E-Leadership of Islamic School (Madrasah) Principals in the Implementation of Managerial Competencies

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Abstract: E-Leadership of Islamic School (Madrasah) Principal in Implementing Managerial Competencies

Objective: This study aims to understand the e-leadership of madrasah principals in implementing managerial competencies. **Methods:** This research uses a qualitative approach with a case study design. Research informants were selected using a snowball sampling technique, namely the Principal of MTsN Padang Panjang. Data collection used observation, interviews, and document studies. The Miles and Huberman model, used for data analysis, includes data reduction, data presentation, and conclusion drawing/verification. **Results:** E-leadership of the head of MTsN Padang Panjang plays an important role in implementing managerial competencies in the fields of (1) management of teaching and education personnel, (2) management of students, and (3) management of curriculum and learning. **Conclusion:** E-Leadership is an effective approach to improving the managerial competence of madrasah heads, strengthening digital-based management innovation, and supporting the transformation of Islamic education in the digital era. **Contribution:** This research offers a comprehensive and measurable e-leadership model, including innovations in communication, learning, and supervision, which can be a model for madrasah-based educational institutions in improving institutional quality.

Keyword: E-leadership; Madrasah Principal; Managerial Competence

Abstrak: E-leadership Kepala Madrasah dalam Mengimplementasikan Kompetensi Manajerial

Tujuan: Penelitian ini bertujuan untuk memahami e-leadership kepala madrasah dalam mengimplementasikan kompetensi manajerial. **Metode:** Penelitian ini menggunakan pendekatan kualitatif dengan desain studi kasus. Informan penelitian dipilih menggunakan teknik snowball sampling yaitu Kepala Sekolah MTsN Padang Panjang. Pengumpulan data menggunakan observasi, wawancara, dan studi dokumen. Model Miles dan Huberman, digunakan untuk analisis data meliputi: reduksi data, penyajian data, dan penarikan kesimpulan/verifikasi. **Hasil:** E-leadership kepala MTsN Padang Panjang memainkan peran penting dalam mengimpelementasikan kompetensi manajerial baik itu di bidang (1) pengelolaan tenaga pendidik dan kependidikan; (2) pengelolaan peserta didik; (3) pengelolaan kurikulum dan pembelajaran. Kesimpulan: E-Leadership merupakan pendekatan yang efektif untuk meningkatkan kompetensi manajerial kepala madrasah, memperkuat inovasi manajemen berbasis digital, dan mendukung transformasi pendidikan Islam di era digital. **Kontribusi:** Penelitian ini menawarkan model e-leadership yang menyeluruh dan terukur, mencakup inovasi dalam komunikasi, pembelajaran, dan pengawasan, yang dapat menjadi model bagi lembaga pendidikan berbasis madrasah dalam meningkatkan mutu lembaga.

Kata Kunci: E-leadership; Kepala Madrasah; Kompetensi Manajerial

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A. INTRODUCTION

As the leader of a school organization, the principal acts as the driving force expected to develop and advance the institution they oversee. The Regulation of the Minister of National Education of the Republic of Indonesia No. 13 of 2007 outlines several competencies that must be mastered to qualify as a school principal: personality, managerial, entrepreneurial, supervisory, and social competencies. Among these, managerial competencies hold a critical position, as the quality of education is significantly determined by the mastery of managerial skills.

Many studies have concluded that the managerial competencies of school principals have a positive influence on work motivation, performance, and the improvement of educators' professional competencies (Kousar et al., 2022; Tseng et al., 2019; Bakar, 2018; Joensuu-Salo et al., 2023; Blaskova et al., 2015). Research findings (Kurniati, 2018) indicate a strong relationship between managerial competencies and the ability of school principals to implement ICT with the quality of school management. Implementing information and communication technology (ICT) in school managerial processes has become urgent, as the interaction bet-ween technology and leadership can influence school effectiveness (Yuting et al., 2022).

E-Leadership, or electronic leadership, has emerged as a relevant concept in addressing the increasingly complex changes in the educational environment. E-Leadership encompasses traditional leadership skills and integrates the understanding and application of information technology in decision-making and management. ICT creates a new context for leadership, fostering a co-evolution between technology and leadership, where both components work collaboratively, influence each other, and are interconnected within the organizational context (Akram et al., 2022; Avolio et al., 2000).

Several relevant prior studies, such as those by Blau & Plesser (2013), reveal that data management systems support school principals in managing organizations, delegating responsibilities, and promoting e-leadership. Ayub et al. (2023) found that electronic leadership contributes to the competencies of school principals. Lestari et al. (2023) identified a positive and significant influence of principals' e-leadership on teachers' innovativeness. These three studies highlight the importance of e-leadership in leveraging technology for effective leadership. However, detailed research remains lacking in exploring how e-leadership is applied in implementing broader managerial competencies in schools, particularly within the madrasah sector.

A school principal's knowledge and understanding of technology are essential in carrying out their duties and responsibilities, enabling them to serve as role models in applying technology (Szymkowiak et al., 2021; Chua & Chua, 2017). Therefore, technology must be utilized to execute the principal's managerial competencies, not merely in teaching and learning (Hamzah et al., 2016).

This is evident in the leadership of the principal of Madrasah Tsanawiyah Padang Panjang, who focuses on utilizing ICT to implement managerial competencies. Several missions of the madrasah related to the use of technology include: developing superior human re-sources in science and technology (IPTEK) and faith and piety (IMTAQ) through effective and efficient learning processes; fostering a spirit of excellence in science, technology, religion, and culture among all members of the academic community; enhancing scientific (technological) knowledge in science and technology (IPTEK) and Islamic values (IMTAQ); and activating technology-based learning (as per the school website accessed on January 1, 2024).

The commitment of the principals of MTsN Padang Panjang in carrying out their duties and responsibilities as a leader, especially in managing all the resources available at the school, has successfully brought the madrasah to become an institution adorned with achievements, both from students and educators and education staff. The achievements include both academic and non-academic fields at the provincial and national levels, making MTsN Padang Panjang a favorite school, as evidenced by the overwhelming number of prospective students,

reaching three times the school's capacity quota (padek.jawapos accessed on January 1, 2024). The principal has also led the madrasah to achieve an "A" accreditation in 2022. Additionally, they were selected as the Outstanding Madrasah Tsanawiyah Principal at the West Sumatra level. They received the first-place award in the Outstanding Teachers and Education Staff category during the 2022 Madrasah Award event.

Recent studies show that e-leadership is crucial in supporting madrasah principals to manage communication, decision-making, and collaboration in an increasingly digital educational environment (Danial et al., 2020; Farida & Jamilah, 2019; Fitrah, 2017; Gusriani et al., 2023; Kurniati, 2018). Managerial competencies such as resource management, teacher coordination, and engagement with students and parents are further strengthened by the use of digital platforms, and Islamic values are maintained even with the integration of technology in managerial practices (Rizal et al., 2024; Rohimat, 2019; Sholichah et al., 2022; Sunarsi et al., 2020; Vadila & Gunawan, 2023). However, despite the growing body of research on technology-based leadership in education, there remains a lack of studies specifically examining how e-leadership influences the managerial competencies of madrasah principals, particularly in contexts that integrate Islamic values.

Previous research indicates a gap in studies that specifically explore the relationship between e-leadership and managerial competencies within madrasah contexts. While many studies discuss the use of technology in education and the role of digital leadership, few delve deeply into how madrasah principals integrate managerial competencies, such as resource management, strategic planning, and stakeholder relations, with e-leadership in Islamic education.

This study offers a novel approach by combining digital leadership technology with Islamic values, creating a model of madrasah management that is not only digitally efficient but also in alignment with religious teachings. The research also focuses on the practical application of managerial competencies that are more relevant to the challenges madrasah principals face in the digital era, leading to improvements in the quality of management and the effectiveness of Islamic education.

B. METHOD

This study employs a qualitative approach with a case study design focusing on the e-leadership of the principal of MTsN Padang Panjang in implementing managerial competencies. A case study is a scientific activity that investigates a program, event, or activity carried out by an individual, group, institution, or organization to obtain detailed knowledge about the event and is conducted intensively (Rahardjo, 2017).

This study will be conducted in 2024. The snowball sampling technique is used to determine the research informants. MTsN Padang Panjang's principal serves as this study's key informant. The subsequent informants include the vice principal for curriculum, the vice principal for student affairs, the vice principal for public relations, the teacher acting as a homeroom teacher, subject teachers, education staff, and students. Data collection in this study uses passive role observation, in-depth interviews, and document analysis. The Miles and Huberman model is used to analyze the data, consisting of three stages: data reduction, data presentation, and conclusion drawing/verification.

Triangulation is used to test the data's validity and consists of source, technique, and time triangulation. The researcher cross-checks the data obtained from the key informant, the school principal, with data collected from other informants, referred to as source triangulation. Data sources from all informants are described and categorized, then analyzed to conclude. Technique triangulation is done by cross-checking data from interviews with observations and document studies. A conclusion can be drawn if the same data is obtained; however, if the data differs, its accuracy needs to be re-verified. Time triangulation is conducted by

checking data obtained from the first observation and subsequent observations on different days.

C. RESULTS AND DISCUSSION

Result

Educators and education staff are essential components of school administration. The management of educators and education staff involves activities that need to be managed, starting from human resource planning, recruitment, selection, placement, rewarding, and development, and up to the dismissal stage of educators and education staff. Therefore, the school principal's managerial competencies in managing educators and education staff must be implemented effectively.

The e-leadership of the principal of MTsN Padang Panjang in managing educators and education staff begins with human resource planning through offline leadership meetings. However, meetings can be conducted online via Zoom, Google Meet, or video calls in emergencies. Without a solid team and effective communication between leadership and its members, e-leadership will not function well. Therefore, information technology enables more visual virtual interactions. Using technology, leaders can work anywhere and anytime, giving orders, sharing information, and collaborating with team members. The principal can supervise subordinates and provide instructions for implementing programs virtually, even when physically absent from the school.

The recruitment and selection process is conducted digitally, with job vacancy announcements distributed through government online platforms. The primary goal of the recruitment activity is to obtain competent educators and education staff who can work optimally. Therefore, human resource management should utilize technology to enhance work performance.

Human resource development at MTsN Padang Panjang is carried out through training programs emphasizing digitalization, such as workshops on digitalized learning and madrasah management systems, both offline and online. Organizing workshops to equip teachers with adequate Information and Communication Technology (ICT) skills and improving internet connectivity to the school has proven to be one of the best strategies for enhancing the integration of ICT in electronic leadership roles. As everything becomes digital, the principal must provide appropriate training and education to improve human resource competencies by considering technological developments and keeping up with current trends. The principal and educational authorities must support teachers with continuous training, financial resources, and essential allocations to prepare them to participate in electronic leadership systems. The principal of MTsN Padang Panjang has implemented this step to develop managerial competencies for managing educators and education staff.

The attendance and employee performance evaluation systems at MTsN Padang Panjang also utilize the digital platforms provided by the Ministry of Religious Affairs, namely *Pusaka*, *Simpeg 5*, and *E-Kin*. Software-based tools and applications used for educational tasks are beneficial in streamlining administration. Therefore, school leaders must leverage these tools and applications to enhance their roles in educational institutions. Digital tools can help store data for reference, generate timely reports, and make work easier and faster. The findings (Kousar et al., 2022) indicate that e-leadership positively impacts teacher performance. Using the internet or websites for searching, communicating, and managing materials has improved organizational performance. School principals significantly influence electronic leadership in the transformation of information and communication technology in schools, affirming the critical role of electronic leadership in driving IT transformation in educational institutions.

Providing rewards, such as certificates and public acknowledgment, on the school's social media is also a part of human resource management. The management of educator retirement, such as the retirement process, is accompanied by recognition awards published on the

madrasah's official social media to enhance public appreciation. Recognizing and appreciating outstanding educators and staff boosts motivation, enthusiasm, and pride among them. In this regard, the principal of MTsN Padang Panjang utilizes the madrasah's official social media to share information about the achievements of educators and staff, ensuring that appreciation is received internally and externally from the broader community. School principals should consider implementing strategies and digital transformation innovations in human resource development to support madrasah programs.

Discussion

1) E-Leadership of the Principal of MTsN Padang Panjang in Implementing Managerial Competencies in Managing Students

Student management involves organizing all activities related to students, starting from admission until they complete their education at an educational institution, to regulate all student activities. Three main activities in student management require the principal's attention: the admission of new students, activities related to their academic progress, and the provision of guidance, including fostering discipline (Arifin, 2022).

The e-leadership of the principal of MTsN Padang Panjang in implementing managerial competencies in student management begins with forming a New Student Admission (PPDB) team. In this case, the principal is important in enhancing the admission process by forming the PPDB team, assigning and monitoring the team, and motivating them to work professionally. A WhatsApp group is created as a communication platform for the team to carry out their duties. New student registration is conducted entirely online through the school's website. PPDB brochures are distributed across all official MTsN Padang Panjang social media platforms, including Facebook, Instagram, TikTok, and YouTube. The brochures are equipped with scannable barcodes, making it easier for applicants to register as they are directly connected to the registration link. Online new student admissions can ensure that the recruitment process complies with regulations, allowing for fair implementation, reducing the tendency for manipulation, and motivating users, namely the public, to utilize technology.

The next stage is a rigorous testing process due to the high number of applicants, which this year reached 1,200 for a capacity of 320 students. The tests are conducted in two ways: offline for applicants residing in West Sumatra and online for those outside the province. This approach is designed to provide convenience for students outside West Sumatra and open opportunities for prospective students across Indonesia. The online tests for students are conducted via Zoom at a simultaneous time and are supervised by proctors. Similarly, Quran recitation and prayer practice tests are also conducted via Zoom. The test results are then published on the official madrasah website. The online admission process via the website provides convenience for students as they do not need to visit the school in person, and it also facilitates the committee in verifying data. Moreover, online admission ensures the committee's accountability, as all data is accessed and managed through a digital system (Safey et al., 2023). The ICT-based new student admission system assists the school in simplifying the registration and recruitment process for prospective.

Student aptitude and interest tests are conducted offline at the beginning of the school year during the *Masa Ta'aruf Siswa Madrasah* (Matsama) orientation period. Students are then nurtured according to their interests and talents through extracurricular activities. Extracurricular activities related to electronics and digital technology include robotics (Eguchi, 2016). Due to limited facilities and infrastructure, the robotics team is trained in regular classrooms, as there is no dedicated robotics laboratory yet. Nevertheless, the robotics team has brought prestige to the madrasah by winning first place in the West Sumatra Robotics Competition in 2023. Through the robotics extracurricular program, students' talents and interests in technology, critical thinking, teamwork skills, creativity, and imagination have significantly improved (Pribadi et al., 2023).

Additionally, coaching for teams participating in the Madrasah Science Competition (*Kompetisi Sains Madrasah* or KSM) is conducted in the computer laboratory. Each team is guided by educators who are experts in their respective fields, providing engaging, in-depth material, such as through "fan math" or fun mathematics learning. The Madrasah Science Competition aims to enhance comprehensive education by fostering a culture of learning, creativity, and motivation to achieve excellence while upholding sportsmanship and Islamic values (Latifah & Hidayati, 2021).

The madrasah consistently rewards students who win competitions at the city, provincial, and national levels in material and non-material forms. Non-material rewards are always given to student competition winners by publicizing these achievements on the madrasah's social media platforms and online media within the city of Padang Panjang. Research (Ula et al., 2022) has demonstrated that rewards and punishments significantly influence students' academic achievements. Thus, the reward system implemented by the principal of MTsN Padang Panjang is one effective way to boost students' motivation to excel. The achievements they earn are recognized by the MTsN Padang Panjang community and the broader public through social media publication. This practice also serves as a promotional strategy for the school and the wider community.

2) E-Leadership of the Principal of MTsN Padang Panjang in Implementing Managerial Competencies in Curriculum and Learning Management

As the software in education, the curriculum is crucial because it will direct all activities toward achieving academic goals (Choiri & Sidiq, 2023). Therefore, every educational institution needs to manage the curriculum well. Curriculum management involves planning and implementing it in the field, determining extracurricular and co-curricular programs, evaluating the curriculum, setting graduation criteria, and developing media and learning resources (Muyassaroh & Suyadi, 2020). The management of curriculum and learning highly depends on the managerial competencies of the school principal.

E-leadership of the head of MTsN Padang Panjang in implementing curriculum management starts with planning. In the planning stage, educators are first equipped with offline and online training. The offline training includes workshops on the Merdeka curriculum and digital-based learning, while online training is provided on the Ministry of Religious Affairs (Kemenag) website. Research (Mudarris, 2022) states that training is an important effort made by the madrasah to produce professional teachers in the digital era.

There are several activities carried out by educators before the new academic year begins, such as preparing teaching materials together as a team. This teamwork is crucial in enhancing the creativity of educators because research (Suketi, 2021) indicates an increase in teacher creativity in preparing teaching materials through group work training. Furthermore, a positive and significant relationship exists between teamwork and teacher performance in teaching. This is also supported by the ease of communication technology the educator team uses for interaction, such as WhatsApp groups. Educators must submit their teaching materials in soft copy form at the beginning of the semester through a Google Drive link (Azlan et al., 2020). This demonstrates that digital technology is applied in teaching and learning activities and in carrying out other tasks, such as managing educational administration, assigning tasks, conducting evaluations, etc.

In the implementation stage, the head of the madrasah is very focused on digital-based learning. This is evident in the provision of learning infrastructure, where all classrooms are equipped with projectors, and seven classrooms are already using smart TVs. The e-leadership of the head of MTsN Padang Panjang in enhancing infrastructure to support digital-based learning aligns with the findings of the research (Subadre et al., 2023), which states that infrastructure has a positive and significant impact on the quality of education. Similarly, the

use of information technology in learning also has a positive and significant impact on the quality of education.

In the classroom, learning uses media such as projectors, and students are presented with learning materials through PowerPoint slides, videos, and short films relevant to the topics being taught (Haleem et al., 2022). At the end of the session, students' understanding is assessed through quiz-based tests. Educators should possess digital skills as essential to supporting the learning process. Educators play a crucial role in integrating information and communication technology in schools. Therefore, more concrete support and opportunities should be developed to increase educators' motivation in digital-based learning (Uluyol & Şahin, 2016).

Examining students' test results is conducted using the ZipGrade application, which helps save time and improve the accuracy of assessments. Student assessment reports are now created using the e-report system, an electronic application developed by the Ministry of Religious Affairs. The school has also conducted AKMI (Asesmen Kompetensi Madrasah Indonesia), a competency assessment program organized by the Ministry of Religious Affairs, to measure students' essential competencies in a digital format. Research (Jayadi & Anwar, 2023) shows an increase in students' interest and motivation to learn with the use of digital-based evaluation media by educators, which also dramatically helps educators in delivering learning materials interactively. Research (Azhar & Rahmawati, 2022) indicates that the use of digital applications for learning evaluations, such as Edmodo, Quizziz, Google Forms, Kahoot, Plickers, Thatquiz, Testmoz, Quizstar, and Proprofs, is more effective, efficient, affordable, and enjoyable, and can enhance students' interest. The integration of ICT in school leadership can improve motivation and the learning experience, allowing students to connect theory with practical activities.

To ensure that the learning process conducted by educators runs smoothly, the head of the madrasah monitors each classroom from their office, as all classrooms are equipped with CCTV. The head of the madrasah can also communicate with educators and students in the classrooms. Supervisory activities can help identify issues related to the teaching and learning process. In the 4.0 industrial era, the head of the school, as a supervisor, must possess digital technology competencies to conduct supervision more effectively.

D. RESEARCH IMPLICATIONS AND CONTRIBUTIONS

1. Research Implications

The results of this study provide guidelines for madrasah principals to utilize technology to improve the effectiveness of education management, such as using school management applications, online communication, and data-based monitoring and strengthening technology-based learning strategies in madrasahs, making them relevant to the needs of the 21st century. Inspire training and competency development for madrasah principals in technology and digital leadership.

2. Research Contribution

This study contributes to improving the school's performance by providing empirical evidence that implementing E-leadership can help school principals achieve better managerial and educational goals. For example, by utilizing digital tools for curriculum management, school principals can more effectively determine academic priorities and needs that must be addressed, ultimately leading to improved student learning outcomes. It also provides an overview of how a madrasah head can use digital technology to support the implementation of managerial tasks, such as fast and data-based decision-making. It provides recommendations to policymakers to improve the technology infrastructure in madrasahs to support the implementation of E-Leadership more optimally.

E. RECOMMENDATIONS FOR FUTURE RESEARCH DIRECTIONS

For future researchers, it is suggested to focus on the use of technology as a supporting tool in enhancing the managerial competencies of madrasah heads, such as school management information systems, online learning, and digital communication platforms. The importance of training for madrasah heads and educators to maximize the utilization of technology in madrasah management is also crucial. Furthermore, the development of technology-based policies that can be implemented comprehensively to improve the quality of education and madrasah management should be considered.

CONCLUSION

This study offers a comprehensive and measurable e-leadership model, covering innovations in communication, learning, and supervision, which can serve as a model for other madrasah-based educational institutions striving to improve institutional quality. However, this research is limited to the e-leadership of the head of the madrasah in applying managerial competencies in the fields of educator and education personnel management, student management, and curriculum and learning management. As mentioned earlier by the researcher, there are 15 indicators of management in the headmaster's managerial competencies according to the Indonesian Ministry of National Education Regulation No. 13 of 2007. Therefore, many other indicators have not been explored in detail.

This research shows that E-Leadership is an effective approach to improving madrasah principals' managerial competencies, strengthening digital-based management innovation, and supporting the transformation of Islamic education in the digital era. Implementing technology-based leadership can help madrasahs become superior, adaptive, and relevant educational institutions with global challenges.

E-leadership for school principals is essential in improving their managerial competencies and managing schools effectively. By leveraging technology, school principals can improve the quality of teaching, speed up decision-making, and enhance collaboration among all stakeholders in education. The proper application of technology will also improve the school's organizational performance, contributing to better educational outcomes. School principals can make faster and more accurate data-driven managerial decisions by integrating technology. For example, student data stored in digital systems allows school principals to analyze student performance in real time and use that information to plan appropriate academic interventions.

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AUTHOR CONTRIBUTIONS STATEMENT

All authors discussed the results and contributed to the final manuscript. ES: Conceptualization, Writing - Original Draft, and Methodology. AM Conceptualization, Writing – Review & Editing.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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