

THE STRATEGIC ROLE OF EDUCATIONAL LEADERS IN DIGITAL TRANSFORMATION AT MAN 1 BANYUMAS

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Abstract

Rapid technological developments in the Industrial Revolution 4.0 and Society 5.0 eras require humans to adapt to change. Technology integration brings significant changes by creating new interactive and meaningful learning experiences, as well as improving the quality of education. The practice of educational institution leadership is very much needed in facing the changing situations and conditions of the development of this era. This study uses a descriptive qualitative method that aims to obtain in-depth findings related to information from sources based on the perceptions, experiences and views of the sources. This research was conducted at Madrasah Aliyah Negeri 1 Banyumas. The objects of this research were the head of the madrasah and several teachers to obtain responses. This study aims to describe the strategic role of educational leaders in digital transformation. The results of the study show that the impact of developments at MAN 1 Banyumas has made the head of the madrasah take strategic steps in integrating technology. The head of the madrasah carries out four strategic roles, namely as an educator, manager, administrator and supervisor. Strategies in adapting to changes and developments in the era include fostering an adaptive mentality, creating innovation and creativity, and optimizing educational resources. The head of the madrasah applies three leadership styles such as participatory, visionary and transformational. Leadership in the era of digital technology has given birth to a new style in collaborating models that can make it easier for madrasah principals to deal with changing situations and conditions when integrating educational technology in madrasahs.

Keywords: Leader, Strategic, Transformation, Digital

Abstrak

Perkembangan teknologi yang pesat pada era Revolusi Industri 4.0 dan Society 5.0, menuntut manusia untuk beradaptasi dengan perubahan. Integrasi teknologi membawa perubahan signifikan dengan menciptakan pengalaman pembelajaran baru yang interaktif dan bermakna, serta meningkatkan kualitas pendidikan. Praktik kepemimpinan lembaga pendidikan sangat dibutuhkan dalam menghadapi perubahan situasi dan kondisi perkembangan zaman ini. Penelitian ini menggunakan metode kualitatif deskriptif yang bertujuan untuk mendapatkan temuan secara mendalam terkait informasi dari narasumber berdasarkan persepsi, pengalaman serta pandangan narasumber. Penelitian ini dilaksanakan di Madrasah Aliyah Negeri 1 Banyumas. Objek penelitian ini adalah kepala madrasah dan beberapa guru untuk diminati tanggapan. Penelitian ini bertujuan untuk menggambarkan peran strategis pemimpin pendidikan dalam transformasi digital. Hasil penelitian menunjukkan dampak dari perkembangan di MAN 1 Banyumas membuat kepala madrasah mengambil langkah strategis dalam mengintegrasikan teknologi. Kepala madrasah menjalankan empat peran strategis yakni sebagai edukator, manajer, administrator dan supervisor. Strategi dalam beradaptasi menghadapi perubahan dan perkembangan zaman, diantaranya menumbuhkan mentalitas adaptif, menciptakan inovasi dan kreativitas, serta mengoptimalkan sumber daya pendidikan. Kepala madrasah menerapkan tiga gaya kepemimpinan seperti partisipatif, visioner dan transformasional. Kepemimpinan di era teknologi digital melahirkan gaya baru dalam mengkolaborasikan model yang dapat

memudahkan kepala madrasah dalam menghadapi situasi dan kondisi yang berubah-ubah saat mengintegrasikan teknologi pendidikan di madrasah.

Kata kunci: Pemimpin, Strategis, Transformasi, Digital



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INTRODUCTION

Such rapid development is caused by changes that occur in various sectors, one of which is a concern is changes in the technology sector. In the era of the Industrial Revolution 4.0, it is the starting point of technological progress that occurs globally, so that it demands human resources in a country to be ready to face these changes.¹ Then, entering the Society 5.0 era makes technological development more advanced compared to its predecessor, the 4.0 era, thus creating new values in technological development.² The rapid development of technology in the midst of global competition has a major influence on human life, so that humans must be able to adapt in facing technological developments that can change dynamically at any time.³ The adaptations that are carried out certainly have an impact on human needs, one of which is affecting the world of education. In the era of technology like today, it brings significant changes in education, such as the introduction of technology-based learning media. The integration of technology into the education process is considered to be able to be used as a facility in providing services.⁴ In addition, the integration of technology is considered capable of providing improvements in the quality of education in various ways, such as providing easy access to information services, increasing student participation, and creating an interactive and interesting learning environment for students to follow.⁵ In addition, the integration of technology in education allows students to have new learning

¹ Evans E.W. Tulungen et al., “Transformasi Digital : Peran Kepemimpinan Digital,” *Jurnal EMBA : Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi* 10, no. 2 (2022): 1116–23, <https://doi.org/10.35794/emba.v10i2.41399>.

² Yeni Susanti et al., “Relevansi Tujuan Era Society 5.0 Terhadap Complex Problem Solving, Social Skill, Marketing, Dan Process Skill Dalam Perilaku Sumber Daya Manusia (PSDM) Dan Pemasaran Digital (PD) Di Bidang Pertambangan Mendorong Transformasi Digital Di Perusahaan,” *Mimbar Administrasi* 21, no. 2 (2024): 79–87.

³ M. Arfin Aryasatya and Aji Wibawa, “Dampak Perkembangan Teknologi Pada Era Society 5.0 Terhadap Lapangan Pekerjaan,” *Jurnal Inovasi Teknologi Dan Edukasi Teknik* 2, no. 3 (2022): 108–12, <https://doi.org/10.17977/um068v2i32022p108-112>.

⁴ Tiavone Theressa Andiny, “Peran Manajemen Sumber Daya Manusia Dalam Diakonia Di Era Digital,” *Danum Pabelum: Jurnal Teologi Dan Musik Gereja* 3, no. 1 (2023): 82–87, <https://doi.org/10.54170/dp.v3i1.204>.

⁵ M Haddad Alwi et al., “2024 Madani : Jurnal Ilmiah Multidisiplin Peran Kepala Sekolah Dalam Pemanfaatan Teknologi Untuk Meningkatkan Kualitas Pendidikan 2024 Madani : Jurnal Ilmiah Multidisiplin,” *Madani: Jurnal Ilmiah Multidisiplin* 2, no. 4 (2024): 532–36.

experiences that were previously difficult to achieve, so that it can have an impact on improving the quality of learning in schools.⁶

Basically, to be able to integrate these things requires good leadership practices. Leadership practices in educational institutions are not an easy thing to do. Leaders not only have the ability and skills to organize their subordinates, but must also be talented, charismatic and have a leadership soul.⁷ In integrating information technology into education, a visionary and transformational leader is needed, so that he is able to transform every component in his educational institution. His role as a leader in facing technological change is an inevitability that must be faced.⁸ This raises demands that require leaders to have a clear vision in utilizing technological advances as a facility in achieving their institution's goals.⁹ In addition, the rapid flow of technological developments requires leaders to be able to adapt to change by creating more innovative and efficient systems, so that the institutions they lead have high competitiveness.¹⁰ In addition, the quality of the teaching staff and management must also be considered by leaders.¹¹ Therefore, these demands make leaders not only focus on technology as a supporting tool, but also must pay attention to other components as supporting aspects in the success of improving the quality of education.

Furthermore, to be able to realize all of this, the role of leaders is needed in managing education management.¹² The role of a leader is needed to support efforts to improve the quality of technology-based learning in education. Leaders in this era must have a vision, be able to be motivators, and be skilled in integrating creative ideas that can create new opportunities.¹³ This shows that leadership style in the digital era also influences the progress or decline of an educational institution. Digital leadership is a combination of leadership styles in utilizing technology to create

⁶ Awaluddin et al., "Peran Pengembangan Dan Pemanfaatan Teknologi Pendidikan Dan Pembelajaran Dalam Meningkatkan Kualitas Mengajar," *Jurnal PETISI (Pendidikan Teknologi Informasi)* 2 (2021): 48–59, <https://doi.org/10.36312/teacher.v3i1.1055>.

⁷ Catur Lestari Wijayanti, "Implementasi Kepemimpinan Dan Teknologi Informasi Komunikasi Dalam Lembaga Pendidikan," *Proceedings of Annual Conference on Community Engagement* 3 (2022): 711–22, <https://doi.org/10.15642/acce.v3i1>.

⁸ Ula Masrurotuz Zahro, "Kepemimpinan Islami Dalam Mengantisipasi Perubahan Pendidikan Ke Era Digital," *Education Management: Jurnal Manajemen Pendidikan Islam (Edium)* 2, no. 1 (2024): 29–38.

⁹ Junaidah et al., "Kepemimpinan, Tranformasi Digital Dan Mindset Dalam Meningkatkan Mutu Pendidikan," *ZONASI: Jurnal Sistem Informasi* 4 (2023): 80–89, <https://doi.org/10.31849/zn.v4i.12642>.

¹⁰ Lukman Al Hakim et al., "Peran Kepemimpinan Dalam Mendukung Transformasi Teknologi Di Organisasi: Studi Kasus Di Sektor Teknologi Informasi Dan Komunikasi," *Mutiara: Multidiciplinary Scientift Journal* 2, no. 10 (2024): 1006–25.

¹¹ Wafudu Satumari John and Kamin Bin Yusri, "Quality Assurance Framework in Technical and Vocational Education and Training: A Comparative Study of Nigeria, Malaysia and UK," *Universal Journal of Educational Research* 9, no. 8 (2021): 1531–43, <https://doi.org/10.13189/ujer.2021.090805>.

¹² Ulfi Latifah et al., "Penerapan Manajemen Kepemimpinan Yang Efektif Untuk Meningkatkan Kualitas Pendidikan Teknologi Kejuruan Di Sekolah Menengah Kejuruan," *Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan* 18, no. 4 (2024): 2774, <https://doi.org/10.35931/aq.v18i4.3646>.

¹³ Zahro, "Kepemimpinan Islami Dalam Mengantisipasi Perubahan Pendidikan Ke Era Digital."

digital transformation.¹⁴ In its application, leaders are required to be intelligent, cultured, transformative and adaptive, so that leaders are responsive in providing responses to various changes that occur.¹⁵ This is because educational leaders have a big responsibility in maintaining the continuity of education in the institutions they lead.¹⁶ Apart from that, leaders must also be collaborative with teachers in understanding technology and finding out how to use it to be able to provide learning to students in a relevant, interactive and meaningful way.¹⁷ In this case, collaboration between teachers and leaders will enable teachers to have the ability to access various sources of teaching materials such as references, e-books, digital repositories that can be easily accessed through online platforms, thus creating relevant and high-quality learning.¹⁸ The application of this technology can not only access educational resources, but also provide development in effective strategies and attract enthusiasm from students.¹⁹

Based on the explanation above, it can be concluded that the rapid development of technology is the main focus in the era of the industrial revolution 4.0 and society 5.0. This change requires humans to be ready to face new challenges. The developments that occur require humans to adapt to technological changes that are important, especially in the world of education. The integration of technology in education brings significant changes, so that students gain new experiences that contribute to improving the quality of learning. In addition, the practice of leadership of educational institutions is very much needed in dealing with changes in the situation and conditions of the development of this era, so that leaders must have the ability to organize and have a strong leadership spirit. Leaders must also have a clear vision to utilize technological advances to achieve the goals of the institution and be able to adapt quickly to changes that occur.

Therefore, in order to provide insight into the strategic role of educational leaders in digital transformation, researchers conducted a review of several previous literature or studies, including: First, research from Yufita and Sihotang²⁰ entitled transformational leadership and teacher

¹⁴ Priyono, "Manajemen Kepemimpinan di Era Digital," *IKRA-ITH HUMANIORA: Jurnal Sosial Dan Humaniora* 7, no. 3 (2023): 423–34.

¹⁵ Shakeel Ahmad, "Cultural Intelligence and Leadership Effectiveness in Global Workplaces," *International Journal on Leadership* 7 (March 2019): 1–7.

¹⁶ Andy Iwan Iswanto, "Peran Pemimpin Dalam Meningkatkan Kinerja Organisasi Di Era Teknologi Digital Pada Hotel Sudamala Resort – Labuan Bajo," *AKSIOMA : Jurnal Manajemen* 2, no. 1 (2023): 1–14, <https://doi.org/10.30822/aksioma.v2i1.1970>.

¹⁷ Sri Melisawati and Jamilus Jamilus, "Membangun Generasi Unggul: Menjelajahi Strategi Pengembangan SDM Di Lembaga Pendidikan Islam Era Digital," *JIIIP - Jurnal Ilmiah Ilmu Pendidikan* 7 (June 2024): 5689–97, <https://doi.org/10.54371/jiip.v7i6.4519>.

¹⁸ Yultan Demmanggasa et al., "Digitalisasi Pendidikan: Akselerasi Literasi Digital Pelajar Melalui Eksplorasi Teknologi Pendidikan," *Community Development Journal* 4, no. 5 (2023): 11158–67.

¹⁹ Yufita and Hotmaulina Sihotang, "Kepemimpinan Transformasional Dan Pemberdayaan Guru Dalam Tranformasi Pendidikan 4.0," *Jurnal Dinamika Pendidikan* 13, no. 2 (2020): 204–15, <https://doi.org/10.33541/jdp.v13i2.1754>.

²⁰ Yufita and Sihotang, "Kepemimpinan Transformasional Dan Pemberdayaan Guru Dalam Tranformasi Pendidikan 4.0."

empowerment in educational transformation 4.0. From this study it is known that the principal's competencies include having influence, having ability, being able to motivate, and being able to meet the needs of its members. Second, research from Junaidah et al.,²¹ entitled digital transformation leadership and mindset in improving the quality of education. From this study it is known that the concept of transformational leadership in the digital era is able to lead to changes in the mindset of educators and education personnel to be able to adapt to the development and needs of the organization and be ready to become agents of digital technology change. Third, research from The Greatest Showman²² entitled the implementation of leadership and information communication technology in educational institutions. From this study it is known that the implementation of leadership and information communication technology in educational institutions has a system both verbally and in writing that is adjusted to the ability and understanding of the meaning and function that exists. Fourth, research from Latifah et al.,²³ entitled the implementation of effective leadership management to improve the quality of vocational technology education in vocational high schools. From this study it is known that the main findings of the principal play a dual role as an educator, manager, administrator and supervisor in leadership management. Fifth, research from Hakim et al.,²⁴ entitled the role of leadership in supporting technological transformation in organizations: a case study in the information and communication technology sector. From this study it is known that visionary and communicative leaders play a key role in facilitating technological change.

Based on the results of the literature review above, it is known that the previous research themes have differences in the direction of discussion, the methods used and the location of the research. Researchers will focus more on the discussion of the strategic role of educational leaders in digital transformation. Thus, researchers conclude that the strategic role of educational leaders in digital transformation has a more detailed scope of leadership discussion such as discussions on the impact of technological developments, the role of educational leaders, and digital leadership and collaboration. Thus, this study will discuss the strategic role of educational leaders in digital transformation: optimizing information technology for quality learning. This study aims to provide an overview of the strategic role of educational leaders in digital transformation.

²¹ Junaidah et al., "Kepemimpinan, Tranformasi Digital Dan Mindset Dalam Meningkatkan Mutu Pendidikan."

²² Wijayanti, "Implementasi Kepemimpinan Dan Teknologi Informasi Komunikasi Dalam Lembaga Pendidikan."

²³ Latifah et al., "Penerapan Manajemen Kepemimpinan Yang Efektif Untuk Meningkatkan Kualitas Pendidikan Teknologi Kejuruan Di Sekolah Menengah Kejuruan."

²⁴ Hakim et al., "Peran Kepemimpinan Dalam Mendukung Transformasi Teknologi Di Organisasi: Studi Kasus Di Sektor Teknologi Informasi Dan Komunikasi."

RESEARCH METHODS

This research uses a descriptive qualitative approach which aims to provide an overview so that it can be understood and the research findings will be described, explained and explained.²⁵ The qualitative method chosen in this study aims to obtain in-depth findings related to information provided by the informant based on the perception, experience and views of the informant. In addition, the descriptive qualitative method aims to be able to describe the findings in the presentation of data concisely, clearly and scientifically. This research was conducted at MAN 1 Banyumas Jl. Senopati No.1, Kejawar, Arcawinangun, Kec. Purwokerto Tim., Banyumas Regency, Central Java 53182. The objects of this study were the Principal and several teachers to be interested in responses related to the role of educational leaders in digital transformation. This study aims to describe the strategic role of educational leaders in digital transformation or integrating technology into education.

The data from this study consists of two data, namely primary data and secondary data. Primary data was obtained using instruments in the form of interviews, observations and documentation. While secondary data was obtained through reading sources in the form of books, scientific articles and other sources that can be trusted for their authenticity. In collecting data, researchers ensure that the data obtained is accurate and consistent data, this is obtained by using several stages, including; 1) Making guideline questions in interviews, observations and documentation that are arranged systematically based on the objectives of the main theme of the research. 2) Collecting data from interviews and documentation at the research location. 3) Managing data by selecting data that is included in the data classification, then compiling it according to the systematic writing in the research.²⁶ Then, the reason the researcher used the interview, observation and documentation instruments aims to provide in-depth views given by the informants regarding the role of educational leaders in digital transformation. The data obtained from the findings will then be analyzed using the Miles and Huberman techniques consisting of reduction, data display, and conclusion drawing/verification.²⁷

RESULTS AND DISCUSSION

The Impact of Technological Developments at MAN 1 Banyumas

Integrating technology into education certainly has an impact on changes and developments that occur at MAN 1 Banyumas. Based on the results of an interview with the Head of Madrasah

²⁵ Abdul Fattah Nasution, *Metode Penelitian Kualitatif*, ed. Meyniar Albina (Harfa Creative, 2023).

²⁶ Rifka Agustianti et al., *Metode Penelitian Kuantitatif & Kualitatif*, in *Tohar Media*, ed. Ni Putu Gatriyani and Nanny Mayasari (Tohar Media, 2022).

²⁷ Sa'odah et al., "Teori Belajar Dan Pembelajaran Di Sekolah Dasar," *Teori Belajar* 2 (2020): 313–24.

MAN 1 Banyumas, Mr. H. Jahroni, M.Pd.I said that the integration of technology in the learning process in the madrasah has undergone very significant changes and must adapt to several parts, one of which is the teacher. This change occurs because the integration of technology-based learning media makes the role of teachers very crucial in determining the success of learning activities in the classroom. This is based on changes in the way of determining teaching materials, delivering materials and selecting learning media used by teachers. The Head of Madrasah MAN 1 Banyumas also said that some training is needed for teachers so that they can adapt to changes in the use of technology-based learning media, such as the Learning Management System (LMS), interactive multimedia, audio, visual and audio visual. This aims to improve the learning process in the classroom which was originally normative to be more interactive, innovative, creative and effective in delivering learning materials. In addition, the head of MAN 1 Banyumas also said that the use of technology in education brings developments in increasing access to madrasa information, such as the ease of students in accessing learning materials, the ease of teachers in providing teaching materials, the ease of parents of students in accessing information provided by the madrasa, and the ease of the head of the madrasa in monitoring and supervising the progress of the educational process in the madrasa. This has a significant impact on development and ease for all components of education in carrying out their duties and responsibilities in the madrasa.

Furthermore, the impact of changes and developments that occur in the digital transformation of the use of technology has led to an increase in the quality of learning at MAN 1 Banyumas. Based on the results of interviews with the head of the MAN 1 Banyumas madrasah, it is known that there has been an increase in the quality of learning for students in the classroom. This is because the learning environment in each class has become more interactive, making students more enthusiastic in participating in learning and creating new experiences for students in obtaining material from their teachers, so that this increase has brought changes to the achievement of student learning outcomes. In addition, the head of the MAN 1 Banyumas madrasah explained that this increase occurred due to the awareness and joint efforts of the components of the teaching and educational staff of MAN 1 Banyumas regarding the importance of integrating technology into education at the madrasah. The head of the MAN 1 Banyumas madrasah also said that he would continue to strive to improve technology-based learning at MAN 1 Banyumas.

Based on the findings above, it is known that the principal of MAN 1 Banyumas madrasah made preparations before integrating technology into learning at the madrasah by holding training activities for teachers as an effort to improve technology-based teaching competencies. In addition, the principal of MAN 1 Banyumas madrasah also paid attention to his leadership management in the form of a system created to monitor and supervise educational activities at the madrasah. This

strengthens the research from John and Yusri²⁸ which states that the quality of teaching staff and management must be considered by a leader. Then, based on the results of the researcher's observations, it was found that the principal of MAN 1 Banyumas was a responsive figure and was able to adapt to the changes faced. This is evidenced by making the challenge of integrating technology an opportunity to make learning activities a success at MAN 1 Banyumas. The principal also prepares facilities and infrastructure to support the process of technology-based learning activities such as the Learning Management System (LMS), the addition of LCD projectors, improving the quality of the madrasah's Wifi bandwidth, and other supporting facilities. This is in line with research from Ahmad²⁹ which states that leaders must be responsive in facing the changes faced. Furthermore, the principal of MAN 1 Banyumas madrasah utilizes the use of technology as a convenience in accessing madrasah information such as the convenience of students in accessing learning materials, the convenience of teachers in providing teaching materials, the convenience of parents of students in accessing information provided by the madrasah, and the convenience of the principal in monitoring and supervising the progress of educational activities in the madrasah. This is in line with research from Andiny³⁰ who said that the integration of technology in education can be used as a facility to provide services.

The Role of the Principal of MAN 1 Banyumas Madrasah

In the era of digital technology like today, it really needs the role of an educational leader who has the ability to organize all existing educational components in order to achieve the goals of educational institutions. Based on the results of interviews with the head of the MAN 1 Banyumas madrasah, it is known that the head of the madrasah has roles including;

1. Educator

The principal of MAN 1 Banyumas madrasah has a role as an educator, namely a leader who will provide education in the form of direct examples to its members on how to deal with the transformation of digital technology in the madrasah environment and training that can improve the competence of its members. This aims to provide an understanding so that all components of education at MAN 1 Banyumas can adapt quickly and responsively to changes in the world of education, so that the madrasah does not experience being left behind. His role as an educator is to provide training and assistance to teachers on the integration of digital technology into learning at the madrasah. This is intended to provide encouragement on the use of technology such as the use of Augmented Reality, Virtual

²⁸ John and Yusri, "Quality Assurance Framework in Technical and Vocational Education and Training: A Comparative Study of Nigeria, Malaysia and UK."

²⁹ Ahmad, "Cultural Intelligence and Leadership Effectiveness in Global Workplaces."

³⁰ Andiny, "Peran Manajemen Sumber Daya Manusia Dalam Diakonia Di Era Digital."

Reality or Gamification to be implemented into learning to attract more enthusiasm from students.

2. Manager

The principal of MAN 1 Banyumas as a manager has the responsibility to organize the resources owned effectively and efficiently consisting of human resources, infrastructure, and technology. In his duties as a manager, the principal of MAN 1 Banyumas has an important role in making strategic steps in allocating the madrasah budget to be able to integrate digital technology in learning at MAN 1 Banyumas, so that it can improve the quality of education at the madrasah. In addition, the principal of MAN 1 Banyumas is also tasked with maintaining stability in the management of the learning system so that it can be effective and holding training for teachers so that they can improve their technology-based teaching competencies.

3. Administrator

The principal of MAN 1 Banyumas as an administrator is tasked with ensuring that all learning process activities at MAN 1 Banyumas run smoothly, effectively and efficiently in integrating technology. In his role as an administrator, the principal of MAN 1 Banyumas manages all administrative needs, so that the learning process in the digital technology-based madrasa can run according to the plans, policies and regulations that have been made. This is indicated by the rules of the cloud-based data management system used by teachers to store, manage and analyze data obtained from the learning process in the classroom. In addition, the principal also ensures the availability of technological facilities and infrastructure that support the learning process in the madrasa.

4. Supervisor

The principal of MAN 1 Banyumas as a supervisor is tasked with supervising, evaluating and assessing the performance results of the implementation of technology-based learning. Another task as a supervisor is to ensure that the quality of technology-based learning provided is maintained and in accordance with the objectives of MAN 1 Banyumas. In addition, technology can also be used by the principal of MAN 1 Banyumas in conducting technology-based assessments and evaluations based on data presented on teacher performance and student learning outcomes. This facilitates the duties and responsibilities of the principal in conducting assessments and evaluations of technology-based learning activities.

Based on the findings above, it is known that the principal of MAN 1 Banyumas has a strategic role in integrating technology in education, as evidenced by the role of the principal of

MAN 1 Banyumas as an educator, manager, administrator and supervisor. This is in line with the results of research from Latifah et al.,³¹ which reveals that educational leaders need to have a dual role in managing educational management, thus creating effective leadership. In his role as an educator, the principal of MAN 1 Banyumas provides training and mentoring to teachers on integrating digital technology into learning. This is in line with research from Hutagalung et al.,³² which explains that the role of an educational leader is to provide training that aims to foster a sense of responsibility from teachers. In addition, in his role as a manager, the head of the MAN 1 Banyumas madrasah made strategic steps in allocating the madrasah budget to be able to integrate digital technology in learning which aims to improve the quality of education in the madrasah. This strengthens research from Sukatin et al.,³³ who said that the role of educational leaders as managers is a crucial role in improving the quality of education in their institutions. Then in his role as administrator, the head of the MAN 1 Banyumas madrasah manages all administrative needs, so that the learning process in the digital technology-based madrasah can run according to plans, policies and regulations. This is in line with research from Rahim et al.,³⁴ which states that the role of the leader as an administrator must manage administrative tasks effectively such as in supervising the preparation of plans, syllabi, and teacher education documents. Finally, the role of the head of the MAN 1 Banyumas madrasah as a supervisor is to ensure that the quality of technology-based learning provided is maintained and in accordance with the objectives of MAN 1 Banyumas. This strengthens research from Alhusna et al.,³⁵ who said that the important role of an educational leader as a supervisor is to provide supervision to ensure that learning activities run effectively.

Strategy and Leadership Style of the Principal of MAN 1 Banyumas

Furthermore, in an effort to face changes and realize the achievement of educational institutions, the principal of MAN 1 Banyumas madrasah implemented several strategies that not only focused on the sustainability of educational technology integration in MAN 1 Banyumas, but also focused on improving the internal quality of madrasah components and the leadership style

³¹ Latifah et al., "Penerapan Manajemen Kepemimpinan Yang Efektif Untuk Meningkatkan Kualitas Pendidikan Teknologi Kejuruan Di Sekolah Menengah Kejuruan."

³² Riky Kurniawan Hutagalung et al., "Peran Kepemimpinan Kepala Sekolah Dalam Peningkatan Kinerja Guru Pada Proses Pembelajaran Masa Pandemi," *Journal Of Administration and Educational Management (ALIGNMENT)* 5, no. 2 (2022): 143–59, <https://doi.org/10.31539/alignment.v5i2.4543>.

³³ Sukatin Sukatin et al., "Peranan Kepemimpinan Manajemen Pendidikan," *Educational Leadership: Jurnal Manajemen Pendidikan* 1, no. 2 (2022): 226–34, <https://doi.org/10.24252/edu.v1i2.26458>.

³⁴ Rika Rahim et al., "Peran Kepemimpinan Kepala Sekolah Dalam Administrasi Pendidikan Guru Di Mi Hajar Abyadl Sangatta Utara," *Jurnal Ilmu Pendidikan Muhammadiyah Kramat Jati* 3, no. 2 (2022): 34–46, <https://doi.org/10.55943/jipmukjt.v3i2.42>.

³⁵ Tita Alhusna et al., "Peran Kepala Sekolah Sebagai Supervisor Dalam Meningkatkan Efektivitas Pembelajaran Pada Masa Pandemi Covid-19 Di SMP Negeri 1 Majalaya," *Petaka (Jurnal Penelitian Tindakan Kelas Dan Pengembangan Pembelajaran)* 4, no. 3 (2021): 357–66.

applied in adapting to the demands of development and changes in the times. Based on the results of interviews with the principal of MAN 1 Banyumas madrasah, it is known that the strategies implemented are as follows;

1. Cultivating an adaptive mentality

The principal of MAN 1 Banyumas madrasah emphasized the importance of developing an adaptive mentality in facing changes and developments that occur, so that challenges can be turned into opportunities and not problems. Then, to be able to smooth the strategy, the principal of MAN 1 Banyumas madrasah communicated with all components of the madrasah and related parties to explain the vision clearly, so as to create real support from the components of the madrasah and related parties involved in the process. This is also supported by the readiness of all components of the madrasah in facing changes through the provision of training aimed at improving the competence of all components of the madrasah in providing teaching to students.

2. Creating innovation and creativity

In the integration of educational technology, the principal of MAN 1 Banyumas utilizes the technology as a strategy in creating innovation and creativity. The principal in this case also provides ideas in the form of new ideas related to the process of integrating educational technology in the madrasa, such as examples of collaborative learning of technology in the classroom by integrating technology as a means of supporting learning activities to produce an innovative and efficient learning system. In addition, the principal of MAN 1 Banyumas also provides freedom to all components of the madrasa to be creative and create new ideas according to the needs of the madrasa, such as providing opportunities for teachers to develop learning media, create new styles in teaching, and be creative in providing teaching materials in the classroom. This aims to encourage innovation and creativity in every learning in the classroom and provide an understanding of the importance of utilizing technology, so that it can improve the quality of student learning.

3. Optimizing educational resources

Another strategy implemented by the principal of MAN 1 Banyumas in integrating educational technology is by optimizing the educational resources owned by the madrasah. In this case, the principal ensures the availability of resources owned, both human and non-human, such as management of teaching and education personnel and management of facilities and infrastructure owned by the madrasah. Through the management of teaching and education personnel, the principal of MAN 1 Banyumas maximizes his/her abilities by involving them in training for teachers and education personnel, providing clear tasks and responsibilities, and routinely conducting performance evaluations. In addition, the

principal of MAN 1 Banyumas in managing resources in the form of facilities and infrastructure supporting the integration of educational technology is by ensuring the availability and feasibility of digital technology-based learning support tools such as wifi, e-learning, and learning management systems.

Based on the findings above, it is known that the principal of MAN 1 Banyumas has several strategies in improving the internal quality of the madrasah components as well as several leadership styles applied in adapting to the developments and changes that occur. In the strategy to improve the internal quality of the madrasah components, the principal of MAN 1 Banyumas focuses on three things, including fostering an adaptive mentality, creating innovation and creativity, and optimizing educational resources. The principal's strategy in fostering an adaptive mentality aims to create real support from the madrasah components and related parties involved in the process by considering the readiness of all madrasah components in facing changes through the provision of training aimed at improving the competence of all madrasah components in providing teaching to students. This strategy is in line with research from Sutisna³⁶ which states that the importance of developing an adaptive mindset is very useful for adapting to new teaching, technological means, and approaches used for students. This shows the importance of fostering an adaptive mentality to all components of the madrasah to be able to adapt to changes and developments that occur.

Furthermore, in implementing the strategy of creating innovation and creativity, the principal of MAN 1 Banyumas also provided ideas in the form of new ideas related to the process of integrating educational technology in the madrasah, and provided freedom to all components of the madrasah to be creative and create new ideas according to the needs of the madrasah. This strategy is intended to encourage innovation and creativity in every classroom learning and provide an understanding of the importance of utilizing technology, so that it can improve the quality of student learning. This strategy is in line with research from Rahayu et al.,³⁷ which reveals that innovation and creativity in digital-based learning can provide significant changes to the education received by students. This shows the importance of implementing strategies to create innovation and creativity to all components of the madrasah, so that it can provide significant changes in improving the quality of student learning.

³⁶ Husein Sutisna, "Penguatan Kompetensi Sumber Daya Manusia Guru Melalui Penguatan Growth Mindset dalam Transformasi Satuan Pendidikan," *Tpet Journal* 3, no. 2 (2024).

³⁷ Tutin Rahayu et al., "Kreativitas Dan Inovasi Guru Dalam Pembelajaran Berbasis Digital Dengan Media Kelas Virtual TV Sekolah Pada Anak Usia Dini Di Paud Cinta Kasih Ibu," *Journal Syntax Idea* 6, no. 2 (2024).

Another strategy implemented by the principal of MAN 1 Banyumas in integrating educational technology is by optimizing educational resources. The principal ensures the availability of resources owned such as management of teaching staff, education personnel, and management of facilities and infrastructure. This strategy is designed as a strategic effort by the principal of the madrasah in ensuring the optimization of educational resources to support the integration of technology into the learning process. This is in line with research from Sari et al.,³⁸ which emphasizes the importance of leader strategies in optimizing resources effectively to improve the quality and outcomes of education. This shows that the implementation of strategies to optimize educational resources can effectively improve the quality of learning and learning outcomes in madrasahs.

Then in an effort to support the process of implementing the strategy of the madrasah principal, the leadership style of a leader is also a factor in the success of integrating technology in the madrasah. Based on the findings through observations of the leadership style used by the madrasah principal of MAN 1 Banyumas, it is known that the madrasah principal applies several leadership styles, including:

1. Participative Leadership

Leadership with a participatory style applied by the principal of MAN 1 Banyumas is proven by involving all components of the madrasah such as educators and education staff in the decision-making process and policy making. In addition, it is known that the principal of MAN 1 Banyumas is not only instructive in carrying out his position as a leader, but also directly participates in solving all existing problems. The principal of the madrasah believes that the approach taken by implementing a participatory leadership style can create healthy, solid, collaborative working relationships and can foster an emotional approach to all components of madrasah education. This aims to create a sense of mutual ownership, care and responsibility in carrying out the mandate given.

2. Visionary Leadership

The visionary leadership style applied by the principal of MAN 1 Banyumas is reflected in the principal's focus on developing a long-term learning system, thinking about future steps, and conducting analysis related to obstacles that will be faced in the future. In addition, it is known that the principal of MAN 1 Banyumas also has a vision that encourages the integration of digital educational technology in madrasahs as the main means of improving the quality of learning in madrasahs. The principal of MAN 1 Banyumas believes that the use of technological facilities in education in madrasahs is a mandatory

³⁸ Arrum Intan Sari et al., "Optimalisasi Manajemen Strategis Prasarana Pendidikan," *Jurnal Ilmu Multidisplin* 1, no. 4 (2023): 814–22, <https://doi.org/10.38035/jim.v1i4.126>.

requirement in the current era. This step is intended to maintain the sustainability of the learning process in madrasas and improve the quality of learning and graduates of madrasas in the future. This is evidenced by the ongoing development of the madrasah learning management system, improving supporting technological facilities, and providing training to educators so that they are ready to provide quality teaching.

3. Transformational Leadership

Transformational leadership style applied by the principal of MAN 1 Banyumas madrasah is shown by providing motivation, education, and inspiration to the principals of all components of the madrasah. This is done as a form of effort to provide encouragement to all components of the madrasah so that they can innovate, create and develop in utilizing educational technology in the madrasah. In addition, the principal of MAN 1 Banyumas madrasah in implementing a transformational leadership style aims to be able to provide stimulus or stimulation to teachers and students in utilizing the use of educational technology facilities to the maximum, so that this can help improve the quality of learning. The principal of MAN 1 Banyumas madrasah assumes that the application of this leadership style can help the transformation process in dealing with all developments and changes that occur.

Based on the findings above, it is known that the principal of MAN 1 Banyumas uses three leadership styles that are applied collaboratively in the integration of educational technology at MAN 1 Banyumas, including participatory, visionary and transformational leadership. In implementing the participatory leadership style, the principal of MAN 1 Banyumas involves all components of the madrasah such as educators and education personnel in the decision-making process and policy making. In addition, the approach pattern towards educators and education personnel is not only instructive in carrying out the position as a leader, but also directly participates in solving all existing problems. This style is applied with the aim of creating a sense of mutual ownership, maintenance and responsibility in carrying out the mandate given. This is in line with research from Mubarak et al.,³⁹ which states that the implementation of a leader's participatory leadership style will create an inclusive environment, build harmonious relationships, increase motivation, and commitment of the parties involved. Then, the implementation of the visionary leadership style of the head of the MAN 1 Banyumas madrasah was carried out by encouraging the integration of digital educational technology in madrasahs as the main means of improving the quality of learning in madrasahs. The head of the MAN 1 Banyumas madrasah believes that the use

³⁹ Ramdanil Mubarak et al., "Eksplorasi Gaya Kepemimpinan Partisipatif Kepala Madrasah Dalam Mendorong Peningkatan Mutu Madrasah Ibtidaiyah," *Al-Madrasah Jurnal Pendidikan Madrasah Ibtidaiyah* 8, no. 2 (2024): 480, <https://doi.org/10.35931/am.v8i2.3419>.

of technological facilities in education in madrasahs is a mandatory requirement in the current era. This step is intended to maintain the sustainability of the learning process in madrasahs and improve the quality of learning and graduates of madrasahs in the future. This is in line with research from Hidayat et al.,⁴⁰ which states that visionary leadership is important in facing the challenges of the development of science and technology and in efforts to realize the ideals of madrasahs in the future.

Furthermore, the principal of MAN 1 Banyumas in implementing a transformational leadership style is an effort to provide encouragement to all components of the madrasah so that they can innovate, create and develop in utilizing educational technology in the madrasah. This aims to provide stimulus or stimulation to teachers and students in utilizing the use of educational technology facilities to the maximum, so that it can help improve the quality of learning. This is in line with research from Nur et al.,⁴¹ which states that transformational leadership style has dimensions that can influence change, motivation, individual considerations and intellectual stimulus or stimulation to all madrasah residents. Leadership in the current era has given birth to a new style in collaborating models or leadership styles that can make it easier for madrasah principals to face changing situations and conditions when integrating educational technology in madrasahs. Digital leadership is a combination of leadership styles in utilizing technology to create digital transformation.⁴² Collaborative digital leadership was born as a solution to face changes and developments in the era.

CONCLUSION

The findings above show that the impact of developments in MAN 1 Banyumas has made the principal of MAN 1 Banyumas take strategic steps in integrating technology into learning by making several preparations such as teacher training, systematic leadership management, and providing infrastructure such as Learning Management System (LMS), projectors, and improving the quality of Wi-Fi. The principal of MAN 1 Banyumas also showed responsiveness and adaptability to change, making challenges an opportunity to improve the quality of learning. In addition, technology is used to facilitate access to information for students, teachers, parents, and principals, supporting more efficient education services.

Furthermore, the findings show that the principal of the madrasah has a strategic role in integrating educational technology into the madrasah by carrying out four roles, namely as an educator, manager, administrator and supervisor. In addition, the principal of the MAN 1 Banyumas

⁴⁰ Arif Hidayat et al., "Kepemimpinan Visioner Kepala Sekolah Dalam Pengelolaan Program Unggulan Di SMA Al-Abidin Bilingual Boarding School (ABBS) Surakarta," *Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan* 17, no. 3 (2023): 2147, <https://doi.org/10.35931/aq.v17i3.2139>.

⁴¹ Lutfi Nur et al., "Analisis Kepemimpinan Transformasional," *Ilmu Manajemen Dan Bisnis* 12, no. 2 (2021): 185–99.

⁴² Priyono, "Manajemen Kepemimpinan di Era Digital."

madrasah has a strategy in adapting to changes and developments in the era, including fostering an adaptive mentality, creating innovation and creativity, and optimizing educational resources. In its implementation, the principal of the MAN 1 Banyumas madrasah applies three leadership styles such as participatory, visionary and transformational. Leadership in the digital technology era gives birth to a new style in collaborating models or leadership styles that can make it easier for the principal of the madrasah to face changing situations and conditions when integrating educational technology in the madrasah. Collaborative digital leadership was born as a solution in facing changes and developments in the era.

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