

Hybrid Humanistic Digital Leadership Driving Teacher Innovation Culture in Islamic Boarding Schools

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Abstract

The rapid development of digital technology and the complexity of educational challenges demand the presence of a contemporary leadership model that is adaptive, collaborative, and oriented towards human values. Academic institutions are required to develop leadership practices that not only integrate digital technology but also foster a culture of innovation and inclusivity among teachers. This study aims to analyze digital, transformational, and inclusive leadership practices for building a culture of innovation among teachers in Islamic boarding school-based secondary schools. This study employs a qualitative case study design conducted at SMA IT Darul Qur'an in Bogor Regency. Data were collected through in-depth interviews with school leaders and teachers, as well as through analysis of documentation related to digital-based school management practices. The results show that digital leadership plays a significant role in driving teacher innovation by strengthening a collaborative culture, integrating digital technology into management and learning, and fostering a sense of psychological security that encourages innovation. These findings confirm that effective contemporary leadership in modern Islamic boarding schools is hybrid, combining humanistic values, religious principles, and digital competencies in a sustainable manner.

Keywords: Digital leadership; Teacher innovation culture; Hybrid humanistic; Psychological safety; Islamic education

Introduction

Digital transformation has become a hallmark of contemporary education systems, changing not only how teaching and learning take place but also how educational organizations are managed. The integration of digital technology, ranging from online learning platforms to data analysis, has significantly expanded students' access to and opportunities for personalized learning (Erlangga et al., 2024). On the other hand, the rapid pace of technological change poses ongoing challenges, including infrastructure limitations, digital literacy gaps among educators, and resistance to change in institutional culture. These challenges can hinder the effective implementation of digital innovations and reduce their impact on the quality and equity of education.

Recent literature highlights that digital transformation cannot be understood merely as a technical upgrade; it also involves complex organizational, pedagogical, and social shifts that require careful leadership and strategic vision. For example, research shows that schools that adopt digital tools without adequate support structures often struggle to achieve improvements in teaching quality or management efficiency (Fajar et al., 2025).

Beyond technology adoption, the contemporary education ecosystem must address the digital divide at multiple levels: between urban and rural schools, between teachers with varying digital competencies, and between students from different socioeconomic backgrounds (Kamran, 2025). These gaps reveal systemic barriers that require not only investment in technology but also targeted professional development, policy alignment, and stakeholder collaboration. Therefore, the challenges of digital transformation in education are both technical and institutionally profound, requiring leaders who can manage this complexity without sacrificing educational values.

In response to the complexity of digital transformation, educational leadership must evolve beyond traditional administrative models toward adaptive, human-centered approaches. Adaptive leadership emphasizes flexibility in decision-making, openness to change, and responsiveness to contextual dynamics, especially in environments experiencing rapid technological shifts. The literature shows that adaptive strategies such as integrating pedagogical technology, promoting continuous professional development, and fostering a collaborative culture enable school leaders to navigate the uncertainty brought about by digitalization more effectively. For example, adaptive leadership models advocate prioritizing digital literacy among teaching staff, aligning change initiatives with institutional goals, and creating conditions that support innovation (Safitri et al., 2025). In parallel, human-oriented leadership emphasizes the importance of empathy, interpersonal relationships, and stakeholder voices in educational change. This perspective is essential in a digital context where technological tools can inadvertently diminish human roles and social connections. Research shows that leaders who adopt a humanistic orientation manage technological disruption more effectively by maintaining trust, fostering psychological safety among staff, and balancing efficiency gains with core educational values (Yaqin et al., 2023).

Further empirical and conceptual studies highlight that human-oriented leadership is associated with increased teacher motivation, greater readiness for change, and stronger stakeholder engagement—all of which are crucial for sustaining meaningful digital transformation (Tarali, 2025). Thus, adaptive and human-centered leadership collectively address both the technical demands of digital transformation and the human dimensions of educational change.

Leadership in Islamic boarding schools faces unique complexities not only because of educational goals, but also because of the combination of spiritual, cultural, and managerial responsibilities. Unlike conventional schools, boarding school leaders are expected to balance educational quality, religious values, and community expectations in an ever-changing global landscape. Research shows that principals in Islamic secondary schools face multifaceted challenges, including a lack of managerial skills such as financial management, information technology, and human resources, which are essential in the digital age. Some leadership challenges in pesantren environments include inadequate management capacity, limited collaboration among stakeholders, and insufficient support for evolving pedagogical demands in the post-pandemic era. Similarly, the pressure of digital transformation requires leaders to combine traditional values with innovation, but many Islamic boarding schools face limitations in infrastructure and teacher readiness in adopting technology (Harun et al., 2024; Huzali, 2024).

Leadership in Islamic boarding schools must also maintain religious legitimacy while meeting modern educational standards. For example, dialogical and participatory leadership models have been proposed to enhance collaboration among school communities, but obstacles such as limited digital literacy and cultural resistance remain. Further literature suggests that pesantren leaders must balance institutional integrity with external cooperation, including government policies and community expectations, which are often not well

aligned. These layered challenges highlight the urgent need for value-based adaptive leadership that can navigate spiritual goals and contemporary educational demands (Aspandi et al., 2025; Khairani et al., 2023).

Despite an increase in research on educational leadership, empirical studies that specifically focus on the integrated practice of digital, transformational, and inclusive leadership in the context of Islamic boarding school secondary education remain limited. Most of the existing literature either analyzes leadership styles separately or focuses on traditional boarding school environments, without explicitly addressing the requirements of digital transformation. For example, previous research has explored transformational leadership strategies to improve student quality in Islamic boarding schools, highlighting motivational and instructional benefits, but ignoring how such leadership interacts with digital innovation and psychological safety for teachers. Furthermore, although some studies emphasize the role of pesantren leadership in shaping culture and morals, they offer limited insights into the mechanisms through which leadership encourages teacher innovation in hybrid educational environments (Muttaqin et al., 2025; Alawiyah et al., 2024; Setiorini et al., 2024).

In response to these gaps, this study aims to analyze the digital leadership practices implemented by principals in Islamic secondary schools, investigate how transformational and inclusive leadership contribute to building a culture of innovation among teachers, and examine how contextual values (human-centered and religious principles) influence leadership strategies relevant to digital transformation. This study aims to contribute to the leadership literature by providing comprehensive insights into how pesantren leaders can align religious values with contemporary demands for innovation and collaboration, especially in a context where digital tools are increasingly essential yet culturally mediated.

Methodology

This study uses a qualitative approach with a case study design to understand digital, transformational, and inclusive leadership practices in building a culture of innovation among teachers in Islamic boarding school-based secondary schools. Case studies were chosen because this method allows for in-depth exploration of contemporary phenomena in real-life contexts, where the boundaries between phenomena and their contexts are difficult to separate, making it suitable for answering research questions of a “how” and “why” nature. Qualitative case studies are effective at capturing the complex dynamics of social practices, experiences, and participants' perceptions holistically across multiple data sources (Elva & Murhayati, 2025).

In methodological tradition, case studies are seen as an approach that allows for a “holistic understanding of the background, process, and dynamics of a social phenomenon” because they involve in-depth data collection through techniques such as interviews and document analysis. Methodological studies show that case studies are particularly suitable for exploring phenomena in their specific context, revealing trends and patterns within the boundaries of the research location and time. Case studies also offer a high degree of methodological flexibility, as they can accommodate a range of data collection techniques and data triangulation to strengthen the validity and credibility of research findings (Elva & Murhayati, 2025; Athfal, 2025; Siregar & Murhayati, 2024).

This research was conducted at SMA IT Darul Qur'an in Bogor Regency, Indonesia, as the main case site. This school was chosen for its unique characteristics as a secondary school that integrates religious values, digital management, and learning innovation, making it a relevant context for studying digital and contemporary leadership in education. Purposive sampling was used to select participants, a technique that deliberately selects informants based on their direct involvement in school leadership and innovation practices (Shrestha & Bhattarai, 2022). In qualitative research, the focus is not on statistical

representativeness but on information-rich cases. These individuals can provide in-depth information about the phenomenon under study. The main informants in this study included principals and teachers who played important roles in implementing digital policies and practices and in fostering a culture of innovation in schools. The selection of participants using purposive sampling in case studies allows the data obtained to reflect rich experiences and perceptions of daily practices in the field, thereby increasing the depth of data analysis (Sitorus, 2021).

The main data collection in this study used two complementary techniques: in-depth interviews and document analysis, to provide a rich and credible empirical description of the phenomenon under study. In-depth interviews are a qualitative data collection technique used to explore participants' perceptions, experiences, and views directly regarding leadership practices in schools. This technique allows researchers to explore subjective and contextual information and obtain in-depth personal narratives from school principals and three teachers. In-depth interviews are flexible and semi-structured, allowing participants to elaborate on their answers in greater detail while remaining focused on the core research questions (Universitas Negeri Surabaya, n.d.). Interviews were conducted on November 17, 2025, either face-to-face or online in accordance with applicable conditions and protocols, using interview guides designed to capture participants' views on digital leadership, collaboration, and learning innovation in schools.

In addition to interviews, this study uses documentation analysis as a supporting technique to enrich empirical data and facilitate triangulation. Documentation includes written evidence such as school policies, Annual Work Plans (RKT), teacher innovation activity reports, and digital artifacts that describe the use of technology in schools. Documentation analysis is essential for verifying statements obtained from interviews and for adding a more objective context to ongoing institutional practices, thereby enhancing the credibility and reliability of research findings (Susanti et al., 2024).

The collected documents were analyzed according to the main themes relevant to the research framework, including digital leadership strategies, teacher innovation, and collaborative processes among stakeholders. To ensure data validity and trustworthiness, this study applied triangulation of data sources (interviews and documentation) and systematic coding procedures during field-based thematic analysis. This technique helped to ensure that the research findings were not merely the result of subjective perceptions but were found in multiple contextual data sources in the field (Siregar & Murhayati, 2024).

Data analysis in this study used thematic analysis, a commonly used qualitative research approach to identify, organize, and report patterns (themes) that emerge from textual data, such as interviews and documents. Thematic analysis provides a systematic framework for capturing meaning and conceptual relationships in complex data, making it suitable for exploratory and interpretive research objectives. In thematic analysis, researchers organize data through several stages, starting from in-depth reading, initial coding, grouping codes into themes, and ensuring that the themes accurately reflect the observed phenomena. This process allows researchers to partially or comprehensively summarize the data as a representation of participants' perspectives (Nowell et al., 2017).

Other studies show that the steps in thematic analysis include: 1) familiarization with the data; 2) creation of initial codes; 3) search for themes from the set of codes; 4) examination of these themes; 5) definition and naming of each theme; and 6) compilation of the analysis report. These stages provide direct guidance to researchers for systematically and transparently managing and interpreting qualitative data. In addition, thematic analysis can be useful for understanding participants' subjective experiences in depth and for building interpretations that are valid and relevant to the research context. This approach emphasizes

openness to data and interpretive flexibility, allowing researchers to construct themes based on strong empirical evidence ([Mwita & Mwilongo, 2025](#); [Saunders et al., 2023](#)).

A methodological study emphasizes that, for thematic analysis to be considered credible, the analysis process must be consistent, well-documented, and demonstrate how the emerging themes relate to the research questions and study objectives. This includes the researcher's ability to select and define themes and make traceable analytical decisions (audit trail). In qualitative research, trustworthiness replaces the concepts of validity and reliability from quantitative research and includes four main criteria: credibility, dependability, confirmability, and transferability. These four criteria serve to ensure that the research findings are credible, consistent, and meaningful in the context being studied. Credibility is achieved through data triangulation between interviews and documentation to verify the consistency of information across sources. Dependability and confirmability are reinforced by detailed documentation of all procedures and methodological decisions made during the research, enabling other researchers to reconstruct the analysis process. Transferability is achieved through rich contextual descriptions, enabling readers to assess the extent to which the findings apply to similar contexts ([Malik et al., 2025](#)).

In addition, the importance of trustworthiness is supported by the researcher's sustainability practices and reflective awareness, whereby the researcher consistently examines and questions assumptions, biases, and data interpretation processes. Articles on the quality of qualitative research explain that trustworthiness can also be enhanced through researcher self-reflection (reflexivity) and active engagement with the data, so that the experiences and contexts of participants are respected throughout the analysis process ([Sugara, 2018](#)). Ethical considerations are an integral part of qualitative research to ensure that the research process respects participants' rights, values, and dignity. Research ethics include informed consent, where informants are given a complete explanation of the purpose, procedures, risks, and benefits of the research before participating. In addition, researchers guarantee the confidentiality of participants' identities and data and ensure that the data is only used for research purposes. In the context of faith-based educational research, such as Islamic boarding schools, cultural sensitivity and respect for religious values and practices must be given special attention in communication and interaction with participants. Ethical research holds that moral principles in scientific research are not limited to formal procedures but also include responding to social responsibility and respecting participants' human rights, reflecting the academic integrity that must be maintained ([Hidayati & Jailani, 2025](#)).

Results and Discussion

Digital Leadership as an Enabler of Collaborative School Culture

The findings of this study indicate that the principal of SMA IT Darul Qur'an actively promotes digital leadership practices that involve not only mastery of digital tools but also the development of a collaborative culture among teachers. Effective digital leadership involves integrating a strategic digital vision with collaborative practices that involve the entire school community. Digital leadership is understood as a driver of innovation that integrates digital communication, task coordination, and collaborative learning, thereby creating a broader space for reflection among teachers and school management. This approach is also reflected in contemporary educational leadership studies, which emphasize the importance of technology integration in strengthening a collaborative culture in schools ([Daniah & Priyono, 2025](#); [Fernández-Batanero et al., 2022](#)).



Fig 1. The Principal is Giving Instructions at the In-House Training for Teachers at Darul Qur'an IT High School

Empirically, school principals reported that teacher collaboration has intensified since the adoption of internal digital platforms for coordination. For example, teachers use online groups and learning management platforms to plan joint learning activities, share learning resources, and collectively evaluate pedagogical practices. One teacher noted that “this digital discussion space makes it easier for us to share teaching strategies, evaluations, and reflections without time or physical space constraints,” suggesting that digital leadership fosters a more dynamic and inclusive professional learning community. Other studies reinforce these findings, showing that proactive leadership in the use of digital technology builds a school culture that is oriented towards innovation, collaboration, and shared learning rather than merely the use of digital tools.

Furthermore, the established collaboration reflects the working mechanisms of a community of practice, in which teachers interact, share experiences, and provide continuous feedback. In the context of digital transformation, this kind of collaboration enables teachers to support one another as they face the challenges of integrating technology into the classroom. Previous research has suggested that digital-based learning communities can accelerate the adaptation of educational technology and facilitate the widespread adoption of best practices, as teachers feel supported and heard by their peers and school leaders. This shows that collaborative practices initiated by digital leadership increase professional engagement and commitment to developing modern pedagogy (Nugroho et al., 2025).

In addition, digital leadership that strengthens school collaboration also contributes to the development of a learning culture more open to change and new ideas. School principals not only provide technology but also encourage teachers to lead one another in professional communities through practice-sharing, peer mentoring, and cross-subject projects. This approach aligns with findings in basic education, where intra-school empowerment through digital collaboration has been shown to strengthen learning innovation by supporting structures for experience sharing, collective reflection, and team support (Voogt & Knezek, 2021).



Fig 2. School Principal's Digital Leadership Through Engaging Educational Technology Experts to Strengthen Collaborative and Innovative School Culture.

Discussion of these findings shows that digital leadership focuses not only on adopting technology as a tool, but also on using it to build social and cultural structures that enable sustainable collaborative work. Teacher collaboration, supported by the role of digital leaders, is an important foundation for driving learning innovation, as technology expands teachers' capacity to learn together, provide mutual feedback, and design educational practices that are more responsive to students' needs. This model shows that successful digital transformation in schools is not merely an infrastructure improvement, but a change in culture and social relationships that encourages productive collaboration ([Bush, 2007](#); [Rasdiana et al., 2024](#)).

Integration of Digital Technology in School Management and Teaching Practices

The findings show that SMA IT Darul Qur'an has implemented a digital-based school management system as part of its institutional governance strengthening strategy. This system supports school program planning, academic data management, and internal coordination among administrators and teachers. This digitization allows managerial processes to run more systematically and be well-documented, thereby reducing dependence on manual mechanisms that have the potential to be inefficient. These findings align with the view that digital transformation in school management plays an important role in improving the effectiveness of educational organizations through integrated information systems. Digitization also covers non-academic administration, such as teacher attendance management, activity reporting, and communication with school stakeholders. This practice shows that technology is used as an instrument to support institutional accountability and transparency. A national study by Sulisty and Fitria reinforces this finding, stating that schools that implement digital management systems tend to have more responsive governance and are open to continuous evaluation ([Tondeur et al., 2024](#); [Ahyani & Dhuhani, 2024](#)).

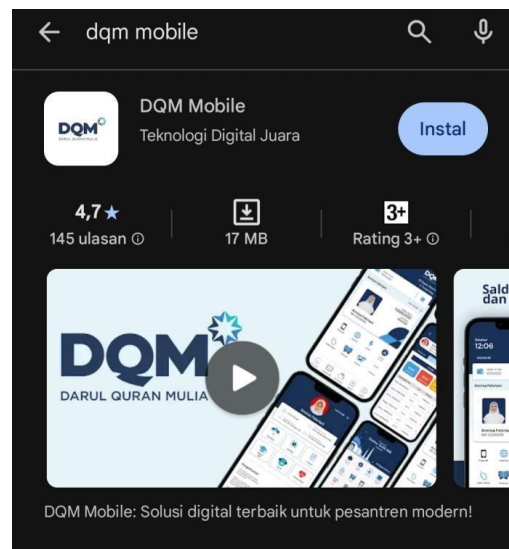


Fig 3. The Academic Information System and Management Application for SMA IT Darul Qur'an is Available on the Play Store.

In the context of learning, schools have integrated learning management systems (LMS) and various digital platforms as the main means of managing learning. Teachers use LMS for distributing materials, assessing students, and providing feedback, while digital communication platforms are used for academic discussions and learning assistance. This integration expands the learning space and enables flexible and well-documented learning. Previous research confirms that the systematic use of LMS contributes to improving the quality of learning and student engagement when supported by proactive school leadership. Furthermore, the use of digital media encourages the transformation of teachers' pedagogical practices from conventional approaches to more interactive, student-centered learning. Teachers no longer act solely as conveyors of material, but also as facilitators of learning. This aligns with Fitriyadi's findings, which state that integrating technology into secondary school learning increases student engagement and supports a variety of pedagogical strategies for teachers (Al-Fraihat et al., 2020; Kusuma et al., 2025; Shafa, 2024; Shafa, 2025).

Interview data shows that teachers view digital technology as a key tool in improving work and learning effectiveness. One teacher stated, "With the digital system, it is easier for us to monitor student progress and coordinate with leaders quickly and transparently." This statement indicates that technology not only facilitates technical aspects but also strengthens professional connections among school members. These findings reinforce studies indicating that teachers' positive perceptions of technology are closely correlated with leadership support and the clarity of the digital systems implemented (Scherer, 2025).

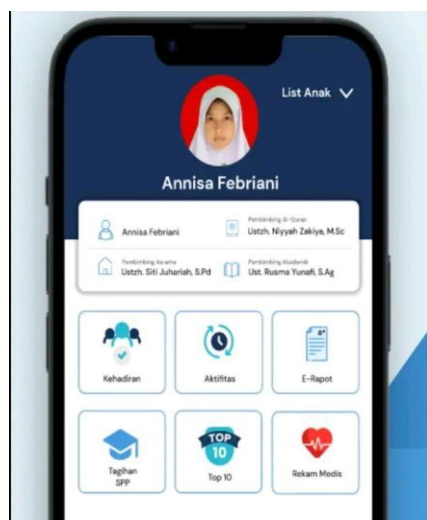


Fig 4. The Academic Menu Display on the Academic Information System SMA IT Darul Qur'an

From a theoretical perspective, integrating digital technology into school management directly increases organizational efficiency and transparency. Digital systems enable accurate documentation, systematic performance tracking, and information disclosure for all stakeholders. These conditions create a more accountable and responsive organizational climate. The literature confirms that schools that successfully digitize management tend to have leadership structures that support innovation and cross-role collaboration (Ghofur & Rachma, 2021; Shobri, 2024; Wahono, 2024).

In addition to managerial efficiency, the integration of digital technology also has an impact on improving the quality of learning through more structured, interactive, and data-driven learning. These findings are consistent with international studies that show that digital technology can improve learning outcomes when integrated pedagogically, not just technically. Compared with previous research, this study's findings confirm that the success of meaningful technology integration is highly dependent on school leadership's alignment of technology with learning objectives and organizational culture. In the context of pesantren-based schools, technology serves as a tool to support institutional values without eliminating the humanistic and religious character of education (Entriza & Puspitasari, 2025; Suhrah et al., 2026).

Psychological Safety as a Driver of Teacher Innovation

Empirical findings show that teachers at IT Darul Qur'an High school students feel a relatively high level of psychological safety in trying new learning approaches. Teachers feel they have room to innovate without worrying about negative judgments or personal consequences when pedagogical experiments fail to produce optimal results. This condition reflects a work environment that supports constructive professional risk-taking. The literature mentions that psychological safety is an important prerequisite for innovative behavior, especially in professions that require reflection and continuous learning, such as teaching (Edmondson & Lei, 2014; Uguy et al., 2025).

In addition, school leadership support for pedagogical experiments is evident through trust and recognition of teacher initiatives. Teachers are encouraged to adapt innovative learning technologies and methods to their respective classroom contexts. This support increases teachers' intrinsic motivation to innovate. These findings align with studies that confirm that leadership support plays a significant role in strengthening teachers' sense of security and professional courage (Edmondson & Mogelof, 2006; Alikutty, 2023).



Fig 5. The Principal Not Only Monitors Teachers' Competencies but Also Their Psychological Aspects.

Leadership practices that support psychological safety in schools are demonstrated through a dialogical and empathetic leadership style. School leaders actively open up discussion spaces, listen to teachers' aspirations, and involve teachers in decision-making related to learning. This approach strengthens interpersonal relationships and creates an inclusive work climate. Previous research shows that dialogic leadership contributes directly to increased psychological safety and work engagement ([Carmeli et al., 2010](#); [Bush, 2020](#); [Hirak et al., 2012](#)).

In addition, the school culture shows an open attitude towards mistakes as part of the learning process and professional reflection. Pedagogical mistakes are not seen as individual failures, but as opportunities for learning together. This culture strengthens teachers' courage to try new approaches. Organizational literature confirms that tolerance for mistakes is a key characteristic of a psychologically safe and innovative work environment ([Hirak et al., 2012](#)).

Interview excerpts show that teachers feel real support from school leaders in the innovation process. One teacher stated, "We are given the confidence to try new methods, and if they are not yet successful, we are invited to reflect together." This statement reflects teachers' subjective experiences of psychological safety at work. Previous studies confirm that this subjective experience is key to the emergence of individual creativity and innovation ([Kahn, 1990](#)).

Teachers also view leadership support as boosting their confidence in innovating. This positive perception strengthens teacher engagement in the development and collaboration of technology-based learning. These findings are consistent with research showing that leadership support and a safe psychological climate contribute to professional courage and innovative performance ([Elsayed et al., 2023](#)).



Fig 6. The Author Observed Innovation Activities in Hybrid Learning Conducted by One of The Teachers at SMA IT Darul Qur'an.

Theoretically, this study's findings position psychological safety as a mediating factor between digital leadership and teacher innovation. Participatory and inclusive digital leadership creates a psychologically safe work environment that then encourages teachers to dare to innovate. This mediation model aligns with contemporary research, which suggests that leadership's influence on innovation often operates through individual and group psychological mechanisms (Afsar et al., 2014).

Humanistic and Religious Values in Hybrid Digital Leadership

Digital leadership in Islamic boarding school-based secondary schools cannot be separated from the integration of religious values that shape the moral and ethical orientation of leadership. Leadership practices do not focus solely on technological effectiveness but also uphold trust, justice, and social responsibility as core values of Islam.education. This approach aligns with the view that value-based educational leadership contributes significantly to leaders' moral legitimacy and organizational trust. The moral exemplary nature of leaders also emerges as an important aspect in building a humanistic leadership climate. Teachers interpret effective leadership not only in terms of digital skills, but also in terms of consistent ethical behavior and sensitivity to spiritual and human dimensions. This reinforces previous findings that ethical and moral leadership is strongly correlated with teacher commitment and engagement (Copeland, 2014; Bush & Glover, 2014; Ali et al., 2021; Kelantan & Ya'acob, 2021).



Fig. 7. Humanistic-Digital Hybrid Leadership at SMA IT Darul Qur'an Empowers Teachers as Future Leaders Who Can Guide, Nurture, and Support Their Colleagues through Value-Based Practices Supported by Technology

The results of the study show that technology is positioned as a supporting instrument for leadership, not as the main goal of organizational change. School leaders consciously adopt technology to strengthen communication and coordination without eliminating interpersonal relationships and a dialogical approach. This view aligns with the digital leadership literature, which emphasizes that technology should serve pedagogical and humanistic purposes, not replace them. The value-based leadership approach is also reflected in efforts to maintain a balance between digital innovation and teacher well-being. School leaders avoid technocratic approaches that can cause digital fatigue and instead choose empathetic, context-based transformation strategies. This reinforces the argument that humanistic leadership is a key factor in the success of digital transformation in education (Oğuz, 2025; Azorín & Fullan, 2022; Hargreaves, n.d.).

School leaders emphasize that Islamic values serve as a normative foundation for every digital policy, especially in maintaining the intention, ethics, and sustainability of change. This view reinforces the concept

of spiritual leadership, which holds that transcendental values serve as a guide for organizational action. Meanwhile, teachers perceive humanistic leadership as a factor that fosters a sense of professional value and support. This perception aligns with research showing that empathetic leadership increases psychological safety and teachers' readiness to innovate (Javed et al., 2023; Kreiling et al., 2020).

These findings confirm the emergence of a hybrid humanistic-digital leadership model in pesantren-based schools, where technology and religious values are not positioned in a dichotomous manner but rather reinforce each other. This model expands the digital leadership framework, which has tended to be technologically oriented, by incorporating dimensions of ethics, spirituality, and social relations. The contribution of these findings to the literature on value-based leadership lies in the assertion that the effectiveness of digital leadership in religious education is largely determined by the leader's ability to balance technological innovation and moral exemplarity. Thus, digital leadership in faith-based schools requires a contextual and value-based approach (Khalifa et al., 2016; Al Jufri & Kusumawati, 2024; Dantley, 2005).

Digital leadership catalyzes the formation of a collaborative culture, which in turn creates psychological safety and encourages teacher innovation. This flow reinforces the organization-based innovation model, which positions psychological safety as a key prerequisite for learning and professional creativity, by adding humanistic and religious dimensions as contextual factors that strengthen teacher innovation. These findings address the limitations of previous studies, which tended to generalize digital leadership without considering the context of values and culture. Islamic boarding school-based secondary school leaders can develop digital leadership that is oriented towards values, relationships, and teacher welfare. This hybrid approach has the potential to become a contextual leadership model in facing the challenges of sustainable digital transformation in education (Schaufeli, 2021; Leithwood et al., 2020).



Fig 8. The Impact of Humanistic-Digital Hybrid Leadership in SMA IT Darul Qur'an in Utilizing Technology to Strengthen Collaborative Culture and Support Collective Professional Growth Among Teachers.

Conclusion

This study concludes that digital leadership plays a pivotal role in fostering a culture of innovation among teachers in Islamic secondary schools. The findings demonstrate that effective digital leadership strengthens collaborative school culture, enables the meaningful integration of digital technology in school management and teaching practices, and creates psychological safety that encourages teachers to experiment and innovate. These interconnected elements collectively support sustainable teacher innovation within faith-based educational contexts. Furthermore the study confirms the emergence of a hybrid humanistic–digital leadership

model in modern Islamic boarding school-based secondary education. This model integrates technological competence with humanistic and religious values, emphasizing ethical leadership, empathy, and moral exemplarity alongside digital transformation. Such a leadership approach ensures that technological advancement does not undermine the spiritual and human dimensions of education, but rather reinforces them in a balanced and contextual manner.

From a practical perspective, the findings offer important implications for school leaders. Educational leaders are encouraged to adopt digital leadership strategies that prioritize collaboration, open communication, and psychological safety while aligning technological initiatives with institutional values. In Islamic secondary schools, school leaders should consciously position technology as a supportive tool rather than an end in itself, ensuring that digital innovation enhances both instructional quality and teacher well-being.

Finally, this study provides directions for future research. Further studies may explore the application of hybrid humanistic–digital leadership models in different educational contexts, employ longitudinal designs to examine long-term impacts on teacher innovation, or integrate mixed-method approaches to strengthen generalizability. Expanding comparative studies across faith-based and non-faith-based schools would also enrich understanding of how contextual values shape digital leadership practices in education.

References

- Afsar, B., Badir, Y., & Bin Saeed, B. (2014). Transformational leadership and innovative work behavior. *Industrial Management & Data Systems*, 114(8), 1270–1300. <https://doi.org/10.1108/IMDS-05-2014-0152>
- Ahyani, E., & Dhuhani, E. M. (2024). Transformasi digital dalam manajemen perkantoran pendidikan: Sebuah kajian literatur. *Visioner: Jurnal Penelitian dan Pengembangan di Bidang Administrasi Pendidikan*, 12(1), 205. <https://doi.org/10.33394/vis.v12i1.10785>
- Al Jufri, H., & Kusumawati, E. (2024). Evolutionary studies in imaginative culture. *Strategic Planning in Education: A Bibliometric Analysis*, 8(1), 1815–1829. <https://doi.org/10.70082/esiculture.vi.1597>
- Alawiyah, T., Tutty, A., Rosa, R., & Gaffar, A. (2024). Transformational leadership in Islamic boarding schools: Strategies for improving student quality. *Edukasi Islami: Jurnal Pendidikan Islam*, 12(4), 653–660. <https://doi.org/10.30868/ei.v12i04.8143>
- Al-Fraihat, D., Joy, M., Masa'deh, R., & Sinclair, J. (2020). Evaluating e-learning systems success: An empirical study. *Computers in Human Behavior*, 102, 67–86. <https://doi.org/10.1016/j.chb.2019.08.004>
- Ali, H., Hafeez, M., & Hussain, B. (2021). Head teachers' ethical leadership behaviours and teachers' motivation: A correlational study at elementary level.
- Alikutty, N. A. B. (2023). *The influence of psychosocial climate on psychosocial safety behavior: A study among secondary school teachers*.
- Aspandi, A., Nuansah, U., Mima, N. L. F., Zalil, M. A., & Saepudin. (2025). Dialogic leadership in managing Islamic boarding schools for the digital generation. *Al-Tanzim: Jurnal Manajemen Pendidikan Islam*, 9, 1217–1230.
- Athfal, Q. L. (2025). *Desain penelitian studi kasus dalam metodologi kualitatif*.
- Azorín, C., & Fullan, M. (2022). Leading new, deeper forms of collaborative cultures: Questions and pathways. *Journal of Educational Change*, 23(1), 131–143. <https://doi.org/10.1007/s10833-021-09448-w>
- Bush, T. (2007). Educational leadership and management: Theory, policy and practice. *South African Journal of Education*, 27(3), 391–406.
- Bush, T. (2020). Theories of educational leadership and management.
- Bush, T., & Glover, D. (2014). School leadership models: What do we know? *School Leadership & Management*, 34(5), 553–571. <https://doi.org/10.1080/13632434.2014.928680>

- Carmeli, A., Reiter-Palmon, R., & Ziv, E. (2010). Inclusive leadership and employee involvement in creative tasks in the workplace: The mediating role of psychological safety. *Creativity Research Journal*, 22(3), 250–260. <https://doi.org/10.1080/10400419.2010.504654>
- Copeland, M. K. (2014). The emerging significance of values-based leadership: A literature review. *International Journal of Leadership Studies*, 8(2), 105–135.
- Daniah, N., & Priyono, P. (2025). Digital leadership dalam pendidikan: Tinjauan literatur tentang inovasi dan pengelolaan sekolah. *Jurnal Intelek Insan Cendikia*, 2(9), 16161–16170. <https://jicnusantara.com/index.php/jiic/article/view/4975>
- Dantley, M. (2005). Faith-based leadership: Ancient rhythms or new management. *International Journal of Qualitative Studies in Education*, 18(1), 3–19. <https://doi.org/10.1080/09518390412331318423>
- Edmondson, A. C., & Lei, Z. (2014). Psychological safety: The history, renaissance, and future of an interpersonal construct. *Annual Review of Organizational Psychology and Organizational Behavior*, 1, 23–43. <https://doi.org/10.1146/annurev-orgpsych-031413-091305>
- Edmondson, A. C., & Mogelof, J. P. (2006). Explaining psychological safety in innovation teams: Organizational culture, team dynamics, or personality?
- Elsayed, A. M., Zhao, B., Goda, A. E., & Elsetouhi, A. M. (2023). The role of error risk taking and perceived organizational innovation climate in the relationship between perceived psychological safety and innovative work behavior: A moderated mediation model. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2023.1042911>
- Elva, S. H. Y., & Murhayati. (2025). Penelitian studi kasus kualitatif. *Jurnal Pendidikan Tambusai*, 9(2), 13087–13098. <https://doi.org/10.31004/jptam.v9i2.27066>
- Entriz, A. N., & Puspitasari, F. (2025). Studi literatur: Integrasi teknologi informasi dalam pelatihan guru sebagai upaya meningkatkan kualitas pembelajaran. *Jurnal Kependidikan Islam*, 15(1), 62–73. <http://ejournal.radenintan.ac.id/index.php/idaroh>
- Erlangga, I. S., Tarigan, F. P. P., Ternasih, L., & Umar. (2024). Digital transformation in education: Challenges and opportunities in the modern era. *International Journal of Teaching and Learning*, 2(12), 3251–3260.
- Fajar, C., Hartanto, B., Judijanto, L., Rangkuti, Z., & Hasbi, M. (2025). The role of digital transformation in educational management: Innovation, challenges, and its impact on school quality. *Journal of Hunan University Natural Sciences*, 52(10). <https://jonuns.com/index.php/journal/article/view/1818/1810>
- Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & García-Martínez, I. (2022). Digital competences for teacher professional development: Systematic review. *European Journal of Teacher Education*, 45(4), 513–531. <https://doi.org/10.1080/02619768.2020.1827389>
- Ghofur, E. A., & Rachma, A. (2021). Persepsi guru terhadap pembelajaran menggunakan kelas digital. *EduTeach*, 2(1), 56–65. <https://doi.org/10.37859/eduteach.v2i1.2365>
- Hargreaves, A. (n.d.). *Understanding teacher leadership in educational change*.
- Harun, Z., Ghani, M. F. A., & Muhith, A. (2024). Leadership within Islamic secondary school: A study towards principals' challenges. *JIEMAN: Journal of Islamic Educational Management*, 6(1), 87–117. <https://doi.org/10.35719/jieman.v6i1.213>
- Hidayati, Z. R., & Jailani, S. (2025). Analisis prinsip etika penelitian sebagai landasan moral dalam karya ilmiah: Perspektif etika akademik di perguruan tinggi Indonesia. *Takuana: Jurnal Pendidikan, Sains, dan Humaniora*, 4(3), 541–550. <https://doi.org/10.56113/takuana.v4i3.196>
- Hirak, R., Peng, A. C., Carmeli, A., & Schaubroeck, J. (2012). Linking leader inclusiveness to work unit performance: The importance of psychological safety and learning from failures. *The Leadership Quarterly*, 23(1), 107–117. <https://doi.org/10.1016/j.leaqua.2011.11.009>
- Huzali, I. (2024). Strategi kepemimpinan dalam manajemen pendidikan pesantren di era digital: Leadership strategies in Islamic boarding school education management in the digital era. *Proceedings of the International Conference on Educational Management*, 2, 37–53.

- Javed, H. A., Khan, N. A., Michalk, S., Khan, N. U., & Kamran, M. (2023). High-performance work system and innovation capabilities: The mediating role of intellectual capital. *Administrative Sciences*, 13(23), 1–19. <https://doi.org/10.3390/admsci13010023>
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692–724.
- Kamran, M. (2025). Educational leadership in a digital era: Navigating challenges and opportunities. *AL-ĪMĀN Research Journal*, 3(1), 188–199. <https://doi.org/10.63283/54wxa275>
- Kelantan, Y. I., & Ya'acob. (2021). *Amalan murabbi sebagai mediator bagi kepemimpinan Islam terhadap identiti guru*.
- Khairani, M., Maisah, & Anwar Us, K. (2023). Islamic boarding school leaders' policy analysis in raising the standard of Islamic education in Jambi Province. *International Journal of Islamic Education Research and Multiculturalism*, 5(1), 213–242. <https://doi.org/10.47006/ijterm.v5i1.230>
- Khalifa, M. A., Gooden, M. A., & Davis, J. E. (2016). Culturally responsive school leadership: A synthesis of the literature. *Review of Educational Research*, 86(4), 1272–1311. <https://doi.org/10.3102/0034654316630383>
- Kreiling, L., Servat, S., Peres, R., & Bounfour, A. (2020). University technology transfer organizations: Roles adopted in response to their regional innovation system stakeholders. *Journal of Business Research*, 119, 218–229.
- Kusuma, N. F., Haerunisa, N., Harahap, A. T., Zainiza, M., Fazira, A., Hastuti, S., ... Amin. (2025). *Best practice pembelajaran abad 21*.
- Leithwood, K., Harris, A., & Hopkins, D. (2020). Seven strong claims about successful school leadership revisited. *School Leadership & Management*, 40(1), 5–22. <https://doi.org/10.1080/13632434.2019.1596077>
- Malik, R., Susanti, R., Hidir, A., & Universitas Sumatera Utara. (2025). Triangulasi dan analisis domain: Meningkatkan kredibilitas dan kedalaman penelitian kualitatif. *KAMBOTI: Jurnal Sosial dan Humaniora*, 6(1), 33–41. <https://doi.org/10.51135/kambotiv6issue1page33-41>
- Muttaqin, Z., Tarihoran, E., & Nugraha, E. (2025). Leadership style management in Islamic boarding school: Meta-analysis and systematic review. *International Journal of Economics, Education and Entrepreneurship*, 5(1), 54–67. <https://doi.org/10.53067/ije3.v5i1>
- Mwita, K., & Mwilongo, N. (2025). Thematic analysis of qualitative research data: A seven-step guide. *Eminent Journal of Business Management*, 1(1), 51–59. <https://doi.org/10.70582/4ajw7k14>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1–13. <https://doi.org/10.1177/1609406917733847>
- Nugroho, S., Suranto, W., & Rohmah, W. (2025). Peran kepemimpinan pembelajaran dalam optimalisasi media digital berbasis komunitas belajar di SMP Birrul Walidain Muhammadiyah Plupuh. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 10(4), 439–451. <https://doi.org/10.23969/jp.v10i04.36500>
- Oğuz, G. Ü. R. B. Ü. Z. (2025). *Digital leadership in educational organizations*.
- Rasdiana, Nurhadi, T., Akbar, M. I. B., Salim, F. A., Novitasari, A. T., Cholidah, R. N., Susanto, K., Ma'rifatin, S., Rawe, N. S. H. A., Paranoan, C. A. C., Sartika, R. P., Kadju, M. D. P., & Habibah, L. B. (2024). The effect of digital leadership in nurturing teachers' innovation skills for sustainable technology integration mediated by professional learning communities. *Journal of Infrastructure, Policy and Development*, 8(10), Article 8480. <https://doi.org/10.24294/jipd.v8i10.8480>
- Safitri, I., Wahyuni, A. S., Permatasari, I., Mualimin, S., & Suzara, D. (2025). Model kepemimpinan adaptif di era digital: Tinjauan sistematis terhadap strategi kepala sekolah dalam menghadapi perubahan. *Journal of Innovation in Teaching, Instruction, and Media*, 6(1), 215–238. <https://doi.org/10.52690/jitim.v6i1.1146>
- Saunders, C. H., Sierpe, A., von Plessen, C., Kennedy, A. M., Leviton, L. C., Bernstein, S. L., Goldwag, J., King, J. R., Marx, C. M., Pogue, J. A., Saunders, R. K., Van Citters, A., Yen, R. W., Elwyn, G., & Leyenaar, J. K. (2023). Practical thematic analysis: A guide for multidisciplinary health services

- research teams engaging in qualitative analysis. *BMJ*, 381, e074256. <https://doi.org/10.1136/bmj-2022-074256>
- Schaufeli, W. B. (2021). Engaging leadership: How to promote work engagement? *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.754556>
- Scherer, R. (2025). Is the technology acceptance model just old wine in new wineskins? Exploring issues for further model development. *Journal of University Teaching and Learning Practice*, 21(8).
- Setiorini, R., Aimah, S., & Fakhruddin, F. M. (2024). Transformation of pesantren organizational culture: Strategies for pesantren to become centers of innovation in the digital era. *Leadership: Jurnal Mahasiswa Manajemen Pendidikan Islam*, 6(1), 1–11. <https://doi.org/10.32478/leadership.v6i1.2879>
- Shafa, A. A. (2024). Implementasi learning management system dalam meningkatkan efektivitas pembelajaran. *Jurnal Teknologi Pendidikan*, 1(4), 8. <https://doi.org/10.47134/jtp.v1i4.658>
- Shafa, A. A. (2025). Pemanfaatan learning management system (LMS) untuk meningkatkan efektivitas pembelajaran. *Jurnal Teknologi Pendidikan dan Pembelajaran*, 3(1), 27–34.
- Shobri, M. (2024). Peran sistem informasi manajemen pendidikan dalam meningkatkan transparansi dan akuntabilitas di lembaga pendidikan Islam. *AKSI: Jurnal Manajemen Pendidikan Islam*, 2(2), 78–88. <https://doi.org/10.37348/aksi.v2i2.302>
- Shrestha, P., & Bhattarai, P. (2022). Application of case study methodology in the exploration of inclusion in education. *American Journal of Qualitative Research*, 6(1), 73–84. <https://doi.org/10.29333/ajqr/11461>
- Siregar, A. Y., & Murhayati. (2024). Metodologi studi kasus dalam penelitian kualitatif: Kajian konsep, desain, dan manfaatnya. *Jurnal Pendidikan Tambusai*, 8(3), 45305–45314.
- Sitorus, S. L. (2021). Qualitative method (Case study research). *Journal of Communication Education*, 15(1), 20–29. <https://doi.org/10.58217/joce-ip.v15i1.224>
- Sugara, G. S. (2018). Kualitas dan keterpercayaan penelitian kualitatif dalam bimbingan dan konseling. *Jurnal Fokus Konseling*, 4(1), 79. <https://doi.org/10.26638/jfk.514.2099>
- Suhrah, S., Yasril, N., Rahasmi, D., & Idris. (2026). Transformasi pembelajaran berbasis teknologi digital terhadap capaian akademik siswa: Tinjauan literatur pendidikan. *Al-Irsyad Journal of Education Science*, 5(1), 536–548. <https://doi.org/10.58917/ajjes.v5i1.700>
- Susanti, A., Khoiri, A., Mutmainah, K., Khanifa, N. K., & Romandhon, R. (2024). Peningkatan literasi dan numerasi siswa SMP Negeri 5 Watumalang. *Jurnal Pengabdian Siliwangi*, 10(1). <https://doi.org/10.37058/jspmm.v10i1.12702>
- Tarali, M. (2025). Educational leadership in the digital era: Challenges and prospects. *International Journal of Research and Innovation in Social Science*, 4793–4796. <https://doi.org/10.47772/IJRISS.2025.908000385>
- Tondeur, P., Howard, S., Van Zanten, M., & Gorissen, P. (2024). *Digital transformation of higher education in modern conditions*. Conference paper.
- Uguy, F. C. A., Sinaga, Z. V., Fitri, N. K., Ardiningrum, N. A., & Mangundjaya, W. L. (2025). Peran keamanan psikologis (*psychological safety*) terhadap pengembangan inovasi. *Jurnal Komunikasi dan Ilmu Sosial*, 2(4), 170–179. <https://doi.org/10.38035/jkis.v2i4.1521>
- Universitas Negeri Surabaya. (n.d.). *Jenis-jenis instrumen penelitian case study (Studi kasus): Definisi dan pelaksanaannya*. Program Studi S2 Pendidikan Bahasa dan Seni, Universitas Negeri Surabaya.
- Voogt, J., & Knezek, G. (2021). Learners and learning contexts: International perspectives on new alignments for the digital age. *Educational Technology Research and Development*, 69(4), 2083–2089. <https://doi.org/10.1007/s11423-021-09985-4>
- Wahono, H. T. T. (2024). Sistem informasi manajemen dalam meningkatkan transparansi dan akuntabilitas. *Paradigma: Jurnal Filsafat, Sains, Teknologi, dan Sosial Budaya*, 30(4), 98.
- Yaqin, A., Rimadani, E., Adawiyah, R. A., Susiari, R., & Thohirin. (2023). Kepemimpinan humanis di tengah disrupsi teknologi pendidikan. *Journal of Education: Jurnal Manajemen Pendidikan*, 2(2), 58–67. <https://journal.univgresik.ac.id/index.php/je/article/view/673>