

Management of Deep Learning Islamic Education Media at SMKN 12 and SMK Mutiara Bandung

Sahidin ^{a.1,*}, Ahmad Sukandar ^{b.2}

^{*ab} Universitas Islam Nusantara 1 & 2, Indonesia 1 & 2.

^{*1} sahidin@uninus.ac.id; ² ahmadsukandar@uninus.ac.id.

*Correspondent Author

Received: 11-07-2026

Revised: 23-08-2026

Accepted: 27-09-2026

KEYWORDS

Islamic Education;
Deep Learning;
Management;
Vocational Schools;
Qualitative Case Study.

ABSTRACT

This study aims to analyze the management of Islamic Religious Education (IRE) learning media based on deep learning at SMK Negeri 12 and SMK Mutiara Bandung, focusing on planning, organizing, implementation, and supervision. A qualitative descriptive approach through case studies was employed to gain an in depth understanding of digital learning media management practices. Data were collected through interviews, observations, and documentation from school principals, vice principals for curriculum, IRE teachers, IT staff, and students, and were validated through triangulation and member checking. The findings indicate that the management of IRE learning media based on deep learning in both schools has been applied systematically and adaptively, encompassing thorough planning, organizing that supports coordination and digital resources, implementation that fosters students' critical thinking, and continuous supervision. These practices reflect the integration of management principles, educational philosophy, theological foundations, and national education policies. This study contributes to understanding the implementation of digital learning media in vocational schools and provides strategic insights for enhancing the quality of IRE learning through technology, although its limitation lies in the small number of schools studied, suggesting the need for further research with a broader scope.

This is an open-access article under the [CC-BY-SA](#) license.



Introduction

1 Background of the Problem

Digital transformation has brought significant changes to Islamic Religious Education (IRE) learning, marked by a shift from conventional media to more varied and interactive digital media (Mulyawan, 2024; Wekke, 2024). This shift requires well planned and systematic management of learning media so that technology use is not merely instrumental, but genuinely contributes to improving the quality of learning processes and outcomes, particularly at the vocational education level such as Vocational High Schools (SMK) (Wardhono, 2022). In this context, the implementation of a deep learning approach through digital media in Islamic Religious Education (IRE) still requires in depth investigation, particularly from a learning management perspective. This indicates that the successful integration of technology in IRE learning depends not only on the availability of digital media, but also on the effectiveness of its management.

In the pedagogical context, the deep learning approach is not a new curriculum, but rather a learning approach that emphasizes deep understanding and the development of students' critical thinking skills (Bhuiyan, 2021; Maphosa, 2021). Moreover, this approach promotes meaningful learning that enables students to construct knowledge in a reflective and contextual manner (Halima, 2025). In Islamic Religious Education (IRE), deep learning is highly relevant as it supports the internalization of Islamic values and the holistic development of students' character. The integration of this approach aligns with the direction of the Merdeka Curriculum policy, which emphasizes student centered learning and the strengthening of digital literacy as a key 21st century competency (Puspasari, 2024; Saa, 2024).

The government's commitment to education digitalization is reflected in various strategic policies that promote the sustainable use of technology. The formulation of Indonesia's National Artificial Intelligence Strategy 2020-2045 demonstrates the government's seriousness in building a technological ecosystem that supports the improvement of national education quality and the achievement of Indonesia Vision 2045 (Pristiwati, 2024). Furthermore, strengthening ethics and governance in the use of technology in education has become a key concern to ensure that digital innovation remains aligned with educational goals (Green et al., 2022). These policies require educational institutions, including vocational high schools, not only to adopt digital technologies but also to manage them effectively and contextually in accordance with learning needs.

The successful implementation of deep learning based Islamic Religious Education (IRE) learning media is strongly influenced by managerial aspects. Therefore, this study is grounded in George R. Terry's management theory, which comprises the functions of planning, organizing, actuating, and controlling as an analytical framework for learning management (Munadi, 2023; Terry & Rue, 2019; Warta, 2021). The effective application of management functions is believed to enhance the quality of Islamic Religious Education (IRE) learning in the digital era (Naufal, 2021; Syah, 2021).

Empirically, SMKN 12 Bandung and SMK Mutiara Bandung exhibit different characteristics and levels of readiness in supporting deep learning based Islamic Religious Education (IRE). Differences in digital infrastructure, internet access, as well as the competencies and training of IRE teachers have implications for variations in learning media management practices at the two schools. These conditions make a study on the management of deep learning based IRE learning media at SMKN 12 Bandung and SMK Mutiara Bandung essential to obtain a comprehensive understanding of practices, challenges, and opportunities in managing IRE learning that aligns with technological developments and educational policies in the digital era.

2 Previous Literature Review

The use of digital technology in Islamic Religious Education (IRE) learning has been proven to contribute positively to expanding access to learning resources and improving learning quality. Akhyar et al. (2024) show that the use of digital media enables students to access Islamic Religious Education (IRE) materials more broadly, interactively, and in more varied ways, although its effectiveness still faces challenges related to the digital competencies of both teachers and students. In the context of learning approaches, Santoso (2025) emphasizes that the application of deep learning and artificial intelligence based technologies in Islamic Religious Education (IRE) learning is highly relevant, as it is able to foster deep understanding of the subject matter while simultaneously integrating Islamic moral and ethical values through digital platforms and interactive applications. In line with this, Muzaini et al. (2024) emphasize that the success of Islamic education in the 21st century is largely determined by its ability to adapt to technological developments and globalization without neglecting core Islamic values. These findings are

reinforced by Khotimah & Abdan (2025) who conclude that a deep learning approach in Islamic Religious Education (IRE) can increase students' enthusiasm, active participation, and understanding, as well as encourage the application of IRE values in daily life, provided that its success is highly dependent on the teacher's role as a facilitator. Nevertheless, most previous studies have focused on pedagogical aspects and learning effectiveness, and have not yet examined in depth the management of deep learning based IRE learning media, particularly in terms of the functions of planning, organizing, actuating, and controlling within the context of vocational education at Vocational High Schools (SMK).

3 Research Novelty

This study offers novelty by specifically examining the management of deep learning based Islamic Religious Education (IRE) learning media in the digital era at the vocational high school (SMK) level, a topic that remains underexplored in the context of Islamic education in Indonesia. Unlike previous studies that generally emphasize the effectiveness of technology on students' learning outcomes, this research positions teachers' managerial aspects as the primary focus of analysis through the application of the planning, organizing, actuating, and controlling functions. Furthermore, this study provides a conceptual contribution in the form of a contextual implementation model of deep learning based IRE learning media tailored to the characteristics of vocational high schools, taking into account digital infrastructure readiness, teachers' competencies, and the dynamics of IRE learning in the digital era.

4 Research Assumptions

This study is based on the assumption that the management of deep learning based Islamic Religious Education (IRE) learning media in vocational high schools plays an important role in determining the quality and meaningfulness of the learning process. It is assumed that the effectiveness of digital media utilization in IRE learning is not determined solely by the availability of technology, but also by teachers' ability to plan media use in accordance with learning objectives, coordinate available resources, implement learning in a pedagogical and contextual manner, and conduct monitoring and evaluation of learning processes and outcomes. Furthermore, school digital infrastructure readiness and the professional competence of IRE teachers are assumed to influence the success of managing deep learning based learning media in supporting the internalization of Islamic values and the development of students' deep thinking skills in the digital era.

5 Research Objectives & Expected Outcomes

This study aims to analyze the management of deep learning based Islamic Religious Education (IRE) learning media in the digital era at the vocational high school level, with a focus on the functions of planning, organizing, actuating, and controlling. The study seeks to comprehensively understand the practices of IRE learning media management at SMKN 12 Bandung and SMK Mutiara Bandung, including factors that support and hinder its implementation. The expected outcomes of this research are to illustrate effective managerial practices, strengthen teachers' roles as facilitators in technology based learning, and provide strategic recommendations to enhance the effectiveness of digital media utilization in IRE learning, as well as to serve as a basis for developing a deep learning based learning media management model that aligns with the characteristics of vocational high schools.

Method

The research method employed is a descriptive qualitative approach using a case study design (Alaslan, 2022; Rahardjo, 2017). The case study approach was chosen because this research focuses on two schools with different characteristics that both implement digital technology based learning. This method allows the researcher to explore in depth the management practices of deep learning based Islamic Religious Education (IRE) learning media, from planning and organizing to implementation and supervision, as well as to understand the context and processes underlying these practices (Pahleviannur et al., 2022; Rahardjo, 2017). Through this approach, the study is expected to provide a realistic portrayal of digital learning management within the context of Islamic Religious Education in the modern era.

This study was conducted at SMK Negeri 12 Bandung and SMK Mutiara Bandung, with direct interaction between the researcher and participants through interviews, observations, and documentation. These data collection techniques enable a comprehensive description of how teachers and school stakeholders manage deep learning based Islamic Religious Education (IRE) learning media from the planning stage through supervision (Hariyanto, 2022; Jasmi, 2012). The research subjects include the principal, the vice principal for curriculum, Islamic Religious Education (IRE) teachers, the IT team, and students. Interactions were conducted in a naturalistic manner, without researcher intervention, allowing the realities of learning management practices to be observed authentically. Focusing on the two schools also provides an opportunity to compare different management practices in accordance with the characteristics and readiness of each institution.

To ensure data validity and credibility, this study applies two main techniques: triangulation and member checking (Pahleviannur et al., 2022). Triangulation is used to ensure data consistency and validity from multiple sources, for example by comparing the principal's statements regarding digital facilities with observational findings and administrative documents from IRE teachers. Member checking is conducted by reconfirming preliminary findings with informants, including teachers and the principal, to ensure that the presented data accurately reflect the observed realities and the informants' intended meanings (Widnyani, 2020).

Data analysis is conducted in stages by processing findings from interviews, observations, documentation, and literature review, selecting information relevant to the research focus, and eliminating unnecessary data (Hariyanto, 2022). The presentation of research findings is carried out in a descriptive narrative manner, emphasizing a comprehensive description of deep learning based Islamic Religious Education (IRE) learning media management practices. Conclusions are drawn through the identification of patterns and relationships among data, comparison with relevant literature, interpretation of findings, and repeated verification to ensure the consistency and validity of the conclusions.

Result

1 Planning of Deep Learning Based IRE Media

The findings indicate that the planning of deep learning based Islamic Religious Education (IRE) learning media management at SMK Negeri 12 Bandung and SMK Mutiara Bandung is conducted in a systematic and strategic manner. In both schools, planning begins at the start of the academic year through In-House Training (IHT) activities and teacher workshops aimed at preparing digital based teaching modules, student worksheets (LKPD), and interactive assessments. The

principals and vice principals for curriculum emphasize that this planning must align with digital media needs, strengthen teacher readiness, and ensure adequate infrastructure support. The IT teams in both schools play a role in providing and maintaining internet networks and devices, enabling the planned activities to be implemented smoothly. Differences in each school's characteristics such as SMK Negeri 12 Bandung's focus on long term policies and SMK Mutiara Bandung's emphasis on regular training demonstrate that planning is adapted to local contexts while remaining oriented toward the effectiveness of digital learning.

2 Organizing of Deep Learning Based IRE Media

The organization of deep learning based Islamic Religious Education (IRE) learning media is reflected in task distribution, staff coordination, and the utilization of supporting facilities. At SMK Negeri 12 Bandung, organizational practices emphasize teachers' flexibility and creativity in using digital media, whereas at SMK Mutiara Bandung, organization is more systematic, supported by regular training to enhance teacher readiness. The availability of facilities such as Wi-Fi, projectors, and responsive support from IT teams ensures that teachers can conduct learning activities without technical obstacles. Overall, the organizational practices at both schools reflect orderliness and collaboration that support the smooth use of digital media in IRE learning.

3 Implementation of Deep Learning Based IRE Media

The implementation of deep learning based Islamic Religious Education (IRE) learning media at both schools demonstrates diverse and adaptive practices. Teachers utilize various digital media such as Canva AI, videos, infographics, interactive PowerPoint presentations, and digital learning platforms including Google Classroom, YouTube, Google Forms, and Quizizz. These activities encourage students to think critically, creatively, and independently. Support from IT teams, both in technical assistance and troubleshooting, ensures that all digital media can be used effectively. Although implementation strategies vary, both schools have successfully integrated digital media consistently into the learning process, in line with pedagogical principles and the orientation of the Merdeka Curriculum.

4 Supervision of Deep Learning Based IRE Media

The supervision of deep learning based Islamic Religious Education (IRE) learning media at SMK Negeri 12 Bandung and SMK Mutiara Bandung is conducted to ensure the quality, consistency, and effectiveness of learning. At SMK Negeri 12 Bandung, supervision is formal and indicator based, involving teacher schedule monitoring and administrative checks, whereas at SMK Mutiara Bandung it is more flexible and persuasive, emphasizing professional guidance and support for teachers. Both schools involve the IT team in technical aspects to minimize digital obstacles. These supervisory practices highlight the importance of combining administrative, pedagogical, and technical supervision for the successful implementation of deep learning based IRE learning media.

Discussion

1 Planning of Deep Learning Based IRE Media

The planning aspect at SMK Negeri 12 Bandung and SMK Mutiara Bandung demonstrates well developed and strategic actions. These practices align with the theological principle found in Surah Al-Hasyr 59:18, which emphasizes the importance of preparation and readiness for the

future. Educational philosophy underscores that planning serves as the foundation for achieving educational goals systematically and rationally (Ornstein et al., 2017). From a management theory perspective, planning is a fundamental step that determines the success of other management functions. According to Terry & Rue (2019), planning is the process of selecting the appropriate actions based on the analysis of facts and future projections. Fayol (2016) also emphasizes planning as a management function that predicts future conditions, identifies objectives, and formulates procedures to achieve them. At SMK Negeri 12 Bandung, planning focuses on the development of digital modules that support vocational competencies and the internalization of IRE values, whereas at SMK Mutiara Bandung, planning emphasizes regular teacher workshops to prepare technology based learning. National education policies, including the Merdeka Belajar program, provide a legal and pedagogical framework for schools to implement digital technology adaptively (Kementerian Pendidikan Riset dan Teknologi Republik Indonesia, 2022). This planning enables the integration of digital learning media with assessments, student worksheets (LKPD), and learning activities that promote students' critical thinking. Thus, planning at both schools reflects a synchronization between management principles, educational philosophy, and the Islamic theological context.

2 Organizing of Deep Learning Based IRE Media

The organization at SMK Negeri 12 Bandung and SMK Mutiara Bandung demonstrates orderliness and continuous coordination. Theologically, the principles of order and collaboration are reflected in Islamic values that emphasize collective responsibility. Educational philosophy highlights that effective organization ensures the achievement of educational goals through efficiency and synergy among staff and students (Slavin & 12th, 2020). In management theory, Fayol (2016) emphasizes organizing as a primary function to arrange resources and work relationships so that plans can be executed effectively. Terry & Rue (2019) add that organizing involves delegation of authority, task distribution, and communication coordination to achieve objectives optimally. Practices at SMK Negeri 12 Bandung demonstrate formal, indicator based organization, while SMK Mutiara Bandung applies a more flexible organization through regular teacher training and IT staff support. Both organizational models are effective because they align with the characteristics of each institution and support the successful implementation of digital learning media. Additionally, digital pedagogy theory emphasizes that the organization of technology based learning should include technical support, device readiness, and network access to ensure optimal learning (Johnson et al., 2021). Thus, the organization at both schools reflects a harmonization of management practices, educational philosophy, and Islamic theological principles.

3 Implementation of Deep Learning Based IRE Media

Implementation focuses on applying strategies that integrate technology with students' learning experiences. Theologically, Q.S. Al-Kahfi 18:107 emphasizes that every good deed performed sincerely is considered an act of worship, so the implementation of learning is not only academic but also builds students' spiritual character. Educational philosophy highlights implementation as a bridge between ideas and practical application, enabling the meaningful achievement of educational goals (Ornstein et al., 2017). From a management theory perspective, Terry & Rue (2019) describe implementation as a function that motivates people to execute plans through effective coordination and communication. Fayol (2016) adds that implementation is the actualization of planning and organizing, requiring proper control and leadership. At SMK Negeri 12 Bandung, implementation emphasizes the use of Canva AI, videos, infographics, and digital assessments to enhance interactivity, while at SMK Mutiara Bandung, IRE teachers utilize Google Classroom, Quizizz, and YouTube to support critical and creative learning. Digital pedagogy literature also stresses that technology based implementation should be designed to encourage

active student engagement, reinforce meaningful learning, and support the development of higher order thinking skills (Johnson et al., 2021). Thus, implementation at both schools successfully integrates management principles, educational philosophy, and theological foundations to produce learning that is effective and relevant in the digital era.

4 Supervision of Deep Learning Based IRE Media

Supervision at SMK Negeri 12 Bandung and SMK Mutiara Bandung demonstrates two different yet effective patterns. SMK Negeri 12 Bandung applies formal, indicator based, and systematic supervision, whereas SMK Mutiara Bandung uses persuasive, flexible, and school community based supervision. Theologically, Q.S. Al-Infithor 82:10-13 emphasizes supervision as a trust that must be carried out responsibly. Educational philosophy highlights that supervision aims to maintain the quality and consistency of the learning process while guiding students' moral development. From a management perspective, Fayol (2016) and Terry & Rue (2019) describe supervision as a control function that ensures all activities align with established plans and standards. At SMK Negeri 12 Bandung, formal supervision is conducted through routine teacher monitoring and administrative assessment, while at SMK Mutiara Bandung, supervision is more adaptive, involving intensive communication among teachers, the principal, and the IT team. Both approaches prove effective in ensuring that deep learning based IRE learning media are applied consistently and with quality. Furthermore, modern educational management literature emphasizes that digital technology based supervision allows for real time monitoring, data collection, and continuous evaluation to support learning improvement (Johnson et al., 2021; Tuala, 2023). Thus, supervision at both schools reflects the integration of management principles, theological foundations, educational philosophy, and national education policies.

Conclusion

This study indicates that the management of deep learning based Islamic Religious Education (IRE) learning media at SMK Negeri 12 Bandung and SMK Mutiara Bandung has been implemented systematically in accordance with GR Terry's management functions: planning, organizing, implementing, and supervising. Planning is conducted through In-House Training (IHT) and teacher workshops; organizing involves staff coordination and the utilization of digital facilities; implementation employs various interactive media to support critical and creative thinking; and supervision is carried out continuously through administrative monitoring and technical support. Altogether, this process supports the creation of IRE learning that is more effective, interactive, and aligned with the demands of the digital era.

Furthermore, this study makes a significant contribution to the literature on digital education management by highlighting how management principles, educational philosophy, theological foundations, and national policies, including the Merdeka Belajar program, can be integrated into technology based learning practices. These findings enhance understanding of adaptive and contextual strategies for managing IRE learning media, while also serving as a reference for developing more structured, meaningful, and relevant digital learning for students.

Nevertheless, this study has limitations. The research sample is limited to two schools in Bandung, so the findings cannot be fully generalized. The study focuses primarily on management practices and the implementation of learning media, while the long term impact on students' learning outcomes has not been analyzed quantitatively. Therefore, future research is recommended to expand the number of institutions, incorporate quantitative analysis, and explore other contextual factors that influence the effectiveness of deep learning based IRE learning media.

References

- Akhyyar, M., Junaidi, J., Supriadi, S., Febriani, S., & Gusli, R. A. (2024). Implementasi Kepemimpinan Guru PAI dalam Meningkatkan Motivasi Belajar Siswa Melalui Pemanfaatan Teknologi di Era Digital. *Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan*, 18(6), 4234–4248. <https://doi.org/10.35931/aq.v18i6.3855>
- Alaslan, A. (2022). *METODE PENELITIAN KUALITATIF*. <https://doi.org/10.31237/osf.io/2pr4s>
- Bhuiyan, M. G. J. A. N. D. Z. (2021). Deep learning elements in maritime simulation programmes: a pedagogical exploration of learner experiences. *International Journal of Educational Technology in Higher Education*, 18(1). <https://doi.org/10.1186/s41239-021-00255-0>
- Fayol, H. (2016). *General and industrial management*. Martino Fine Books.
- Green, E., Singh, D., & Chia, R. (2022). *AI Ethics and Higher Education: Good Practice and Guidance for Educators, Learners, and Institutions*. Globethics.net. <https://www.amazon.com/Ethics-Higher-Education-Institutions-Globethics-net/dp/288931443X>
- Halima, M. A. S. A. N. D. H. A. N. D. H. (2025). Deep Learning Approach in Improving Critical Thinking Skills of Elementary School Students. *Jurnal Penelitian Pendidikan IPA*, 11(8), 60–70. <https://doi.org/10.29303/jppipa.v11i8.11708>
- Hariyanto, S. H. A. N. D. W. (2022). Buku Ajar Metode Penelitian Bisnis (Kuantitatif Dan Kualitatif). In *Umsida Press eBooks*. <https://doi.org/10.21070/2022/978-623-464-047-2>
- Jasmi, K. A. (2012). *Metodologi pengumpulan data dalam penyelidikan kualitatif*. <http://eprints.utm.my/id/eprint/41091/>
- Johnson, L., Adams Becker, S., Estrada, V., & Freeman, A. (2021). *The NMC Horizon Report: 2021 Higher Education Edition*. The New Media Consortium.
- Kementerian Pendidikan Riset dan Teknologi Republik Indonesia, K. (2022). *Panduan Merdeka Belajar: Strategi pembelajaran berbasis teknologi digital di sekolah*. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.
- Khotimah, D. K., & Abdan, M. R. (2025). Analisis Pendekatan Deep Learning untuk Meningkatkan Efektivitas Pembelajaran PAI di SMKN Pringkuku. *Jurnal Pendidikan Dan Pembelajaran Indonesia (JPPI)*, 5(2), 866–879. <https://doi.org/10.53299/jppi.v5i2.1466>
- Maphosa, T. R. A. N. D. K. E. M.-K. A. N. D. C. (2021). Rethinking Pedagogy: Interrogating Ways of Promoting Deeper Learning in Higher Education. *European Journal of Interactive Multimedia and Education*, 3(1). <https://doi.org/10.30935/ejimed/11439>
- Mulyawan, A. T. A. N. D. A. P. S. A. N. D. A. R. A. N. D. F. (2024). Curriculum Development of Islamic Religious Education in the Digital Era Transformation. *Journal of Islamic Education and Ethics*, 3(1), 17–28. <https://doi.org/10.18196/jiee.v3i1.59>
- Munadi, S. S. A. N. D. M. F. T. S. A. N. D. M. (2023). Implementation of Human Resource Management (HRM) In Improving Teacher Performance and Insuring Education Quality. *At-Tarbawi Jurnal Kajian Kependidikan Islam*, 8(2), 105–124. <https://doi.org/10.22515/attarbawi.v8i2.7758>
- Muzaini, M. C., Prastowo, A., & Salamah, U. (2024). Peran Teknologi Pendidikan Dalam Kemajuan Pendidikan Islam di Abad 21. *IHSAN : Jurnal Pendidikan Islam*, 2(2), 70–81. <https://doi.org/10.61104/ihsan.v2i2.214>
- Naufal, N. M. A. N. D. I. W. A. N. D. D. R. A. N. D. S. M. R. (2021). The Use of Audio Visual Media In Improving The Quality Of PAI Learning In SMA Negeri City Of Bandung. *Journal of Social Science*, 2(4), 416–428. <https://doi.org/10.46799/jss.v2i4.181>
- Ornstein, A. C., Hunkins, F. P., & 7th. (2017). *Curriculum: Foundations, principles, and issues*. Pearson.
- Pahleviannur, M. R., De Grave, A., Saputra, D. N., Mardianto, D., Sinthania, D., Hafrida, L., Bano, V. O., Susanto, E. E., Mahardhani, A. J., Amruddin, Alam, M. D. S., Lisya, M., & Ahyyar, D. B. (2022). *Metodologi Penelitian Kualitatif*. <https://doi.org/10.31237/osf.io/jhxxw>

- Pristiwati, S. S. A. N. D. S. S. A. N. D. R. (2024). Kecerdasan Buatan dalam Konteks Kurikulum Merdeka pada Jenjang Pendidikan Dasar dan Menengah: Membangun Keterampilan Menuju Indonesia Emas 2045. *HUMANIKA*, 30(2), 208–217.
<https://doi.org/10.14710/humanika.v30i2.60563>
- Puspasari, A. N. A. N. D. D. A. A. N. D. E. (2024). The influence of the Free Curriculum and Technology-based Learning Media on Digital Literacy. *Jurnal Simki Pedagogia*, 7(1), 284–295.
<https://doi.org/10.29407/jsp.v7i1.603>
- Rahardjo, M. (2017). Studi kasus dalam penelitian kualitatif: konsep dan prosedurnya. *Research Repository Universitas Islam Negeri Maulana Malik Ibrahim (University of Southampton)*.
- Saa, S. (2024). Merdeka Curriculum: Adaptation of Indonesian Education Policy in the Digital Era and Global Challenges. *Revista de Gestão Social e Ambiental*, 18(3).
<https://doi.org/10.24857/rgsa.v18n3-168>
- Santoso, H. E. (2025). Integrasi Teknologi Deep Learning dalam Pembelajaran Pendidikan Agama Islam (PAI) di Era Digital. *Jurnal Manajemen Pendidikan Dan Ilmu Sosial*, 6(2), 1476–1483.
<https://doi.org/10.38035/jmpis.v6i2.4041>
- Slavin, R. E., & 12th. (2020). *Educational psychology: Theory and practice*. Pearson.
- Syah, I. K. A. N. D. H. H. A. N. D. M. (2021). Problem Solving Method Management to Improve the Quality of PAI Learning. *International Journal of Nusantara Islam*, 9(1), 80–92.
<https://doi.org/10.15575/ijni.v9i1.11921>
- Terry, G. R., & Rue, L. W. (2019). *Dasar-dasar Manajemen Edisi Revisi*. Bumi Aksara.
- Tuala, T. (2023). *Digital pedagogy and classroom management in the 21st century*. Routledge.
- Wardhono, A. D. H. A. N. D. B. B. A. N. D. W. S. (2022). Interactive Procedural Knowledge Learning Resources Development in The Context of Competency-Based Training Instructional Approach and Interactive Media Design Subjects for Information Technology Vocational High School. *Elinvo (Electronics Informatics and Vocational Education)*, 7(1), 76–83.
<https://doi.org/10.21831/elinvo.v7i1.48215>
- Warta, D. R. A. N. D. I. K. A. N. D. W. (2021). Implementation of Total Quality Management (TQM) in the Implementation of Education Quality Control in Information Engineering Study Program. *International Journal of Nusantara Islam*, 9(1), 188–196.
<https://doi.org/10.15575/ijni.v9i1.12783>
- Wekke, M. R. M. A. N. D. E. F. A. N. D. K. K. A. N. D. I. S. (2024). Islamic Religious Education and Its Transformation through The Implementation of E-Learning and Interactive Technology. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4737464>
- Widnyani, I. R. W. P. A. N. D. I. A. P. S. (2020). IMPLEMENTASI PERATURAN MENTERI PENDIDIKAN DAN KEBUDAYAAN NOMOR 28 TAHUN 2016 TENTANG SISTEM PENJAMINAN MUTU PENDIDIKAN DASAR DAN MENENGAH DI SMP NEGERI 3 MENGWI. *Locus*, 12(1), 26–49.
<https://doi.org/10.37637/locus.v12i1.286>