

Innovating Islamic Education Through Technology: Strategies for Overcoming Challenges in Online Learning

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Abstract: This study explores the implementation of online learning in Islamic Education (PAI) using the Independent Curriculum and offers solutions to overcome these obstacles. Using a qualitative methodology, data were collected through in-depth interviews and literature reviews from various sources, including books, scientific publications, and interviews with PAI teachers at SMA Muhammadiyah 1. The key findings reveal three main challenges: a lack of parental involvement, low digital literacy among teachers and students, and unequal access to technology. Furthermore, the limited availability of engaging, contextual, and digital-based PAI content poses significant difficulties. This study recommends enhancing teacher training in digital literacy, developing technology-based PAI learning resources, and fostering collaboration with communities, parents, and schools. To increase student interest, it emphasizes project-based learning methods and the integration of Islamic technologies, such as digital Quran applications. This research aims to support the development of relevant and effective PAI learning strategies for the digital era.

Keywords: Implementation of Online Learning, Independent Curriculum, Islamic Religious Education

A. Introduction

Significant advancements have occurred in Indonesian education as a result of the COVID-19 pandemic. To ensure that education continues even in emergency situations, traditional face-to-face learning has had to shift to online learning. This transition requires intelligence and originality in the context of Islamic Religious Education (PAI) to effectively maintain the transfer of Islamic values to students, particularly through digital media. The demands of the twenty-first century, which integrate technology into various aspects of life, including education, can be met through these measures. The curriculum is a set of educational experiences and tasks designed to help students achieve learning objectives established by recognized educational institutions (Fink, 2013; Mendoza et al., 2022). A series of plans and arrangements regarding objectives, content, and learning materials, as well as methods that serve as guidelines for implementing learning activities to achieve

specific educational goals, is what the Indonesian constitution defines as a curriculum (The Republic of Indonesia Law Number 20 of 2003 on the National Education System, 2003).

The learning plans to be presented to students over a specific educational period are incorporated into the curriculum, which is a collection of educational subjects and activities offered by an educational institution. To meet the demands of education and the workforce, these subjects are organized according to the conditions and capacities of each educational level. The duration of the curriculum is typically adjusted to reflect the goals and objectives of the existing education system. The purpose of the curriculum is to guide education toward the goals and direction of overall learning activities (Rulitawati, 2024).

In response to the demand for more adaptive, relevant, and competency-based education, the *Kurikulum Merdeka* (Independent Curriculum) was introduced (Kemendikbudristek, 2023). Aligned with the *Pancasila Student Profile*, which incorporates religious components, this curriculum places significant emphasis on character development and student-centered teaching. With the implementation of the *Kurikulum Merdeka*, online education in Islamic Religious Education (PAI) is expected to prioritize character development, critical thinking skills, and the reinforcement of spiritual values alongside content delivery (Yusuf & Hamami, 2022).

PAI teachers can utilize various digital platforms, including video conferencing applications, Learning Management Systems (LMS), and other interactive media, in the context of online learning. These technologies offer opportunities to create more contextual and engaging learning experiences. However, several challenges exist in their implementation, such as insufficient digital literacy, limited access to technology, and a lack of student motivation (Arifin, 2021). Moreover, to align with students' needs, online learning in PAI requires adaptable strategies (Hussain et al., 2024). This involves integrating project-based collaborative learning strategies with formative evaluations using digital media (Xu & Wahid, 2024). In addition to helping students achieve essential competencies, this approach instills Islamic values into their daily lives (Siregar, 2021).

However, the ability of teachers to design, implement, and evaluate learning strategies aligned with the *Kurikulum Merdeka* greatly determines the success of online learning in PAI. Instructors must innovatively utilize the tools at their disposal, such as digital Quran applications, prayer simulation videos, or other multimedia materials that can enhance student engagement. To maximize the use of technology as a teaching tool, continuous training for instructors is essential (Zhao et al., 2023).

Although online learning offers many benefits, such as time flexibility and material accessibility, there are also several challenges that need to be addressed. One of the biggest obstacles is the lack of adequate technological infrastructure, especially in

rural areas. Additionally, the effectiveness of learning is often affected by the lack of parental involvement in guiding their children during the online learning process. To what extent the implementation of *Kurikulum Merdeka* in PAI online learning can enhance students' understanding of religious content and help shape their personalities in accordance with Islamic teachings should be assessed as part of the evaluation. This study should also evaluate the factors contributing to the achievement of religious education goals, namely the formation of individuals who are faithful, devout, and possess good character (Habibah & Nurhidin, 2023).

In this context, research on the utilization of online education based on the *Kurikulum Merdeka* in PAI becomes highly relevant. This study is beneficial as it not only offers best practice guidelines but also addresses the question: "How is the Implementation of Online Learning Utilizing the *Kurikulum Merdeka* in PAI Learning at SMA Muhammadiyah 1 Palembang?" To this end, the researcher will explore the challenges faced at SMA Muhammadiyah 1 Palembang.

B. Methods

This research aims to examine the education system at Muhammadiyah High School, which leverages information technology in the digital era to develop an independent curriculum that enhances students' access to the learning process. The research was conducted at SMA Muhammadiyah 1 Palembang, with the Principal, Deputy Head of Curriculum, and instructors involved in implementing the Independent Curriculum as the subjects of this qualitative study. The participants included the following individuals: Deputy Head of Curriculum Mr. Basid, S.Pd, Mr. Edi Susanto, M.Pd.I, Mr. Karnedi, S.Pd.I, Mr. Bustomi, M.Pd.I (Principal), Mrs. Siti Fatimah, S.Pd, Mr. Ahmad Humaidi, S.Pd.I, Mrs. Ayu Lestari, M.Pd, Mr. Habibur Rachman, M.Pd, Mr. Miftahul Haq, M.Pd, Mr. Ahmad Fitrayadi, S.Pd, Mrs. Nurusy Sa'adah, S.H.

Table 1. Indicators for Developing Interview Guidelines for Research Instrument

No	Indicator	Sub-indicator	Question
1.	Understanding Innovation in Islamic Education Through Technology (Wulan et al., 2021)	a. The Concept of Innovation in Islamic Education: Teachers' understanding of innovation within the context of Islamic education.	a. To what extent do you perceive technology as a tool for innovation in teaching Islamic Religious Studies (AIK)?
		b. Utilization of Technology in Islamic Education: Teachers' perceptions of using technology for innovation in Islamic education.	b. How do you define innovation in the context of Islamic education?
2.	Implementation of Technology in Online Learning (Zaidi & Hoque, 2019)	a. Use of Technology Platforms: Types of platforms and applications utilized in online learning for Islamic Religious Studies (AIK).	a. What technology platforms do you use to support online learning for Islamic Religious Studies (AIK)?
		b. Integration of AIK Content into	b. How do you integrate AIK

		Technology: How teachers integrate AIK materials into online platforms.	materials into the online platforms?
3.	Challenges in Online Learning (Surahman et al., 2020)	<p>c. Technical Challenges in Technology Implementation: Technical obstacles encountered during online learning.</p> <p>a. Digital Literacy of Teachers and Students: The level of digital proficiency among teachers and students.</p> <p>b. Technology Access Gap: Disparities in access to technology among students.</p> <p>c. Student Motivation in Online Learning: Students' participation and motivation level during online learning.</p>	<p>a. What technical challenges do you often face in online learning, and how do you address them?</p> <p>a. How significant are digital literacy challenges for teachers and students in online AIK learning?</p> <p>b. How do you address the challenges of technology access in the school environment?</p> <p>c. What strategies do you use to enhance student motivation during online learning?</p>
4.	Strategies for Overcoming Challenges in Online Learning (Hakim & Azis, 2021)	<p>a. Innovative Approaches in Online Learning: Creative methods used to overcome challenges.</p> <p>b. Collaboration with Parents and the Community: The role of parents and the community in supporting online learning.</p> <p>c. Teacher Professional Development: Efforts to enhance teachers' competencies in digital literacy.</p>	<p>a. What innovative approaches do you implement to overcome challenges in online learning?</p> <p>b. How do you involve parents and the community in supporting online AIK learning?</p> <p>c. Are there any training programs provided to enhance teachers' competencies in digital literacy? If so, how effective are these training programs?</p>
5.	Evaluation and Development of Online Learning (Rofi et al., 2021)	<p>a. Evaluating the Effectiveness of Technology in Learning: Assessment methods for the use of technology in teaching.</p> <p>b. Plans for Developing Technology-Based AIK Content: Initiatives to create more interactive and technology-driven AIK materials.</p>	<p>a. How do you evaluate the success of online learning using technology?</p> <p>b. Are there any plans to develop more engaging and technology-based AIK content? If so, what are the plans?</p>

The data used in this research are primary data and secondary data. Data collection methods include observation, in-depth interviews, note-taking, and examination procedures with extended participation, as well as peer discussion, triangulation, and depth of observation.

C. Results and Discussion

Implementation of Online Learning in PAI Learning at SMA Muhammadiyah 1 Palembang

In the digital era, online learning is no longer a new concept to hear about or use. With the widespread availability of digital media such as computers and smartphones, teachers who employ online learning in Islamic Religious Education (PAI) subjects naturally receive various responses from students. The author's observations of online learning conducted by PAI teachers in Class X.12 revealed modifications to reflect the characteristics of learning as observed in learning objectives and the use of technology. Based on interviews with the Al-Islam teacher of Class X.12, preparation and planning must be conducted prior to online religious education. First, the learning objectives must be clearly defined, such as studying the Qur'an and Sunnah, Islamic history, Islamic values, fiqh, and Islamic teachings. Second, lesson plans (*Rencana Pelaksanaan Pembelajaran* or RPP) must be developed to incorporate appropriate media and technology, adapted for online formats and the *Kurikulum Merdeka*. The third step involves selecting the right learning platform, such as Microsoft Teams, Zoom, or Google Classroom.

According to Riyana (2020), hardware and software are essential components in online learning, aligning with the media used in the online learning process. Devices such as desktops, laptops, and mobile phones are examples of hardware used in online learning. These devices serve as visual aids and are crucial in facilitating the online learning process (Caballé et al., 2010; McGreal & Elliott, 2004). Meanwhile, software refers to a collection of applications that support the learning process in online education. The software mentioned includes tools related to information technology (Al-Samarraie & Saeed, 2018).

Online learning is a learning process that can be achieved through online discussions within a forum created by the instructor using a specific application (Abel et al., 2009). Discussions in this context involve the exchange of ideas between the instructor and students as they address course topics (Bender, 2023; de Lima et al., 2019). Applications that facilitate the delivery or understanding of learning materials via the internet enable the sharing of information or knowledge through online forums (Hsu et al., 2014).

From this perspective, online learning is defined as learning conducted using internet-connected technology to facilitate communication or discussion during the process in order to achieve predetermined objectives. Online learning is also referred to as distance learning, which can provide a more flexible learning environment and situation for students and teachers without requiring direct interaction at a specific location.

Based on the observations and interviews, common themes can be identified in how SMA Muhammadiyah 1 Palembang implements online learning, which can be applied by all subject teachers. This is because the school has facilitated teachers with the necessary devices, such as laptops and computers. Teachers have utilized supporting learning media, including PowerPoint-based presentations, animations, and educational films, to deliver learning information. Videos demonstrating Qur'anic recitation and providing easily understandable interpretations of hadith have also been used. In integrating online learning, teachers must develop learning modules that are easily accessible to students.

According to Sarvito (2024), the curriculum deputy, there are two steps involved in evaluating online learning completed by students and teachers. The first is the initial evaluation of instruction. To improve the quality of future learning, educators must assess the effectiveness of the teaching and online learning strategies they use and seek feedback from students. In the second step of self-reflection, educators consider the challenges faced in virtual education and look for methods to continuously improve the quality of Islamic Religious Education courses. This aligns with the understanding that a curriculum consists of a set of guidelines used to direct the learning process in schools or educational institutions with the assistance of teaching staff. Finally, Pinar (2019) explains several climate theories that support the idea that a curriculum encompasses not only all activities taught through the observation of school activities but also activities that go beyond the regular curricular scope. These are often referred to as co-curricular or extracurricular activities.

On the other hand, Ainsworth (2011) stated that the objectives, content, and implementation of learning activities to achieve educational goals are all included in the curriculum, which serves as a learning plan. Mr. Nadiem Anwar Makarim, the Minister of Education and Culture of the Republic of Indonesia, launched a new policy initiative from the Ministry of Education and Culture, known as *independent learning* (*Merdeka Belajar*). One way to understand independent learning is as the freedom to think. Teachers or educators are the primary foundation for fostering the freedom to think. Students will not experience freedom if teachers themselves do not feel free to teach (Benson & Voller, 2014; Boud, 2012).

Challenges and Solutions to Improve the Quality of Islamic Religious Education in the Digital Era

The challenges faced by Islamic Religious Education (PAI) teachers at SMA Muhammadiyah in addressing students' difficulties with online learning – such as the lack of internet access or adequate devices – include providing offline modules and materials or assigning tasks through WhatsApp. Limited engagement, gaps in technological proficiency, and restricted access to technology are among the issues. These challenges can also be caused by below.

Limited Digital Literacy Among Teachers and Students

The ability to understand, efficiently utilize, and evaluate digital technology in various environments, including education, is known as digital literacy. One of the greatest challenges faced by Al-Islam teachers and students in the context of Islamic Religious Education (PAI) studies is low digital literacy. The majority of Al-Islam (PAI) teachers, particularly those in rural areas, still lack the necessary skills to operate technical devices and fully utilize online learning programs. As a result, the learning process is often limited to traditional approaches merely adapted for digital platforms, without any innovations to enhance student engagement and interest.

However, children also face numerous challenges with digital literacy. Many children do not have regular access to technology such as computers and smartphones, particularly those from low-income families. As a result, their ability to use online learning devices provided by schools is limited. This inability contributes to low student engagement in online learning and poor comprehension of virtual content. Regarding Islamic Religious Education (PAI), this issue becomes even more complex due to the curriculum structure, which requires cognitive understanding and worship techniques that are difficult to teach online.

Strategic actions involving multiple stakeholders are necessary to address this issue. Digital literacy training emphasizing the use of educational technology and the production of content relevant to Islamic Religious Education (PAI) themes is essential for teachers. Meanwhile, schools, governments, and technology service providers must collaborate to offer free technology introduction programs for students. Technology-based Islamic Religious Education can more effectively convey the ideals of Islam in the digital era by enhancing the digital literacy of both instructors and students.

Research findings reveal that educators' efforts in teaching Islamic Religious Education (PAI) still face significant challenges related to digital literacy. Most PAI teachers are not yet adept at using technology efficiently in the classroom. Consequently, the use of innovative and engaging digital media to incorporate Islamic values remains limited. Furthermore, the lack of adequate training makes it challenging for students to use technology, particularly those living in remote areas.

The Technology Access Gap

One of the biggest challenges in integrating online learning, particularly in Indonesia, is the lack of access to technology. This issue affects both public and private schools, as infrastructure in urban and rural areas differs significantly. Basic facilities such as reliable internet connections and electronic devices like computers and tablets are often insufficient in remote schools. Online learning processes are greatly impacted by these conditions, especially in Islamic Religious Education (PAI) courses, which

heavily rely on technology to provide resources, facilitate communication, and conduct assessments. Low-income students often do not own personal devices, making it difficult for them to consistently participate in online learning. As a result, students with limited access to technology receive a lower quality of education compared to those who have adequate access.

This inequality hinders the effectiveness of online learning, particularly in ensuring equal learning opportunities. The scenario becomes even more complex in the context of Islamic Religious Education (PAI), as religious education requires not only mastery of cognitive content but also the cultivation of noble character and spiritual aspirations, both of which are difficult to achieve when access to technology is limited. The government must expedite the development of technological infrastructure across Indonesia and provide financial assistance to underprivileged students for purchasing electronic devices to address this issue. Additionally, schools can reach children in areas with limited access to technology by using alternative options such as guidance through printed modules or community-based learning. These measures are expected to ensure comprehensive and equitable Islamic Religious Education and help close the technology access gap.

According to this survey, not all areas in Building A and Building B at SMA Muhammadiyah 1 Palembang have equal access to digital devices and the internet. However, the majority of private schools in Palembang City already have adequate technology, such as computers and internet connections. This situation presents a significant challenge to the implementation of online education, including Islamic Religious Education (PAI). Students from low-income families often struggle to continue their education because they lack sufficient internet quotas or access to devices.

Limited Availability of Digital Content Based on Islamic Religious Education (PAI)

The lack of acceptable, engaging, and relevant digital content tailored to students' needs is one of the biggest challenges in online Islamic Religious Education (PAI) learning. Most online PAI resources are still delivered in unappealing formats, such as lengthy text or presentation slides, which can be tedious for students. In reality, especially in digital environments, PAI issues require unique strategies to communicate religious beliefs in a proper and easily understandable way. The promise of digital technology to enhance religious education has not been fully realized, as more interactive content—such as worship simulations, animated films, or Islamic game-based applications—remains scarce. Creating creative and easily digestible digital PAI content is crucial to addressing this issue, involving professionals in multimedia design, technology, and religious teaching. This step is essential for efficiently distributing PAI materials and engaging students in online learning.

According to the researcher's perspective, there is still a lack of engaging and relevant digital PAI content. Learning resources are often offered in a tedious manner, such as lengthy text without interactive components or graphics to capture students' interest. As a result, students become disengaged and less involved in the learning process. Additionally, there is a low level of parental involvement. It has been shown that parents are often less engaged in online education, particularly in assisting their children in understanding PAI content. This is due to parents being too busy, lacking knowledge of religion, or being unfamiliar with technology. Another issue is the gap in learning assessment. Difficulties in providing impartial and efficient assessments in online learning have also been noted as a challenge. Instructors often struggle to monitor students' progress, especially in direct assessments such as worship simulations or Qur'anic memorization.

This aligns with Mao's et al. perspective (2016) on the advantages and disadvantages of online learning. The advantages include: 1) Enhancing knowledge of information technology; 2) Increasing students' confidence in sharing their thoughts in forums; 3) Reducing the amount of paper used for notes and assignments, as the online learning system utilizes digital files for these tasks; 4) Providing more in-depth explanations of information; and 5) Boosting students' confidence in understanding learning materials. The disadvantages of online learning require a stable internet connection for smooth execution. One of the drawbacks of online education is this dependency. When online learning is disrupted, communication is also hindered due to connectivity issues. Dumford & Miller (2018) opinion supports this. Below are some disadvantages of online education according to her: 1) Signal disruptions limit the interaction time between lecturers and students, hindering communication between both parties; 2) Learning resources in hard file or printed book formats are becoming increasingly rare, as everything is provided in soft file format, which reduces the habit of reading books; and 3) Due to various reasons, including disrupted internet networks, students are unable to complete their online classes.

The education system in Indonesia has undoubtedly been significantly impacted by the temporary suspension of face-to-face learning in all schools and universities. Due to the use of media and learning strategies that are undoubtedly different from those previously employed, this impact may hinder and delay the delivery of learning materials during the implementation of online learning (Almaiah et al., 2020). According to the Minister of Education, Culture, Research, and Technology, Nadiem Makarim, online learning has become the root cause of many issues faced by students (Kemendikbudristek, 2023). Nadiem believes that the policy of distance learning is not yet ideal due to several limitations, including unequal access to devices and internet network limitations (Hasniati, 2022).

To provide a more engaging, dynamic, and relevant learning experience for students, Islamic Religious Education (PAI) in the digital era integrates traditional teaching techniques with contemporary technology. The use of laptops alongside platforms

such as WhatsApp, Telegram, Google Classroom, Google Forms, Instagram, Zoom, Vcall, YouTube, Flipbook, and radio streaming was employed to deliver PAI learning materials online during the COVID-19 pandemic.

Solutions Offered in Online Islamic Religious Education (PAI) Learning

To address various challenges, including limited direct engagement, technological constraints, and students' learning motivation, online Islamic Religious Education (PAI) requires innovative strategies. The effectiveness of online PAI learning can be enhanced by implementing the following improvements:

Enhancing Teacher Training in Digital Literacy

According to the findings of this study, PAI teachers must receive extensive training to improve their digital literacy. The creation of interactive digital content, integration of Islamic applications such as worship simulation videos and digital Qur'an, and the use of Learning Management Systems (LMS) are part of the learning media. Schools, governments, and technical institutions can collaborate to implement these initiatives (Wibowo, 2021).

Providing Equal Access to Technology Infrastructure

The public and private sectors must work together to provide digital devices and internet networks in rural areas to bridge the access gap. Another crucial method for increasing participation in online learning is through subsidized technology equipment programs for children from low-income families (Zimm, 2019).

Observation Results on Creating Engaging Digital PAI Content

The importance of creating technology-based PAI learning materials cannot be overstated. Such content can include interactive simulations, animated films, or game-based applications that teach Islamic values to children in an engaging and simple manner (Firdaus et al., 2023).

Parent-School Collaboration

Schools can provide basic technology training classes for parents to enhance their involvement. Additionally, parents can supervise Islamic Religious Education projects or assignments, such as assisting their children in creating religious projects or producing short sermon films (Garbacz et al., 2022; Özdamlı & Yıldız, 2014).

Implementation of Project-Based Evaluation Methods

Research suggests using project-based strategies to address evaluation challenges. Students are assigned creative tasks such as making Islamic vlogs, writing reflective essays, or creating digital portfolios that include worship practices. This method not only evaluates students' understanding but also fosters their creativity and critical thinking skills (Doppelt, 2003; Ramírez de Dampierre et al., 2024).

D. Conclusion

The *Kurikulum Merdeka* in Islamic Religious Education (AIK) subjects examines how online learning is implemented. Based on the findings of the analysis, it can be said that the online PAI learning program, which is based on the *Kurikulum Merdeka*, offers good opportunities to improve learning standards through the use of digital technology. However, several critical issues need to be addressed for its implementation. First, although online learning provides time flexibility and material accessibility, it is still limited by technological infrastructure gaps, such as insufficient digital devices and the lack of internet connectivity in remote areas. Second, to maximize the use of digital platforms, the digital literacy of teachers and students still needs improvement. Third, to meet the demands of students in the digital era, the accessibility of engaging and relevant PAI digital content needs to be enhanced. Addressing these challenges can make online learning based on the *Kurikulum Merdeka* in Islamic Religious Education (AIK) subjects a valuable tool for preparing students to meet the demands of the digital era while integrating Islamic values into their daily lives. This study highlights the importance of continuous collaboration and innovation to ensure the achievement of religious education goals, namely the development of individuals who are devout, faithful in worship, and morally upright, in an optimal online learning environment.

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References

- Abel, F., Bittencourt, I. I., Costa, E., Henze, N., Krause, D., & Vassileva, J. (2009). Recommendations in online discussion forums for e-learning systems. *IEEE Transactions on Learning Technologies*, 3(2), 165–176. <https://doi.org/10.1109/TLT.2009.40>
- Ainsworth, L. (2011). *Rigorous curriculum design: How to create curricular units of study that align standards, instruction, and assessment*. Lead+ Learn Press.

- Al-Samarraie, H., & Saeed, N. (2018). A systematic review of cloud computing tools for collaborative learning: Opportunities and challenges to the blended-learning environment. *Computers & Education*, 124, 77–91. <https://doi.org/https://doi.org/10.1016/j.compedu.2018.05.016>
- Almaiah, M. A., Al-Khasawneh, A., & Althunibat, A. (2020). Exploring the critical challenges and factors influencing the E-learning system usage during COVID-19 pandemic. *Education and Information Technologies*, 25(6), 5261–5280. <https://doi.org/10.1007/s10639-020-10219-y>
- Arifin, Z. (2021). *The Implementation of Technology in Islamic Religious Education (PAI) Learning*. Al-Falah.
- Bender, T. (2023). *Discussion-based online teaching to enhance student learning: Theory, practice and assessment*. Taylor & Francis.
- Benson, P., & Voller, P. (2014). *Autonomy and independence in language learning*. Routledge.
- Boud, D. (2012). *Developing student autonomy in learning*. Routledge.
- Caballé, S., Xhafa, F., & Barolli, L. (2010). Using mobile devices to support online collaborative learning. *Mobile Information Systems*, 6(1), 27–47. <https://doi.org/10.3233/MIS-2010-0091>
- de Lima, D. P. R., Gerosa, M. A., Conte, T. U., & de M. Netto, J. F. (2019). What to expect, and how to improve online discussion forums: the instructors' perspective. *Journal of Internet Services and Applications*, 10, 1–15. <https://doi.org/https://doi.org/10.1186/s13174-019-0120-0>
- Doppelt, Y. (2003). Implementation and assessment of project-based learning in a flexible environment. *International Journal of Technology and Design Education*, 13, 255–272. <https://doi.org/https://doi.org/10.1023/A:1026125427344>
- Dumford, A. D., & Miller, A. L. (2018). Online learning in higher education: exploring advantages and disadvantages for engagement. *Journal of Computing in Higher Education*, 30(3), 452–465. <https://doi.org/https://doi.org/10.1007/s12528-018-9179-z>
- Fink, L. D. (2013). *Creating significant learning experiences: An integrated approach to designing college courses*. John Wiley & Sons.
- Firdaus, A., Amrullah, A., Adawiyah, L. R., Zakiah, Q. Y., & Supiana, S. (2023). Enhancing learning quality and student engagement: Utilizing digital technology in Islamic education. *International Journal of Nusantara Islam*, 11(2), 206–218. <https://doi.org/https://doi.org/10.15575/ijni.v11i2.29960>
- Garbacz, A., Godfrey, E., Rowe, D. A., & Kittelman, A. (2022). Increasing parent collaboration in the implementation of effective practices. *TEACHING Exceptional Children*, 54(5), 324–327. <https://doi.org/https://doi.org/10.1177/00400599221096974>
- Habibah, M., & Nurhidin, E. (2023). Student Profiles in the Kurikulum Merdeka at Madrasahs in the VUCA Era. *Intelektual: Jurnal Pendidikan Dan Studi Keislaman*, 13(2), 211–230. <https://doi.org/https://doi.org/10.33367/ji.v13i2.4061>
- Hakim, M. F. Al, & Azis, A. (2021). The Role of Teachers and Parents: Challenges and Solutions in Online Learning During the COVID-19 Pandemic. *Riwayat:*

- Educational Journal of History and Humanities*, 4(1), 16–25.
<https://doi.org/10.24815/jr.v4i1.19677>
- Hasniati, H. (2022). Discretion in education services: Explaining teaching-learning models of learning from home during COVID-19 pandemic in Indonesia. *Journal of Infrastructure, Policy and Development*, 6(2), 1495.
<https://doi.org/https://doi.org/10.24294/jipd.v6i2.1495>
- Hsu, Y.-C., Ching, Y.-H., & Grabowski, B. L. (2014). Web 2.0 applications and practices for learning through collaboration. *Handbook of Research on Educational Communications and Technology*, 747–758.
https://doi.org/https://doi.org/10.1007/978-1-4614-3185-5_60
- Hussain, T., Yu, L., Asim, M., Ahmed, A., & Wani, M. A. (2024). Enhancing E-Learning Adaptability with Automated Learning Style Identification and Sentiment Analysis: A Hybrid Deep Learning Approach for Smart Education. *Information*, 15(5), 277. <https://doi.org/https://doi.org/10.3390/info15050277>
- Kemendikbudristek. (2023). *Guidelines for Implementing the Independent Curriculum*. Kemendikbudristek.
- Mao, H., Liu, S., Zhang, J., & Deng, Z. (2016). Information technology resource, knowledge management capability, and competitive advantage: The moderating role of resource commitment. *International Journal of Information Management*, 36(6), 1062–1074.
<https://doi.org/https://doi.org/10.1016/j.ijinfomgt.2016.07.001>
- McGreal, R., & Elliott, R. (2004). Technologies of online learning. *Theory and Practice of Online Learning*, 115–135.
<https://doi.org/https://doi.org/10.15215/aupress/9781897425084.008>
- Mendoza, W., Ramírez, G. M., González, C., & Moreira, F. (2022). Assessment of curriculum design by learning outcomes (LO). *Education Sciences*, 12(8), 541.
<https://doi.org/https://doi.org/10.3390/educsci12080541>
- Özdamlı, F., & Yıldız, E. P. (2014). Parents' views towards improve parent-school collaboration with mobile technologies. *Procedia-Social and Behavioral Sciences*, 131, 361–366. <https://doi.org/https://doi.org/10.1016/j.sbspro.2014.04.130>
- Pinar, W. F. (2019). *What is curriculum theory?* Routledge.
- Ramírez de Dampierre, M., Gaya-López, M. C., & Lara-Bercial, P. J. (2024). Evaluation of the implementation of Project-Based-Learning in engineering programs: A review of the literature. *Education Sciences*, 14(10), 1107.
<https://doi.org/https://doi.org/10.3390/educsci14101107>
- Riyana, C. (2020). *ICT Literacy and Learning Media*. Bandung: UPI Press.
- Rofi, S., Setiawan, B. A., & Jatmikowati, T. E. (2021). The Students' Satisfaction of Online Learning Services. *Jurnal Pendidikan Islam Indonesia*, 6(1), 1–15.
<https://doi.org/https://doi.org/10.35316/jpii.v6i1.325>
- Rulitawati, R. (2024). *Educational Administration and Supervision*. NoerFikri.
- Sarvito. (2024). *Personal Interview*.
- Siregar, A. (2021). *Strategies for Islamic Religious Education (PAI) Learning in the Digital Era*. Pustaka Alami.
- Surahman, E., Santaria, R., & Setiawan, E. I. (2020). Challenges of Online Learning in

- Indonesia. *Journal of Islamic Education Management*, 5(2), 94–95.
<https://ejournal.iainpalopo.ac.id/index.php/kelola/article/view/1397>
- The Republic of Indonesia Law Number 20 of 2003 on the National Education System, Pub. L. No. 20, UU RI 1 (2003).
- Wibowo, A. (2021). Analisis Literasi Sains Siswa Sekolah Dasar Pada Kasus Pandemi Covid-19. *Jurnal Educatio FKIP UNMA*, 7(2), 515–519.
<https://doi.org/https://doi.org/10.31949/educatio.v7i2.1107>
- Wulan, E. R., Gunawan, H., Fauziah, W., & Kratz, F. (2021). Integration of science, technology, and Islamic values to enhance expected learning outcomes in French higher education. *Jurnal Pendidikan Islam*, 7(1), 95–108.
<https://journal.uinsgd.ac.id/index.php/jpi/article/view/12765>
- Xu, J., & Wahid, N. H. B. A. (2024). The Effectiveness of PjBL in the Acquisition of Skills in Higher Vocational Education: A Qualitative Approach. *Pakistan Journal of Life and Social Sciences*, 22(2), 16693–16712.
<https://doi.org/https://doi.org/10.57239/PJLSS-2024-22.2.001213>
- Yusuf, M., & Hamami, T. (2022). The Role of Islamic Religious Education Teachers in Preparing Students for the Minimum Competency Assessment Test. *Jurnal Basicedu*, 6(2), 3012–3024.
<https://doi.org/https://doi.org/10.31004/basicedu.v6i2.2571>
- Zaidi, N. N. M., & Hoque, M. (2019). Application of e-learning for teaching hadith in higher education institutional education in Malaysia: A Literature Review. *Journal of Quran Sunnah Education & Special Needs*, 3(2), 28–34.
<https://doi.org/https://doi.org/10.33102/jqss.vol3no2.50>
- Zhao, Y., Zhao, M., & Shi, F. (2023). Integrating moral education and educational information technology: A strategic approach to enhance rural teacher training in universities. *Journal of the Knowledge Economy*, 15, 15053–15093.
<https://doi.org/https://doi.org/10.1007/s13132-023-01693-z>
- Zimm, C. (2019). Methodological issues in measuring international inequality in technology ownership and infrastructure service use. *Development Studies Research*, 6(1), 92–105.
<https://doi.org/https://doi.org/10.1080/21665095.2019.1605533>