



TRANSFORMATIONAL LEADERSHIP DIMENSIONS IN DIGITAL LEARNING TRANSFORMATION FOR ISLAMIC EDUCATION QUALITY

Erma Listiyani¹, Muhammad Khoiruddin², Sukarman³

^{1,2,3} Universitas Islam Nahdlatul Ulama Jepara, Central Java, Indonesia

E-mail: ermalistiyani.2561@student.unisnu.ac.id¹,

muhammad.khoiruddin@unisnu.ac.id², pakar@unisnu.ac.id³

Abstract:

Digital learning transformation has become a strategic agenda for improving the quality of Islamic education in the era of digital disruption. This study aims to formulate the contribution of transformational leadership dimensions to the implementation of digital learning for improving the quality of Islamic education. This study employed library research with a qualitative approach. Data were collected through documentation of national and international journal articles, proceedings, books, official reports, and relevant policy documents. The data were analyzed using content analysis through data reduction, concept categorization, meaning interpretation, synthesis of findings, and conceptual formulation. The findings show that the four dimensions of transformational leadership contribute to digital learning transformation. Idealized influence builds digital-ethical role modelling through integrity, data security, academic honesty, and respectful digital communication. Inspirational motivation strengthens an Islamic digital transformation vision by directing technology use toward learning quality, access, institutional service, and Islamic identity. Intellectual stimulation encourages reflective digital pedagogical innovation through creative digital content, collaborative applications, learning analytics, problem-solving, and ethical AI utilization. Individualized consideration ensures inclusive and sustainable transformation through teacher needs mapping, gradual training, coaching, professional learning communities, and personal support. This study concludes that digital learning transformation in Islamic education should not be understood merely as technology adoption, but as a value-based, competence-oriented, and system-supported process. Transformational leadership becomes a strategic framework for integrating Islamic values, teacher digital competence, institutional governance, and quality improvement.

Keywords: *Digital learning transformation; Islamic education; Madrasah; Transformational leadership*

INTRODUCTION

Digital disruption has transformed education from a conventional learning system into a learning ecosystem that increasingly depends on platforms, digital content, learning data, and networked collaboration. This phenomenon is significant because schools and madrasahs are no longer required merely to provide access to technological devices, but also to transform learning into a more interactive, adaptive, equitable, and accountable process (OPSI,

2023; UNESCO, 2018). The urgency of this issue is further reflected in the 2022 PISA results, which show that Indonesian students' literacy, mathematics, and science achievements remain below the OECD average, while in creative thinking, only 31% of Indonesian students reached the basic proficiency level (OECD, 2022). Therefore, digital learning transformation in Islamic education needs to be examined as a strategic issue of quality improvement, not merely as a technical agenda of technology use.

This study differs from previous research because it places transformational leadership within the context of Islamic education, which is based on values, adab, morality, and quality orientation. This distinction is important because Islamic educational institutions face a dual demand: adapting to digital transformation while maintaining their spiritual mission, institutional identity, and the character formation of students (Maryati, 2025; W. D. Sari, 2025). Previous studies have shown that transformational leadership supports technology integration, teacher collaboration, and school readiness in facing digital change. Meanwhile, studies on Islamic education have discussed digital learning, madrasah administration, digital literacy, and curriculum reform in a more separate manner (Hamdanah, 2025; Istibana & Aimah, 2025; Mukarromah et al., 2025; Schmitz et al., 2023; Tabroni & Musyaffa, 2025). Thus, there remains a research gap in the limited integration of the four dimensions of transformational leadership with the operational aspects of digital learning transformation for improving the quality of Islamic education.

This study aims to formulate the contribution of transformational leadership dimensions to digital learning transformation for improving the quality of Islamic education. This objective is important because madrasah principals and leaders of Islamic educational institutions need a framework that not only explains the importance of technology but also guides digitalization as a pedagogical, ethical, managerial, and cultural change (Pietsch & Mah, 2024; Tabroni & Musyaffa, 2025). The focus of this study includes four dimensions of transformational leadership, namely idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. These dimensions are linked to digital literacy, digital content creativity, collaborative applications, learning data analysis, digital security, digital ethics, online learning platforms, and AI-based learning (Husamah et al., 2025; Nagel & Amdam, 2025). Therefore, this study formulates the contribution of the four dimensions of transformational leadership to the practice of digital learning transformation for improving the quality of Islamic education in the digital era.

Transformational leadership can improve the quality of Islamic education when it is able to transform digital technology into value-based, competence-oriented, and institutionally supported learning change. According to Bass (1985), and Bass and Avolio (1994), the four dimensions of transformational leadership provide a theoretical foundation for organizational change by emphasizing moral role modelling, the development of a shared vision, the encouragement of innovation, and individualized support (Priansa, 2025). In the context of digital transformation, these dimensions are highly relevant because sustainable technology integration requires ethical guidance, collective commitment, reflective creativity, and continuous assistance for organizational members. This argument is supported by studies showing that transformational leadership has a positive relationship with meaningful technology integration, teacher collaboration, professional performance, and digital readiness in schools and madrasahs (Maryati, 2025; Roesminingsih & Windasari, 2025; Schmitz et

al., 2023, 2025; Thahir et al., 2025). Accordingly, this study emphasizes that transformational leadership is a strategic framework for integrating digital competence, institutional systems, and quality improvement in Islamic education.

RESEARCH METHODS

This study employed library research with a qualitative approach. This design was selected because the purpose of the study was not to test statistical relationships among variables, but to interpret, organize, and synthesize conceptual ideas and empirical findings on transformational leadership, digital learning transformation, and the quality of Islamic education. Library research is relevant for mapping concepts, identifying research gaps, and formulating a conceptual framework based on available scholarly sources (Abdurrahman, 2024; Supriatna et al., 2025). The object of this study was transformational leadership in digital learning transformation within Islamic educational institutions. The research focus was directed toward the four dimensions of transformational leadership, namely idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, as well as their relationship with the operational aspects of digital learning transformation. The digitalization aspects examined in this study included digital literacy, digital content creativity, collaborative applications, learning data analysis, digital security, digital ethics, online learning platforms, and AI-based learning (Husamah et al., 2025; Nagel & Amdam, 2025)

The data sources consisted of national and international journal articles, proceedings, scholarly books, official reports, and relevant policy documents. The sources were selected purposively based on thematic relevance, recency, and contribution to the development of the article's argument. The main sources covered transformational leadership theory, technology integration in education, digital transformation in Islamic education, and Islamic education quality. Data collection was carried out through documentation by collecting, reading, recording, classifying, and reviewing textual data directly related to the research focus (Chand, 2025)

The data were analyzed using content analysis. The analysis was conducted through data reduction, concept categorization, meaning interpretation, synthesis of findings, and conceptual formulation. The analytical categories were developed based on conceptual-empirical foundations and the operationalization of the four dimensions of transformational leadership. The validity of the study was maintained through source triangulation, consistency of argumentation, and comparison among theoretical perspectives, recent research findings, and the context of Islamic education (Preiser et al., 2021)

RESULTS AND DISCUSSION

Transformational Leadership and Digital Learning Transformation in Islamic Education

The findings indicate that transformational leadership has a strategic contribution to the implementation of digital learning for improving the quality of Islamic education. In educational organizations, this framework is useful because digital transformation requires more than managerial control; it requires leaders who can build a shared vision, model ethical behaviour, stimulate professional learning, and support teachers according to their readiness levels (Le et al., 2025). In the context of Islamic education, this contribution becomes

increasingly important because digital learning transformation should not be separated from values, adab, morality, and the mission of developing knowledgeable and character-based human beings (Maryati, 2025; Priansa, 2025)

Digital learning transformation cannot be narrowly understood as the use of digital devices, applications, or platforms. It refers to the process of integrating technology into lesson planning, instructional implementation, assessment, and learning development in order to strengthen effectiveness, accessibility, interactivity, and educational quality. In Islamic education, this transformation must be placed within the framework of digital ethics, moral responsibility, data security, and the strengthening of Islamic values (Istibana & Aimah, 2025; Mukarromah et al., 2025; Syahda et al., 2024).

Previous studies show that transformational leadership supports more meaningful technology integration in learning. Schmitz et al. (2023) found that transformational leadership is associated with cognitively activating technology use and supportive learning practices. Further research also shows that transformational leadership strengthens teacher collaboration in technology integration. In the Indonesian context, transformational leadership has been proven to influence teacher performance and professional learning communities, thereby potentially accelerating pedagogical innovation and digital transformation in educational institutions (Roesminingsih & Windasari, 2025; Schmitz et al., 2023, 2025; Thahir et al., 2025).

These findings confirm that digital learning transformation in Islamic education requires leadership that is able to connect technology with a vision of quality. The availability of devices, platforms, and digital access does not automatically produce high-quality learning if it is not followed by changes in culture, competence, and governance. Therefore, transformational leadership functions as a driving force that directs digitalization beyond symbolic modernization toward creative, collaborative, secure, data-informed, and ethical learning transformation (McCarthy et al., 2023; Ninković et al., 2023; Tabroni & Musyaffa, 2025).

Contribution of the Four Dimensions of Transformational Leadership

The dimension of idealized influence contributes to the development of digital-ethical role modelling. Leaders in Islamic education must demonstrate integrity, trustworthiness, responsibility, and caution in the use of technology. This role modelling is reflected in the commitment to protecting students' privacy, maintaining data security, preserving academic integrity, promoting respectful digital communication, and selecting technologies that align with Islamic values. The contribution of this dimension to the quality of Islamic education lies in the formation of a digital culture that is ethical, secure, civilized, and consistent with the mission of Islamic education (Maryati, 2025; UNESCO, 2018).

The dimension of inspirational motivation contributes to the development of an Islamic digital transformation vision. Leaders should not merely instruct teachers to use technology, but must also explain why digitalization is important for improving learning quality, expanding access, strengthening educational services, and reinforcing Islamic institutional identity. A clearly communicated vision prevents digitalization from becoming sporadic and helps teachers understand that technology is a means to strengthen learning, not the final goal of education (Maryati, 2025; P. Sari et al., 2025)

The dimension of intellectual stimulation contributes to reflective digital pedagogical innovation. Digital transformation requires teachers to experiment, reflect on their teaching practices, develop digital content, use collaborative applications, and utilize learning data. In Islamic education, intellectual stimulation enables religious materials and Islamic values to be presented in more communicative, contextual, interactive, and relevant ways for the learning experiences of the digital generation (Aimicheva et al., 2025; Istibana & Aimah, 2025; Schmitz et al., 2023; Thahir et al., 2025)

The dimension of individualized consideration contributes to ensuring that digitalization is inclusive and sustainable. Not all teachers have the same level of readiness, experience, and confidence in using technology. Therefore, leaders need to map teachers' digital competence needs, provide gradual training, establish professional learning communities, conduct coaching, and offer personal support for teachers who face difficulties. This dimension is essential to ensure that digitalization does not create new inequalities but becomes an empowering process that strengthens teachers' competencies more equitably (Karulita & Set, 2025; Roesminingsih & Windasari, 2025; Schmitz et al., 2025)

Table 1. Contribution of Transformational Leadership Dimensions to Digital Learning Implementation and Islamic Education Quality Improvement

Dimension	Operational Meaning	Contribution to Digital Learning Implementation	Implication for Islamic Education Quality
Idealized influence	Digital-ethical role model	Leaders provide examples in protecting privacy, maintaining data security, preserving academic integrity, promoting respectful digital communication, and using technology responsibly.	The formation of a digital culture that is ethical, secure, civilized, and aligned with Islamic values.
Inspirational motivation	Islamic digital transformation vision	Leaders communicate the direction of digitalization, build teachers' commitment, and connect technology use with learning quality.	Strengthening change orientation, collective optimism, and Islamic institutional identity.
Intellectual stimulation	Reflective digital pedagogical innovation	Leaders encourage creative digital content, collaborative applications, learning analytics, problem-solving, and ethical AI utilization.	Improving the quality of learning processes, creativity, digital literacy, and student engagement.
Individualized consideration	Differentiated digital mentoring	Leaders map teachers' needs, provide coaching, gradual training, professional learning communities, and personal support.	Ensuring digital inclusion, equitable competence development, and the sustainability of learning transformation.

Source: Synthesized from Maryati (2025), UNESCO (2018), Pusvyta et al. (2025), Istibana and Aimah (2025), Schmitz et al. (2023), Thahir et al. (2025), Karulita and Set (2025), Roesminingsih and Windasari (2025), and Schmitz et al. (2025).

Conceptual Formulation: Values, Competence, System, and Quality Improvement

The contribution of transformational leadership to digital learning implementation can be formulated into three main aspects: values, competence, and system. The value aspect is constructed through idealized influence and inspirational motivation, which ensure that digitalization remains within the framework of Islamic ethics, digital adab, educational trust, and quality-oriented vision. The competence aspect is strengthened through intellectual stimulation and individualized consideration, which encourage teachers to develop digital literacy, content creativity, collaboration, data utilization, and readiness to face emerging technologies. Meanwhile, the system aspect is formed through the integration of the four transformational leadership dimensions that support digital policy, technology governance, data protection, collaborative culture, and evidence-based evaluation (Maryati, 2025; McCarthy et al., 2023; Tabroni & Musyaffa, 2025)

The urgency of improving the quality of Islamic education in the digital era lies in the need to transform digitalization from mere device adoption into quality transformation. The quality of Islamic education is not only measured by the use of technology, but also by the ability of institutions to produce effective learning processes, strong student character, and graduates who are able to adapt to change. Islamic education quality includes balanced dimensions of input, process, output, and outcome, integrating academic excellence, spirituality, morality, and life skills (Mubarak, 2015; Munzir, 2022; *Undang-Undang (UU) Nomor 20 Tahun 2003 Tentang Sistem Pendidikan Nasional*, 2023)

In this context, digital transformation can become an instrument for quality improvement when it is used to expand learning resources, enrich learning experiences, facilitate collaboration, improve digital literacy, and strengthen data-based decision-making. However, technology can also create new problems if it is not accompanied by ethics, data security, critical literacy, and pedagogical supervision. Therefore, the quality of Islamic education in the digital era must be built through the integration of technology, values, teacher competence, organizational culture, and accountable governance systems (Boeskens & Meyer, 2025; Husamah et al., 2025; Syahda et al., 2024).

Transformational leadership responds to this urgency because it is able to mobilize change at three levels. First, at the value level, leaders develop role modelling and a digital vision that is aligned with the Islamic mission. Second, at the competence level, leaders encourage teachers to improve digital literacy, content creativity, collaborative skills, and the use of learning data. Third, at the system level, leaders strengthen digital governance, data security, digital ethics, and organizational culture that supports sustainable innovation (Maryati, 2025; McCarthy et al., 2023; Tabroni & Musyaffa, 2025)

Thus, the contribution of transformational leadership dimensions to digital learning implementation lies in their ability to connect technology with the quality of Islamic education holistically. Idealized influence builds the foundation of digital ethics, inspirational motivation directs the vision of change, intellectual stimulation promotes instructional innovation, and individualized consideration ensures equitable competence development and the sustainability of transformation. These four dimensions form a transformational leadership framework grounded in Islamic digital values, teacher competence, and institutional system support. This framework serves as the conceptual contribution of the study by demonstrating that digital learning transformation

can improve the quality of Islamic education when it is guided by a clear vision, implemented through adequate teacher competence, supported by an effective institutional system, and regulated by Islamic ethical principles. (Boeskens & Meyer, 2025; McCarthy et al., 2023; Ninković et al., 2023; Pietsch & Mah, 2024; Zhu et al., 2025)

CONCLUSION

This study concludes that transformational leadership contributes to the implementation of digital learning for improving the quality of Islamic education. The contribution is reflected in the four dimensions of transformational leadership. Idealized influence builds digital-ethical role modelling through integrity, trustworthiness, data security, academic honesty, and respectful digital communication. Inspirational motivation strengthens an Islamic digital transformation vision by directing technology use toward learning quality, educational access, institutional service, and Islamic identity. Intellectual stimulation encourages reflective digital pedagogical innovation through creative digital content, collaborative applications, learning analytics, problem-solving, and ethical AI utilization. Meanwhile, individualized consideration ensures inclusive and sustainable digital transformation through teacher needs mapping, gradual training, coaching, professional learning communities, and personal support.

The main finding of this study is that digital learning transformation in Islamic education should not be understood merely as the adoption of devices, applications, or platforms. Digitalization becomes meaningful when it is guided by Islamic values, supported by teacher competence, and strengthened through an accountable institutional system. Therefore, the contribution of transformational leadership can be formulated into three integrated aspects: Islamic digital values, teacher digital competence, and sustainable institutional systems. These three aspects show that technology can improve the quality of Islamic education only when it is connected with ethics, pedagogy, governance, and the mission of developing knowledgeable and morally responsible learners.

This study recommends that Islamic educational institutions strengthen transformational leadership practices in digital learning transformation. Leaders need to become ethical digital role models, communicate a clear digital vision, encourage pedagogical innovation, and provide differentiated support for teachers. Future studies may empirically test this concept in madrasahs, pesantren, Islamic schools, or Islamic higher education institutions by using qualitative, quantitative, or mixed-method approaches. Further research may also examine the relationship between transformational leadership, teacher digital competence, student engagement, and measurable indicators of Islamic education quality.

REFERENCES

- Abdurrahman. (2024). Metode penelitian kepustakaan dalam pendidikan Islam. *Adabuna: Jurnal Pendidikan dan Pemikiran*. Jurnal Pendidikan Dan Pemikiran, 3, 102–113. <https://doi.org/https://doi.org/10.38073/adabuna.v3i2.1563>
- Aimicheva, G., Shaikhanova, A., Iklassova, K., Tazabekova, P., Nazyrova, A., & Kadyr, Y. (2025). Fostering Teachers' Digital Competence in AI-Supported Learning Environments: Implications for Interactive Teaching and

- Student Achievement. *Applied Sciences* 2025, Vol. 15, Page 12597, 15(23), 12597. <https://doi.org/10.3390/APP152312597>
- Boeskens, L., & Meyer, K. (2025). Policies for the digital transformation of school education: Evidence from the Policy Survey on School Education in the Digital Age. <https://doi.org/10.1787/464dab4d-en>
- Chand, S. P. (2025). Methods of Data Collection in Qualitative Research: Interviews, Focus Groups, Observations, and Document Analysis. *Advances in Educational Research and Evaluation*, 6(1), 303–317. <https://doi.org/10.25082/aere.2025.01.001>
- Hamdanah. (2025). Digital Islamic Education Management: Elementary School Principals' Strategies in Technology-Based Learning and Administration Transformation. *Auladuna: Jurnal Prodi Pendidikan Guru Madrasah Ibtidaiyah*, 7(02), 276–293. <https://doi.org/10.62097/AD.V7I02.2713>
- Husamah, Yayuk, E., Ismail, A. D., Rosyadi, A. A. ., Suwandayani, B. I., Restian, A., & Ekowati, D. W. (2025). Digitalisasi Pembelajaran: Transformasi Pendidikan Menuju Era Modern. CV Bildung Nusantara.
- Istibana, & Aimah, S. (2025). Digital transformation in Islamic education management: Challenges and opportunities in the Society 5.0 Era. *Journal of Education Management and Policy*, 1(1), 9–19. <https://ejournal.unuja.ac.id/index.php/jemp/article/download/11025/4708>
- Karulita, S., & Set. (2025). Digital Transformation in Islamic Education: Achieving Equitable Access through Digital Inclusion in the Era of Disruption. *International Conference on Education, Society and Humanity*, 03(01), 2025.
- Le, J., Hanim, A., Hamid, A., & Mansor, A. N. (2025). Transformational Leadership in Schools: A Bibliometric and Content Analysis (2000-2024). *International Journal of Educational Leadership and Management*, 13(2), 2025. <https://doi.org/10.17583/ijelm.17382>
- Maryati, S. (2025). Kepemimpinan Transformasional Kepala Madrasah dalam Meningkatkan Mutu Pendidikan Islam di Era Digital. *IQRO: Journal of Islamic Education*, 8(2), 910–920. <https://doi.org/10.24256/IQRO.V8I2.8384>
- McCarthy, A. M., Maor, D., McConney, A., & Cavanaugh, C. (2023). Digital transformation in education: Critical components for leaders of system change. *Social Sciences & Humanities Open*, 8(1), 100479. <https://doi.org/10.1016/J.SSAHO.2023.100479>
- Mubarak, F. (2015). Faktor dan Indikator Mutu Pendidikan Islam. *Management of Education: Jurnal Manajemen Pendidikan Islam*, 1(1), 10–18. <https://doi.org/10.18592/moe.V1I1.342>
- Mukarromah, A., R, A. H. A., & Manshur, U. (2025). Digital Transformation in Islamic Religious Education: Trend or Necessity in the Post-Pandemic Era. *Indonesian Journal of Education and Social Studies*, 4(1), 85–99. <https://doi.org/10.33650/IJESS.V4I1.7084>
- Munzir, M. (2022). Meningkatkan Mutu Pendidikan Islam. *Jurnal Guru Kita PGSD*, 6(4), 594. <https://doi.org/10.24114/jgk.v6i4.39903>
- Nagel, I., & Amdam, S. H. (2025). Teachers' Professional Digital Competence. *Encyclopedia* 2025, Vol. 5, Page 148, 5(3), 148. <https://doi.org/10.3390/encyclopedia5030148>
- Ninković, S., Knežević Florić, O., & Momčilović, M. (2023). Multilevel analysis of the effects of principal support and innovative school climate on the

- integration of technology in learning activities. *Computers & Education*, 202, 104833. <https://doi.org/10.1016/J.COMPEDU.2023.104833>
- OECD. (2022). *PISA 2022 Results Volume III : Creative Minds , Creative Schools: Vol. III*.
- OPSI. (2023). *Technology for an Irreversible Transformation in Indonesia's Education System - Observatorium Inovasi Sektor Publik*. <https://oecd-opsi.org/innovations/technology-for-an-irreversible-transformation-in-indonesias-education-system/?>
- Pietsch, M., & Mah, D. K. (2024). Leading the AI transformation in schools: it starts with a digital mindset. *Educational Technology Research and Development* 2024 73:2, 73(2), 1043–1069. <https://doi.org/10.1007/S11423-024-10439-W>
- Preiser, R., García, M. M., Hill, L., & Klein, L. (2021). Qualitative content analysis. *The Routledge Handbook of Research Methods for Social-Ecological Systems*, 1974, 270–281. <https://doi.org/10.4324/9781003021339-23>
- Priansa, D. J. (2025). *Menjadi Guru dan Kepala Sekolah yang Profesional*. CV Pustaka Setia.
- Roesminingsih, E., & Windasari, W. (2025). The impact of transformational leadership on teacher performance: A study of professional learning communities in Indonesia. *Journal of Pedagogical Research*, 9(3), 312–326. <https://doi.org/10.33902/JPR.202530146>
- Sari, P., Hidayah, L., Chotibuddin, M., & Nashihin. (2025). Digital Leadership In Madrasah. *MUDIR (Jurnal Manajemen Pendidikan)*, 7. <https://doi.org/https://doi.org/10.55352/mudir.v7i2.1720>
- Sari, W. D. (2025). Transforming the Islamic Education Curriculum for the Society 5.0 Era: Integrating Technology, Ethics, and Pedagogy. *AL-ISHLAH: Jurnal Pendidikan*, 17(3), 5635–5643. <https://doi.org/10.35445/ALISHLAH.V17I3.7186>
- Schmitz, M. L., Antonietti, C., Consoli, T., Cattaneo, A., Gonon, P., & Petko, D. (2023). Transformational leadership for technology integration in schools: Empowering teachers to use technology in a more demanding way. *Computers & Education*, 204, 104880. <https://doi.org/10.1016/J.COMPEDU.2023.104880>
- Schmitz, M. L., Antonietti, C., Consoli, T., Gonon, P., Cattaneo, A., & Petko, D. (2025). Enhancing teacher collaboration for technology integration: the impact of transformational leadership. *Computers & Education*, 234, 105331. <https://doi.org/10.1016/J.COMPEDU.2025.105331>
- Supriatna, A., Sunarsi, D., & Permatasari, R. I. (2025). *Buku ajar metode penelitian kualitatif*. PT Literasi Nusantara Abadi Grup. PT Literasi Nusantara Abadi Grup.
- Syahda, F. L., Nur'aisyah, Y., & Rachman, I. F. (2024). Pentingnya Pendidikan Etika Digital Dalam Konteks SDGs 2030. *Perspektif : Jurnal Pendidikan Dan Ilmu Bahasa*, 2(2), 66–80. <https://doi.org/10.59059/PERSPEKTIF.V2I2.1259>
- Tabroni, T., & Musyaffa, A. A. M. (2025). The Digitization of Madrasah Administration: Relationship between Transformational Leadership and Technology Implementation in Jambi. *AL-ISHLAH: Jurnal Pendidikan*, 17(4), 5846–5857. <https://doi.org/10.35445/alishlah.v17i4.8880>
- Thahir, I., Ampy, E. S., & Firdaus, F. (2025). Implementation of Transformational Leadership in Improving Teacher Performance in Secondary Schools. *International Journal of Educational Technology and*

- Society, 2(2), 65–75. <https://doi.org/10.61132/ijets.v2i2.372>
- Undang-undang (UU) Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional. (n.d.). Retrieved May 31, 2026, from <https://peraturan.bpk.go.id/details/43920/uu-no-20-tahun-2003?>
- UNESCO. (2018). UNESCO ICT Competency Framework for Teachers. United Nations Educational, Scientific and Cultural Organizatio. https://teachertaskforce.org/sites/default/files/2020-07/ict_framework.pdf
- Zhu, R., Alias, B. S., Hamzah, M. I. M., & Wahab, J. A. (2025). Digital Leadership in Education: a Systematic Review. *Journal of Education and Learning (EduLearn)*, 19(3), 1474–1483. <https://doi.org/10.11591/EDULEARN.V19I3.22187>