation of technology-based learning objectives, including: the availability of internet networks and digital devices in schools, the headmaster's policy support for the use of digital media, and the enthusiasm of some Islamic Education teachers who are familiar with technology. However, implementation has not been optimal due to several inhibiting factors, such as: limited digital literacy, minimal guidance in implementing technology-based learning, and limited time in designing in-depth digital-based learning.

Based on the above interviews, it appears that the supporting factors in the implementation of technology-based learning objectives at State Senior High School 9 Pontianak by Islamic Education Teachers have received significant support. Significant support from the school is an important starting point in directing the learning process towards a more innovative and contextual model in line with the needs of in-depth learning (Agyeman, 2024). In terms of inhibiting factors, this condition shows that digital transformation in Islamic Religious Education learning is still in the early stages of adaptation, where infrastructure readiness has not been fully matched by human resource readiness and sustainable systemic support (Mintasih, Sukiman, & Purnama, 2024). Based on these findings, the success of implementing technology-based learning objectives should not only depend on the availability of facilities and infrastructure and support from the school, but also requires policies that emphasise mentoring, digital literacy training, and collaboration between teachers to develop more meaningful technology-based learning practices that are in line with the values of deep learning.

Policies that emphasize mentoring, digital literacy training, and collaboration between teachers have a strategic role in developing technology-based learning practices that are more meaningful and in line with the principles of deep learning (Hartati & Ermanto, 2025). This not only improves teachers' technical skills in utilising digital media, but also strengthens their pedagogical competence in designing activities that encourage critical, reflective and collaborative thinking (Rizqi & Syafika, 2024). Through continuous mentoring and training, teachers can master technology integration strategies that are able to connect the cognitive, affective, and spiritual aspects of students (Saripudin, Robbani, & Fathur, 2024). Meanwhile, collaboration between teachers through professional learning communities allows for the exchange of best practices and pedagogical innovations, so that the implementation of technology is not just a tool, but a medium to foster meaningful, contextual, and value-oriented deep learning (Feldman, 2020).

Supervision and Curriculum Support for Islamic Education Teachers

The Deputy Headmaster for Curriculum revealed that the curriculum department has conducted regular supervision of teachers, including Islamic Education teachers, to ensure that learning is in line with curriculum objectives. He assessed that guidance still needs to be strengthened, especially in terms of learning design that combines digital competence and deep learning concepts. In this effort, the school is developing a teacher learning community as a forum for sharing good practices among teachers in integrating technology-based learning objectives with deep learning.

Based on interviews with the Deputy Headmaster for Curriculum, it is understood that the curriculum department at Pontianak State Senior High School 9 has sought to maintain the quality of learning through regular supervision of teachers, including Islamic Education teachers. This supervision serves to ensure that the learning process is carried out in accordance with the curriculum objectives and is in line with the school's educational policy direction

(Tarimo & Lekule, 2024). This step shows the commitment of the school management in monitoring, assessing, and improving the quality of learning in an ongoing manner.

From the perspective of education quality development, this initiative reflects the school's awareness of the importance of a collective approach in improving teachers' pedagogic and digital competence. With institutional support such as constructive supervision and an active learning community, Islamic Education teachers have a greater opportunity to develop learning that is relevant to deep learning (Christensen & Jerrim, 2025). This is also in line with the direction of 21st century education which emphasizes the importance of collaboration, creativity, and the use of technology to strengthen the meaning and depth of the learning process.

In the context of 21st century education, the direction of learning emphasizes collaboration, creativity, and the use of technology as key elements to strengthen the meaning and depth of the learning process. Students not only receive information, but must be active in exploring, solving problems, and reflecting critically (Waruwu & Helsa, 2025). With the integration of technology, teachers can design more interactive and personalized learning activities, allow students to collaborate online and offline, develop creativity in value-based projects, and internalize knowledge in depth (Armianti, Yunita, & Dharma, 2024). This is in line with the principles of deep learning, where conceptual understanding, interconnectedness, and character formation are the main goals, so that the learning process is not only cognitive, but also builds more meaningful affective and spiritual awareness.

CONCLUSION

Based on the research results, it can be concluded that the implementation of technology-based learning objectives by Islamic Education teachers at SMA Negeri 9 Pontianak is in a transitional stage towards deep learning. Although technology is already used in the learning process, its use remains instrumental, primarily serving as a tool to deliver material, and has not yet fully encouraged transformative learning, which integrates cognitive, affective, and spiritual aspects in a balanced manner.

The role of Waka Curriculum has proven to be very important in facilitating capacity building for islamic education teachers so that the use of technology in learning is not only informative, but can also produce an inspiring and reflective learning experience. Supervision support, pedagogical assistance, and the development of teachers' digital competencies are key factors so that islamic education learning is able to adapt to the concept of deep learning and the characteristics of 21st century students, which require interactivity, creativity, and contextual understanding of religious values.

REFERENCE

Agyeman, N. Y. B. (2024). Deep learning in high schools: Exploring pedagogical approaches for transformative education. *HUMANIKA*, *24*(2), 111–126. https://doi.org/10.21831/hum.v24i2.71350

Armianti, R., Yunita, S., & Dharma, S. (2024). Integrasi teknologi digital dalam pembelajaran Pendidikan Pancasila untuk penguatan Profil Pelajar Pancasila. *Edu Cendikia: Jurnal Ilmiah Kependidikan*, *4*(02), 782–792. https://doi.org/10.47709/educendikia.v4i02.4838

Astuti, A. D., Sumarni, I. A., Setiadi, R., & Irawan, I. (2025). The use of learning media in ethnophysics learning: A systematic literature review. *Proceedings of the 6th International Conference on Innovation in Education, Science, and Culture (ICIESC)*. EAI. https://doi.org/10.4108/eai.17-9-2024.2352973

Azhar, A. (2024). Transformasi digital dalam pembelajaran pendidikan agama Islam di era society 5.0. *AL-KARIM: Journal of Islamic and Educational Research*, *2*(4), 268–278. Retrieved from https://journal.institercom-edu.org/index.php/alkarim/article/view/973

Benu, J., Weraman, P., & Mage, M. Y. C. (2025). The overview of gadget use and its impact on the spiritual development of youth. *Journal of Health and Behavioral Science*, *7*(1), 529–543. https://doi.org/10.35508/jhbs.v7i1.19539

Christensen, A. A., & Jerrim, J. (2025). Professional learning communities and teacher outcomes: A cross-national analysis. *Teaching and Teacher Education*, *156*(1), 1–24. https://doi.org/10.1016/j.tate.2024.104920

Clarisya, C., Sholehah, A., Hifdil, M. I., & Solihin, M. (2025). Implementasi teknologi pembelajaran adaptif berbasis artificial intelligence pada mata pelajaran Pendidikan Agama Islam di SMK Negeri 2 Kraksaan. *Jurnal Kajian Ilmu Pendidikan (JKIP)*, *6*(2), 436–448. https://doi.org/10.55583/jkip.v6i2.1359.

Feldman, J. (2020). The role of professional learning communities to support teacher development: A social practice theory perspective. *South African Journal of Education*, *40*(1), 1–8. https://doi.org/10.15700/saje.v40n1a1668

Hartati, R. F., & Ermanto, E. (2025). Peran guru dalam pemanfaatan media digital pada pembelajaran Bahasa Indonesia sebagai perwujudan Kurikulum Merdeka. *SOKO GURU: Jurnal Ilmu Pendidikan*, *5*(1), 185–198. https://doi.org/10.55606/sokoguru.v5i1.5115

Husain, R. (2025). Penggunaan media berbasis teknologi dalam pembelajaran Pendidikan Agama Islam di SD Negeri 005 Bontang Utara. *JRPD (Jurnal Riset Pendidikan Dasar)*, *8*(1), 29–35. https://doi.org/10.26618/jrpd.v8i1.17263

Ingkavara, T., Panjaburee, P., Srisawasdi, N., & Sajjapanroj, S. (2022). The use of a personalized learning approach to implementing self-regulated online learning. *Computers and Education: Artificial Intelligence*, *3*(1), 1–18. https://doi.org/10.1016/j.caeai.2022.100086

Irsyad, I., Sukardi, I., & Nurlaila, N. (2022). Internalisasi nilai-nilai agama Islam dalam pembentukan budaya beragama siswa. *Muaddib: Islamic Education Journal*, *5*(1), 9–16. https://doi.org/10.19109/muaddib.v5i1.11738

Ishtiaq, F., Shah, F. ul H., Zahid, M. A., Nagal, C. J. C., Longa, F. E. A., & Calimlim, R. J. F. (2025). The impact of technology integration on student engagement and learning outcomes. *Contemporary Journal of Social Science Review*, *3*(3), 1064–1078. https://doi.org/10.63878/cjssr.v3i3.1069

Iskandar, R., Setiawan, R., Maksum, A., Nisphia, J., & Amelia, W. (2023). Leadership literacy in the digital era: A study of teacher and student understanding. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *9*(3), 967–975. https://doi.org/10.33394/jk.v9i3.8674

Laelatul Munawaroh, Rokmanah, S., & Syachruroji, A. (2023). Penggunaan media pembelajaran berbasis Information and Communication Technology (ICT) untuk meningkatkan motivasi belajar peserta didik di sekolah dasar. *Jurnal Pendidikan Dasar*, *14*(1), 170–180. https://doi.org/10.21009/jpd.v14i01.39651

Magdalena, I., Utari, A. T., & Setiani, R. (2021). Pendidik sebagai desainer strategi instruksional dalam meningkatkan kualitas pembelajaran di Sekolah Dasar Negeri Tegal Alur 07 Pagi di kelas II. *PANDAWA*, *3*(1), 101–118. https://doi.org/10.36088/pandawa.v3i1.1004

Maulidiya, D., & Aziza, M. (2024). Trend, challenges, and determinants of technology integration in geometry problems-solving: A sequential explanatory analysis. *Indonesian Journal of Science and Mathematics Education*, *7*(3), 577–597. Retrieved from https://ejournal.radenintan.ac.id/index.php/IJSME/article/view/24456

Mintasih, D., Sukiman, S., & Purnama, S. (2024). Integration of digital technology in Islamic religious education learning: A qualitative study on teachers' competence and implementation models in secondary schools. *Jurnal Pendidikan Islam*, *13*(1), 85–96. https://doi.org/10.14421/jpi.2024.131.85-96

Nasution, Y. (2024). Integrasi Teknologi dalam Pembelajaran PAI. *Jurnal Ilmu Tarbiyah Dan Keguruan*, *2*(2), 336–344. Retrieved from https://ejournal.edutechjaya.com/index.php/jitk/article/view/979

Nengsih, L., Suhirman, S., Nurdin, Z., & Rahmi, S. M. (2025). Pengembangan e-modul interaktif berbasis model ADDIE dalam meningkatkan hasil belajar Fiqh. *Jurnal Pendidikan Dan Teknologi Indonesia*, *5*(10), 3018–3028. https://doi.org/10.52436/1.jpti.1353

Parikesit, H., Adha, M. M., Hartino, A. T., & Ulpa, E. P. (2021). Implementasi teknologi dalam pembelajaran daring di tengah masa pandemik Covid-19. *Jurnal Pendidikan Kewarganegaraan Undiksha*, *9*(2), 546–554. https://doi.org/10.23887/jpku.v9i2.35090

Putri, A. E., & Susanti, R. (2022). Using the Powtoon application as a learning media in elementary school. *Journal International Inspire Education Technology*, *1*(1), 52–61. https://doi.org/10.55849/jiiet.v1i1.38

Rahmah, M., Wahab, W., & Kurniawan, S. (2025). Pengembangan pembelajaran PAI bagi digital natives: Merancang indikator pembelajaran untuk generasi – Z. *Indonesian Research Journal on Education*, *5*(1), 192–201. https://doi.org/10.31004/irje.v5i1.1928

Rahmandani, F., Hamzah, M. R., Handayani, T., & Kurniawan, M. W. (2025). Integrasi pembelajaran mendalam (deep learning) dalam mewujudkan pembelajaran yang bermutu dan bermakna bagi peserta didik. *Jurnal Sosial Humaniora Dan Pendidikan*, *4*(3), 769–781. https://doi.org/10.55606/inovasi.v4i3.4896

Ratnasari, F., Pratiwi, S. N., & Dongoran, F. R. (2023). Efektivitas manajemen pembelajaran berbasis teknologi informasi dan komunikasi di SMP Negeri Kota Pematang Siantar. *Jurnal Manajemen Pendidikan Dasar, Menengah Dan Tinggi [JMP-DMT]*, *4*(3), 255–266. https://doi.org/10.30596/jmp-dmt.v4i3.15156

Repu, M. R., Waso, Maria Jesica Soy Saputra, Anselmus Fegi Rembo, Y., & Awe, E. Y. (2025). Penggunaan teknologi sebagai alat bantu dalam proses pembelajaran di SDN Libunio. *DIKSI: Jurnal Kajian Pendidikan Dan Sosial*, *6*(4), 601–608. https://doi.org/10.53299/diksi.v6i4.2490

Rizqi, P. U., & Syafika, W. (2024). Strengthening professional learning communities through policy and institutional support in diverse educational contexts. *Sinergi International Journal of Education*, *2*(3), 141–156. https://doi.org/10.61194/education.v2i3.587

Rohili, T. (2025). Tantangan PAI menghadapi globalisasi dalam meningkatkan karakter siswa di Bandar Lampung. *Al-Mau'izhoh*, *7*(1), 67–73. https://doi.org/10.31949/am.v7i01.13971

Rohmiati, E. (2025). The use of digital media in learning Islamic religious education: Opportunities and challenges. *Urwatul Wutsqo: Jurnal Studi Kependidikan Dan Keislaman*, *14*(1), 33–45. https://doi.org/10.54437/urwatulwutsqo.v14i1.1952

Saripudin, S., Robbani, R., & Fathur, M. D. (2024). Integrasi teknologi dalam pendidikan. *EDUTECH*, *23*(3), 336–346. https://doi.org/10.17509/e.v23i3.72163

Subasman, I. (2024). Improving the practice of teacher learning reflection through digital technology-based lesson study. *AL-ISHLAH: Jurnal Pendidikan*, *16*(2), 2621–2634. https://doi.org/10.35445/alishlah.v16i2.4905

Subroto, D. E., Supriandi, Wirawan, R., & Rukmana, A. Y. (2023). Implementasi teknologi dalam pembelajaran di era digital: Tantangan dan peluang bagi dunia pendidikan di Indonesia. *Jurnal Pendidikan West Science*, *1*(7), 473–480. https://doi.org/10.58812/jpdws.v1i07.542

Suwardhani, A. D., Angio, S. T., Malintang, J., Romadon, S., Dahlia, N. N., & Litaqia, W. (2025). Manajemen pendidikan berbasis teknologi: Strategi efektif untuk mendukung pembelajaran abad 21. *Indonesian Research Journal on Education*, *5*(4), 1661–1670. https://doi.org/10.31004/irje.v5i4.3258

Tarimo, P., & Lekule, C. (2024). Effect of instructional supervision on education quality in secondary schools in Kaham District, Tanzania. *East African Journal of Education Studies*, *7*(1), 216–230. https://doi.org/10.37284/eajes.7.1.1759

Wardani, W., & Hestiningtyas, W. (2021). Internalisasi nilai-nilai pendidikan berbasis karakter melalui kegiatan orientasi anggota baru UKK Pramuka tahun 2020. *DEDIKASI: Jurnal Pengabdian Masyarakat*, *2*(2), 283–301. https://doi.org/10.32332/d.v2i2.3152

Waruwu, P. I. M., & Helsa, Y. (2025). Implementasi pembelajaran aktif untuk meningkatkan keterlibatan siswa di sekolah dasar. *Jurnal Arjuna : Publikasi Ilmu Pendidikan, Bahasa Dan Matematika*, *3*(3), 255–267. https://doi.org/10.61132/arjuna.v3i3.1942