

## THE ROLE OF THE PRINCIPAL'S DIGITAL LEADERSHIP IN DECISION MAKING

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### Abstract

This study aims to examine the digital leadership practices of madrasah principals in digital-based decision making and their implications for the effectiveness of management and learning quality at Madrasah Tsanawiyah Sains Salahuddin Wahid Jombang. The research employs a qualitative approach with a case study design. Data were collected through in-depth interviews, participatory observation, and document analysis. Data analysis was conducted interactively and continuously through data condensation, data display, and conclusion drawing. The findings indicate that the madrasah principal implements digital leadership through four main roles: innovator and agent of digital change, role model for educators and education staff, facilitator of digital collaboration, and technology-based performance supervisor. Digital decision-making strategies are carried out through data-based open discussions, multi-platform communication, and structured capacity building programs. The implementation of this digital leadership has a significant impact on improving the madrasah's operational efficiency, learning quality, organizational culture change towards digital literacy, as well as policy transparency and accountability.

**Keywords:** digital leadership, principal, digital-based decision making, digital transformation, Islamic educational leadership

### Abstrak

Penelitian ini bertujuan mengkaji praktik kepemimpinan digital kepala madrasah dalam pengambilan keputusan berbasis digital serta implikasinya terhadap efektivitas pengelolaan dan mutu pembelajaran di Madrasah Tsanawiyah Sains Salahuddin Wahid Jombang. Pendekatan yang digunakan adalah kualitatif dengan desain studi kasus. Data dikumpulkan melalui wawancara mendalam, observasi

partisipatif, dan analisis dokumentasi. Analisis data dilakukan secara interaktif dan berkesinambungan melalui tahap kondensasi data, penyajian data, serta penarikan kesimpulan. Hasil penelitian menunjukkan bahwa kepala madrasah menjalankan kepemimpinan digital melalui empat peran utama: inovator dan agen perubahan digital, teladan bagi pendidik dan tenaga kependidikan, fasilitator kolaborasi digital, serta supervisor kinerja berbasis teknologi. Strategi pengambilan keputusan digital dilakukan melalui diskusi terbuka berbasis data, komunikasi multi-platform, dan program capacity building terstruktur. Implementasi kepemimpinan digital ini berdampak signifikan terhadap peningkatan efisiensi operasional madrasah, kualitas pembelajaran, perubahan budaya organisasi menuju literasi digital, serta transparansi dan akuntabilitas kebijakan.

**Kata Kunci:** digital leadership, kepala sekolah, pengambilan keputusan berbasis digital, transformasi digital, kepemimpinan pendidikan Islam.

## A. INTRODUCTION

The profile of a school principal is a crucial figure for the progress of an educational institution. Currently, principals are required to understand global changes in education, particularly the development of digital technology. Therefore, principals must be willing to continuously learn and improve their competencies, especially managerial skills in managing education based on digital technology.

Digitalization has created a range of new challenges for those in leadership positions. These professionals are required not only to have technical competencies but also managerial and ethical skills that were previously less critical. The ability to keep up with evolving technology is essential, especially when a leader is responsible for developing strategies that maximize the use of such innovations. Furthermore, managers must identify which employees should be equipped with specific skills and resources to optimize production (Chyta Anindhyta, 2024).

In managing the institution, the school principal integrates managerial functions namely planning, organizing, implementing, and supervising into collective and participatory policies. Each program is formulated based on the actual needs of the madrasah and then systematically communicated to all members of the school community. This aims to ensure shared understanding and consistency in implementation (Usamah Azzuhri & Zaki Ulien Nuha, 2025).

The competence in managing technology-based education is often referred to as digital leadership. Digital leadership is defined as the integration of digital technologies, such as mobile devices, communication applications, and web applications, into educational leadership practices to achieve sustainable change in the use of technology in schools (Rafie Zaidan Prayuda, 2022; Chyta Anindhyta, 2024). Digital leadership is a future expectation because it can bring schools into

the arena of globalization, enabling schools to compete and present educational data digitally (Rita Rosita & Sofyan Iskandar, 2022).

In responding to modernization, leadership needs to develop tangible strategic steps, such as embracing increasing complexity, making holistic changes, optimizing the use of technology, understanding existing limitations, and not fearing change (Rini Dewi Anggraini, 2021). Furthermore, digital leadership must have a strong and clear vision in order to influence employees and align individual visions with the institution's vision into a solid, unified whole that can be implemented collectively (Dewi Yaminah et al., 2023).

Today's digital era, leaders are needed who can direct digital transformation and implement innovative strategies to utilize technology. Such leaders must also be able to influence their members in achieving the organization's vision and goals. Visionary leadership plays a crucial role in building a culture of innovation amidst digital education transformation (Abdul Malik Karim Amrullah, Roni Siswanto, et al., 2024). A leader in the field of education needs to understand the strengths and weaknesses of the digital realm, as well as possess the ability to inspire subordinates to innovate and sustain ideas (Yusran Lubis et al., 2022). Furthermore, principals must be able to carry out their role in leading the improvement of the quality of inputs, processes, outputs, and educational outcomes in the schools they lead (Irham Saleh Siregar, 2021).

The Industrial Revolution 4.0 era has opened up opportunities for educational institutions to make significant digital changes. For schools, taking advantage of this opportunity greatly depends on digital leadership that is able to use information technology to improve management and learning quality. Furthermore, digital leadership also plays a role in encouraging teachers to be ready to adopt learning innovations, whether online-based or blended learning systems (Abdul Malik Karim Amrullah, 2024).

The realization of quality education is inseparable from planning that is determined through the decisions of stakeholders. Education as a means of preparing future human resources is highly dependent on strategic decision-making. Good decision-making is closely related to the system and stages undertaken in the process. According to classical theory, decision formulation must consider several factors, namely certainty, uncertainty, and risks that will be faced in the future (Muhammad Rifa'i, 2020).

A digital leader must possess characteristics and behaviors that enable them to achieve digital transformation goals (Abdul Malik Karim Amrullah, 2024). The digital leadership model aims to ensure that the educational institutions they lead can progress and remain competitive in today's global era (Rafie Zaidan Prayuda, 2022). Therefore, all educational institutions are required to quickly transform in response to the sophistication of 21st-century technology. The consequence of failing to promptly undergo digital transformation is falling behind in the world of education.

Facing these challenges, every educational institution must be able to take appropriate measures through the policies of its leader to integrate technology into all lines of educational services. In doing so, the services provided can be accessed quickly and easily, as well as be able to cut through lengthy and complicated bureaucracy. Therefore, principals are required to be prudent in decision-making, particularly when developing work programs and learning activities, so as to have a positive impact on the schools they lead.

Decision-making is one of the main responsibilities of every leader. A decision can be understood as the outcome of a mental or cognitive process that leads to selecting one course of action among several available alternatives. Every decision-making process always produces a final choice. Therefore, a principal as a leader must be able to make decisions wisely. According to Stoner as cited in Kaniati, a decision is a conscious human process that encompasses both individual and social phenomena. This process is based on value and fact premises, concluding a choice among alternatives with the intention of moving toward a desired goal (Kaniati Amalia et al., 2019).

MTs. Sains Salahuddin Wahid is an all-female educational institution under the auspices of the Tebuireng Islamic Boarding School. After successfully establishing SMA Trensains and SMP Sains in Jombok, KH. Salahuddin Wahid (Gus Sholah) took the initiative to establish a similar institution with an integrated curriculum. This curriculum combines the pesantren curriculum, the Ministry of Religious Affairs curriculum, and a specialized science-based curriculum. Thus, the students receive integrated learning in one comprehensive package.

MTs. Sains Salahuddin Wahid Jombang has a number of excellent programs that integrate the character values of Islamic boarding schools, science-based pesantren education, as well as the study of the Qur'an, hadith, ijma' ulama, and other scholarly texts that can be studied and applied in science. In addition, there are specialization programs including tahfidz classes, classical Islamic book classes, English classes, and Arabic classes. The implementation of education at this madrasah is also supported by a distinctive feature in the form of a reliable digital infrastructure. All classrooms are equipped with modern information technology equipment, such as interactive projectors, computers, and high-speed internet access. This advantage does not stand alone because teachers actively use digital technology in every learning process, ranging from multimedia presentations to online assessment platforms.

Based on the description above, this study aims to explore and analyze the role of digital leadership at MTs. Sains Salahuddin Wahid Jombang. By employing a case study focus, this research is expected to discover a strategic model that is adaptable to the challenges of infrastructure, teachers' digital competence, and local community support. The research findings can subsequently help formulate recommendations for stakeholders to accelerate digital transformation in private madrasah tsanawiyah. These recommendations are aligned with the direction of Merdeka Belajar and the efforts to digitize Islamic education in Indonesia.

## **B. RESEARCH METHOD**

The research method used in this study is a case study. A case study is a research approach conducted intensively, in detail, and in depth on a particular organization, institution, or phenomenon. One of the main characteristics of a case study is the presence of a bounded system, that is, a system with clear boundaries. These boundaries include time and place, as well as the case or object under study, which may take the form of a program, event, activity, or other research subject (Herdiansyah, 2010).

This case study examines events or phenomena that are still ongoing, rather than *ex post facto* phenomena (Rahardjo, 2022). The unit of analysis in this study consists of individuals and groups within MTs Sains Salahuddin Wahid Jombang. Therefore, the researcher examines various ongoing events or phenomena at the research site, including the principal's actions in policy analysis, the policies produced, and their impact on institutional management. In the process, the researcher seeks to collect data, identify meaning, and gain an in-depth understanding of the case. Data are obtained from the principal, vice principals, teachers, students, and parents through in-depth triangulation. In addition, the researcher also analyzes flagship programs related to the principal's digital leadership and participates in several decision-making activities through discussion forums and teacher meetings.

In terms of its approach and research design, this study aims to describe the reality of the principal's digital leadership in the leadership practices implemented at MTs Sains Salahuddin Wahid as a digital-based institution. This description is based on data obtained from interviews, documentation, field notes, observations, and other supporting sources.

The researcher's presence at the research site continued to observe research ethics as stated by James A. Spradley. These ethics include the researcher's effort to respect, protect, and uphold the rights and interests of informants, to inform informants of the purpose of the study, to avoid violating informants' freedom and privacy, and not to exploit informants for purposes beyond the research. In addition, the researcher is obligated to share the research findings with informants and related parties when necessary, to respect informants' views, and to carefully consider whether to use the names of the research site and informants, weighing both the positive and negative aspects with the informants' consent. The study was also conducted carefully so as not to interfere with daily activities at the research site (Spradley, 2008).

The data collection techniques in this study require careful attention, sufficient time, energy, and patience. The researcher made various efforts to obtain accurate, relevant data that aligned with the focus of the study. The data collection techniques used to gather the required information included interviews, observations, and documentation.

Data analysis begins when the researcher starts collecting field data by sorting and classifying data considered relevant and important. This process

requires depth of understanding, skill, creativity, sensitivity, and research experience so that the data obtained can be interpreted appropriately. The purpose of this process is to ensure that the research findings not only address the research focus but also contribute to knowledge by helping to understand and interpret the meaning of the data collected (Yunus, 2010).

Qualitative research views the object of study as a dynamic phenomenon that continues to evolve (Sidiq, 2019). Therefore, this type of research requires a relatively long period of time, particularly in the process of verifying data validity, because qualitative research seeks to discover new findings grounded in field reality. To ensure that the data obtained are accountable, data validity is examined through credibility, dependability, and confirmability tests (Sidiq, 2019).

## **C. RESULTS AND DISCUSSION**

### **1. The role of the principal as an innovator and agent of digital change**

The principal of MTs Sains Salahuddin Wahid Jombang demonstrates a strategic role as an innovator and agent of digital transformation through various technology-based management and learning transformation policies. These transformations encompass not only administrative aspects, but also learning systems, human resource management, and institutional communication. The implementation of digital systems is carried out gradually and systematically by considering infrastructure readiness, teachers' competencies, and the work culture. This condition indicates that digitalization is not merely understood as the provision of technology, but rather as a systemic and sustainable process of change.

This innovative role is consistent with the view of Eric Sheninger, who argues that digital leadership requires educational leaders to create breakthroughs in the use of technology in order to improve the quality of educational services (Sheninger, 2019). In this context, the principal functions not merely as a technology user, but also as the main driver of digital transformation capable of changing the mindset, work patterns, and interaction patterns of all members of the madrasah community. The principal consistently instills the paradigm that technology is a strategic means of improving the quality of educational services. This condition reflects the characteristics of innovative leadership oriented toward sustainable change.

As an agent of change, the principal develops a digital vision that is aligned with the institutional vision of the madrasah. This vision is implemented through various concrete programs, such as the application of digital-based madrasah management systems, learning through a Learning Management System (LMS), and the optimization of online communication media. The principal also actively facilitates the development of a conducive digital ecosystem through the provision of infrastructure and supporting regulations for technology implementation within the madrasah environment. These efforts aim to create a work environment that is adaptive to technological

developments. The transformation undertaken not only affects work systems, but also changes the perspectives of teachers and educational staff in viewing technology as an essential necessity in educational management. Thus, the principal acts as a catalyst for organizational culture change toward a more innovative and digitally oriented work culture.

The principal's role as an innovator is reflected in the courage to take measured risks in implementing new technologies within the madrasah environment. Every digital policy implemented is based on needs analysis, limited pilot testing, and continuous evaluation. This strategy not only minimizes resistance but also increases the level of acceptance among madrasah members toward digital transformation. In addition, the principal encourages the emergence of various local innovations that are aligned with the needs of learning and madrasah management. These innovations are manifested in the development of digital modules, electronic attendance systems, and website-based academic reporting platforms. This condition demonstrates that the digital leadership practiced by the principal is capable of fostering collective creativity within the madrasah community. Therefore, the ongoing digital transformation is not merely top-down in nature, but is also developed participatively through the involvement of all madrasah stakeholders.

The principal also plays a role in fostering a culture of experimentation and digital-based learning within the madrasah. Teachers are encouraged to try new digital learning methods without fear of failure. Mistakes that occur during implementation are understood as part of professional learning and continuous improvement. In every digital practice, the principal instills the principle of continuous improvement so that all members of the madrasah become accustomed to ongoing evaluation and refinement. This indicates a strong orientation toward efficiency, effectiveness, and accountability, as Dexter emphasized that effective digital leadership must be able to facilitate the use of technology for continuous improvement (Anderson & Dexter, 2005).

The principal's role as an agent of change becomes increasingly evident through the transformational communication strategy implemented within the madrasah. The digital vision of the institution is intensively disseminated through various formal and informal forums. In this process, the principal employs persuasive and argumentative approaches supported by empirical data, enabling members of the madrasah community to understand the urgency of digital transformation more rationally. This strategy is consistent with the concept of transformational leadership proposed by Kenneth Leithwood, Alma Harris, and David Hopkins, who emphasize that effective school leaders are those capable of inspiring change, building a shared vision, and mobilizing resources to achieve organizational goals (Leithwood et al., 2020). Through this strategy, the principal also strengthens collaboration with various stakeholders, thereby expanding access to new resources and

knowledge. Consequently, the process of digital transformation can proceed in a holistic and sustainable manner.

The principal's leadership demonstrates innovation in digital-based learning. This is evident from the various efforts consistently carried out by the principal to motivate teachers and staff to adopt online learning platforms as part of the learning process. These findings indicate that the principal does not function solely as an administrator, but also as an agent of change who encourages teachers to develop innovation in their pedagogical practices. This effort reflects an awareness that digital transformation in education requires the active involvement of all organizational elements. In theory, an effective leader is expected to generate new ideas, formulate solutions to various problems, and anticipate the impact of the policies implemented. In the context of Islamic education, leadership also contains a visionary dimension, as exemplified by the Prophet Muhammad, who demonstrated strategic insight in the development of da'wah and the education of the Muslim community. Therefore, madrasah leaders are expected to integrate Islamic values with the development of modern science and technology (Abdullah et al., 2025).

However, digital leadership does not stop at the adoption of technology alone; it also encompasses the ability to manage the transformation of organizational culture, work structures, and learning practices in a comprehensive manner. Thus, the success of digital innovation depends greatly on the readiness of both the system and the human resources involved. On the other hand, the innovations initiated by the principal do not always run optimally, given the variation in teachers' technological competence, especially among those who are not yet accustomed to using digital platforms. This condition may become an obstacle to the implementation of the designed innovative policies. Therefore, although there are progressive efforts to promote digital-based learning innovation, continuous mentoring and capacity-building strategies are still needed. Overall, this leadership practice reflects the characteristics of innovative leadership oriented toward sustainable change, even though challenges remain in its implementation.

## **2. The role of the principal as a role model for teachers and education staff**

The principal demonstrates role modeling in the use of digital technology consistently in daily leadership activities. This role modeling is evident in the use of digital platforms for communication, administration, and decision-making. The research findings indicate that the principal not only instructs the use of technology but also practices it directly. Such an attitude fosters a positive perception of digital transformation, positioning the principal as a role model in digital literacy. Furthermore, role modeling is also manifested through the principal's active involvement in training and digital competence development, such as participating in workshops, seminars, and professional discussions related to educational technology. The principal's presence in these

activities increases teachers' motivation to participate as well. The role model of a school leader is crucial to the success of technology integration in educational settings. When leaders demonstrate competence and commitment in using technology, resistance to change can be minimized, and a digital learning culture develops naturally (ChanMin Kim and John M. Keller, 2010).

The principal also demonstrates role modeling in digital ethics and professional responsibility. The use of social media and communication platforms is carried out politely, transparently, and proportionally. The principal instills the values of integrity, data security, and online communication ethics. This attitude serves to prevent misuse of technology and potential internal conflicts. Thus, digital transformation takes place within moral and professional corridors.

In the context of supervision, the principal exhibits role modeling by utilizing digital evaluation instruments. The process of monitoring teacher performance is conducted through transparent and objective data-based platforms. The principal uses the evaluation results as a basis for mentoring, not merely administrative assessment. Teachers also feel that technology helps improve their professional quality.

The principal's role modeling is evident through the use of digital platforms to support communication, administrative activities, and more effective decision-making processes. This is reinforced by the fact that the principal internally holds workshops on digital skills for teachers and education staff as a form of collective capacity building. Such policies demonstrate that the principal not only instructs the use of technology but also provides concrete examples in practice, thereby increasing institutional productivity.

An ideal leader figure is indeed expected to be the best role model in speech, actions, and habits, including in aspects of professionalism and discipline. In the context of Islamic education, a leader is required to have a more complete set of advantages because, in addition to being a policy director, they also serve as a moral and intellectual role model for all school members (Ushansyah, 2016).

The role modeling demonstrated by the principal generally remains within human limits, thus it is not always perfect in every situation. Authentic digital leadership is indeed able to influence organizational attitudes and behavior, but its effectiveness depends on physical conditions, personal readiness, and the challenges faced in daily task implementation. In some circumstances, principals may encounter limitations, such as less-than-optimal health conditions or various technical and organizational obstacles that can hinder the consistency of their role modeling. Nevertheless, as long as the principal continues to demonstrate a commitment to using technology wisely and promoting a digital culture within the madrasah environment, that role modeling remains a primary force in shaping organizational behavior.

The principal's role modeling is also evident in time management and technology-based work efficiency. The use of digital systems accelerates administrative workflows and coordination. The principal exemplifies effective and efficient work management, thereby increasing organizational productivity. Teachers and education staff are then motivated to emulate these work practices. Furthermore, the principal's role modeling contains moral and spiritual values. The use of technology is directed not only at improving performance but also at strengthening Islamic values, morals, and student character (Zaenal Abidin, 2020).

### **3. The role of the principal as a digital collaboration facilitator**

The principal acts as a facilitator of digital collaboration by building open, technology-based communication spaces. Various digital communication platforms are used for professional discussions, program coordination, and joint decision-making. This creates more intensive and participatory interaction while providing equal access to information and discussion forums for teachers and education staff. Consequently, collaboration is no longer limited by space and time, and this transformation strengthens organizational cohesion.

Digital collaboration is also facilitated through the development of online learning communities. The principal encourages the formation of thematic digital discussion groups that serve as a space for sharing best practices, reflection, and problem-solving in learning. The interactions that develop are constructive and reflective, giving teachers a safe space to express themselves and experiment. This condition improves the quality of collective learning, making digital collaboration an instrument for enhancing educational quality.

The principal also facilitates cross-institutional collaboration through digital networks. Systematic cooperation with other schools, universities, and professional institutions broadens teachers' professional insights while providing the school with access to best practices, both nationally and internationally. In the management context, digital collaboration increases coordination efficiency between work units. Policy information, schedules, and reports can be accessed in real-time, minimizing miscommunication and administrative delays. The principal uses collaborative data as a basis for decision-making, which in turn improves management accuracy and transparency. However, the main focus is not only on management but also on learning services, students' interests and talents, and the development of student creativity (Syarifuddin, 2019).

The principal also facilitates the strengthening of collaboration through collaborative digital literacy training. Teachers and education staff are trained to use online collaboration applications effectively, both technically and pedagogically. As a result, professional interactions become more productive, and collaboration is no longer merely administrative but also academic.

#### **4. The role of the principal as a digital performance supervisor**

The principal carries out the digital performance supervision function by utilizing a data-based monitoring system. Evaluation instruments are used to objectively monitor teacher and education staff performance, covering aspects of planning, implementation, and learning evaluation. This enables more accurate and transparent supervision. By identifying specific strengths and weaknesses, the principal can turn supervision into a tool for professional development.

Digital supervision also facilitates fast and constructive feedback. Teachers receive real-time performance reports through digital platforms, while the principal provides improvement recommendations based on empirical data. This process enhances the quality of teachers' professional reflection. Teachers feel valued and supported in their competency development, creating a dialogical supervision relationship.

In practice, the principal integrates digital supervision with continuous training programs. Supervision results serve as the basis for capacity building planning, ensuring that training is designed according to teachers' actual needs. This approach increases the relevance and effectiveness of professional development while providing targeted support. Utilizing digital data in supervision can improve assessment objectivity, accelerate decision-making processes, and encourage continuous improvement (Daniel Player et al., 2017).

The principal also uses technology to conduct clinical supervision online. Learning observations are carried out through video recordings or virtual conference platforms commonly used by the school. This expands the scope of supervision without disrupting the learning process, while also providing flexible professional feedback. Consequently, supervision becomes more adaptive to conditions and needs, thereby increasing its accessibility.

Digital performance supervision also strengthens a culture of accountability within the school environment. Every professional activity is systematically documented, and performance data serves as a basis for individual and organizational responsibility. The principal instills the values of transparency and professionalism, which in turn enhances public trust in the school.

#### **D. CONCLUSION**

Research on the digital leadership of the principal of MTs. Sains Salahuddin Wahid Jombang shows that digital leadership is not only understood as the ability to use technology, but primarily as leadership capacity in directing systematic and sustainable digital-based transformation of educational organizations.

The principal plays a strategic role as an innovator who actively encourages the use of digital technology to support managerial processes, learning, and institutional communication. These innovation initiatives are evident through efforts to integrate technology in academic data management, institutional

communication, and strengthening the digital learning ecosystem within the school environment.

In addition to being an innovator, the principal also serves as a role model in the practice of using digital technology. This role modeling is reflected in the principal's direct involvement in using various digital platforms for organizational communication, information management, and supervision of academic activities.

Furthermore, the principal also plays an important role as a facilitator of digital collaboration. This collaboration is realized through the use of various digital communication and cooperation platforms that enable professional interactions to take place more effectively and flexibly.

The research findings indicate that the concept of digital leadership cannot be understood merely as technical skills in using information technology. Instead, it must be positioned as a strategic leadership competency that integrates vision, organizational culture, and digital change management. Thus, the theoretical framework of educational leadership needs to expand its perspective by incorporating the dimension of digital transformation as an integral part of modern leadership practice. This research also strengthens the argument that educational institution leaders have a central role in shaping a digital ecosystem that supports pedagogical innovation and effective organizational governance.

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