

Visionary Leadership Strategies for Sustaining Madrasah Culture in Industry 4.0

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ABSTRACT

Purpose – The purpose of this study is to explore visionary leadership strategies for sustaining and developing madrasah culture at the secondary school level (e.g., MTs and MA) in the industry 4.0 era. It examines how effective leadership can preserve traditional values while adapting to technological advancements in education.

Method – A literature review approach was employed, analyzing data from databases such as Google Scholar, JSTOR, and Scopus (2010-2025). Keywords included "visionary leadership," "madrasah culture," "Industry 4.0," and "educational leadership." Inclusion criteria focused on peer-reviewed articles, books, and conference proceedings related to madrasah leadership, with exclusion criteria eliminating studies not directly connected to the subject. The quality of studies was assessed using the CASP checklist.

Findings – The findings indicate that the effectiveness of madrasah leaders is crucial in preserving and developing madrasah culture in the industry 4.0 era. Visionary leadership is identified as the most effective model, with key strategies such as fostering a long-term, adaptable culture, positioning the leader as an agent of change, aligning goals with technological advancements, and promoting professional development through coaching and collaborative learning (e.g., Professional Learning Communities). The study emphasizes that successful leadership should focus on measurable outcomes, such as increased teacher collaboration, student engagement with technology, and improved educational performance in line with Industry 4.0 standards.

Research Implications – Madrasah leaders must adopt visionary leadership to navigate the challenges of Industry 4.0. By implementing these strategies, leaders can ensure the sustainability of madrasah culture while integrating technological advancements. Future research should focus on empirical studies assessing the practical application of these strategies, particularly through longitudinal and case studies across diverse madrasahs.

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Introduction

In contemporary Indonesia, madrasahs have emerged as one of the leading educational institutions, with many madrasahs becoming the first and primary choice (elite schools) for the middle to upper class (Tambak & Sukenti, 2020). Despite this progress, madrasahs are still often recognized as traditional institutions with an educational system that is a genuine product of Indonesia. This phenomenon is, at least in part, attributed to the madrasahs' ability to respond to and accommodate the aspirations of society (Juminah et al., 2023). They have been regarded as a "great tradition" and a "role model" of educational institutions in Indonesia, not only for their intellectual tradition but also for their role in transmitting and internalizing moral values (Anwar et al., 2020; Devi & Subiyantoro, 2021).

In addition, madrasahs serve as educational institutions that preserve high educational values and norms (Haddade et al., 2024), which are often overlooked or unnoticed by other formal educational institutions (Zaini & Syafaruddin, 2020; Abrori & Hadi, 2020). According to official data from the Ministry of Religious Affairs of the Republic of Indonesia, in the 2022/2023 academic year, the madrasah sector in Indonesia consists of 82,145 institutions (including MI, MTs, and MA) serving 9,610,521 students. This sector is supported by 1,006,330 educational staff (Kementerian Agama Republik Indonesia, 2023).

Given the large number of madrasahs today, along with the advancement of technology and information in Industry 4.0, madrasahs have not only survived but have also become a primary alternative for parents seeking education for their children (Juminah et al., 2023). This transformation is further supported by the Ministry of Religious Affairs of the Republic of Indonesia's policy direction for madrasah development between 2015 and 2019, which focused on expanding public access to education, improving madrasah management governance, and enhancing the quality of teachers and educational staff (Septantiningtyas & Sulistiawati, 2023). As a result, madrasahs have successfully implemented concrete educational practices such as the integration of digital learning tools, the development of teacher competency programs, and the creation of a more transparent management system. These strategies have enabled madrasahs to play a crucial role in reconstructing and preserving Islamic values and norms while adapting to the demands of the Industry 4.0 (Sali & Marasigan, 2020; Anwar et al., 2020).

Development and change are two interrelated factors that play a significant role in the transformation and reconstruction of madrasahs, requiring careful planning and appropriate strategies (As'ad et al., 2020). These efforts are essential to ensure that the direction and educational policies of madrasahs in Industry 4.0, align with the mandates outlined in the 1945 Constitution (Naim et al., 2022). Research findings indicate that while the current era's changes have positively impacted the development of madrasahs, they

have also had negative consequences on the madrasah education system (Sukenti et al., 2021). This shift is marked by a transition from traditional culture to modern culture, from small-scale learning environments to broader ones. In the past, education primarily took place in classrooms with teachers, whereas now it involves engagement with experts (Maryati et al., 2023; Anwar et al., 2020). Additionally, learning sources have expanded from traditional textbooks to include applications available on smartphones, among other advancements (Priatna, 2020). As a result, while these changes present significant opportunities for enhancing educational access and quality, they also challenge madrasahs to adapt and balance modern approaches with their foundational cultural values.

The challenges presented by Industry 4.0, compel madrasahs to preserve their existence while maintaining their cultural identity. Berger and Luckmann (2016) explain that knowledge and technology in madrasahs are constructed through the processes of objectification, externalization, and internalization, thus forming the madrasah culture itself. This process aligns with the findings of Sukenti et al. (2021), which highlight the need for madrasahs to adopt blended learning systems in response to the demands of the digital age.

Madrasah culture, as a collective identity, is built upon values, norms, and beliefs that are reflected in the behaviors of its members (Maryati et al., 2023). However, the lack of clarity in the regulatory system surrounding the familial culture of madrasahs has led to inefficiencies in its preservation (Salim & Mustakim, 2021; Mufida, Z., & Syam, A. R., 2024). This culture, however, serves as the foundation for the comfort and stability of the madrasah community (As'ad et al., 2020), and is also an interpretative tool for understanding the internal conditions of the madrasah (Sali & Marasigan, 2020; Anwar et al., 2020). The role of madrasah leadership becomes critical in addressing these challenges, as leaders are expected to be the key agents in maintaining and adapting this culture. Malla et al. (2020) emphasize that leaders must serve as role models to inspire the community's spirit. Transformational leadership (Septariani, 2024; Abdurrahman, L., et al., 2022) and visionary leadership (Pribudhiana et al., 2020) have proven effective in fostering innovation and community engagement, providing a clear direction for the future of madrasahs. However, Obi et al. (2021) warn that authoritarian leadership may generate conflicts and should be avoided, as it can undermine the very stability that madrasah culture aims to uphold.

The strategy of benchlearning (Aas et al., 2020) could be adopted by madrasahs to improve leadership practices and culture through collaborative learning. This approach involves benchmarking best practices in leadership by allowing madrasah leaders to observe and learn from each other, sharing successful strategies and solutions to common challenges. Practical steps for implementing benchlearning in madrasahs include organizing peer observation sessions, where leaders and teachers visit other

madrasahs to observe leadership strategies and teaching methods in action. Follow-up discussions and workshops could then be held to reflect on the observations and adapt relevant strategies to the local context. On the other hand, Ridwan (2020) offers a perspective on religious leadership based on minority groups, while Umlati and Nur (2023) demonstrate how local leadership can strengthen Islamic education in remote areas. This approach is relevant to Habibulloh et al.'s (2025) findings, which suggest that innovative behavior is influenced by the psychological climate shaped by leaders.

External challenges, such as the pandemic, also impact the role of madrasah leaders. Siuda-Ambroziak and Bahia (2020) provide an example of how religious leaders in Rio de Janeiro adapted to the crisis, illustrating how leadership flexibility can address external shocks. In contrast, Hidayah (2025) emphasizes that visionary leadership drives innovation in disruptive situations. These findings suggest that madrasah leaders, especially in the context of Indonesia, must combine steadfast cultural values (Berger, 2014) with adaptive leadership (Aas et al., 2020; Utomo, F. H., et al., 2025) to remain relevant in Industry 4.0. While the example of religious leaders in Rio de Janeiro demonstrates adaptability in a different context, it is crucial to recognize that the implementation of these strategies should consider the local socio-cultural and educational dynamics in madrasahs.

Methods

This article examines visionary leadership strategies for sustaining madrasah culture in the context of the Fourth Industrial Revolution through a comprehensive literature review. The methodology involves analyzing a range of data sources, including books, academic journals, research reports, and online resources (Sugiyono, 2016; Ulfatin, 2022). A transparent and replicable literature search protocol was followed, utilizing databases such as Google Scholar, JSTOR, and Scopus, covering publications from 2010 to 2025. Relevant studies were identified using keywords like "visionary leadership," "madrasah culture," "Industry 4.0," and "digital age," with inclusion criteria focusing on peer-reviewed articles, relevance to madrasah leadership, and recent findings on digital transformation. Articles not directly related to the topic or published outside the specified time frame were excluded. The data collection process involved systematically screening articles and extracting key themes related to visionary leadership and madrasah culture, synthesizing findings to provide a holistic understanding of leadership's role in sustaining madrasah culture in the digital age (Creswell, 2014). The review identifies theoretical perspectives and frameworks that form the basis for future research on leadership strategies to maintain madrasah culture amidst Industry 4.0 challenges.

Result

Currently, there is a growing trend among the public to enroll their children in high-quality madrasahs (Juminah et al., 2023), as public schools are often perceived to fall short in meeting educational demands (Abrori & Hadi, 2020). This presents a challenge for madrasahs to offer an educational alternative that aligns with the needs of society in the Fourth Industrial Revolution (Anwar et al., 2020). The key to meeting this challenge lies in improving madrasah culture (Haddade et al., 2024). Madrasah culture serves as the foundation of the institution's organizational design, which includes objectives, structure, technology, and management practices (As'ad et al., 2020). The design of the madrasah sets the framework for creating a conducive climate within the institution (Devi & Subiyantoro, 2021).

In this context, "madrasah design" refers to the operational framework of organizational structures, goals, and processes, while "madrasah climate" encompasses the atmosphere created by culture, leadership, and management practices. According to Higgins (as cited in Maryati et al., 2023), madrasah design reflects the perception of its members regarding the institution's goals and how it meets community demands. This includes communication methods, motivation techniques, and strategies for involving members in decision-making. Key indicators for measuring madrasah culture include member involvement in decisions, communication quality, and motivation levels. A strong madrasah culture positively impacts educational outcomes and community satisfaction with madrasah services (Naim et al., 2022).

The formation of madrasah culture is closely linked to leadership (Lee et al., 2020). According to Khan et al. (2020), leaders must recognize that the current culture of the madrasah is inseparable from their leadership style. The development of a stronger and more resilient madrasah culture must begin with the leadership style of the madrasah leader (Al-Husseini et al., 2021). Furthermore, madrasah culture is intimately connected with the leader's vision and mission (Erhan et al., 2022). A madrasah leader with a clear and compelling vision and mission will be better equipped to address the challenges faced by the madrasah, particularly in Industry 4.0 (Jumahir et al., 2023). This will be effective if (a) the madrasah leader can serve as a role model for the madrasah community (Cortes & Herrmann, 2021); (b) the leader is able to build a strong team dynamic among madrasah members (Zaid et al., 2022); (c) the leader is open to learning from the madrasah community (Bellibaş & Gümüş, 2019); and (d) the leader understands the positive traditions that should be continually nurtured within the madrasah (Mahfuddin et al., 2023).

The leadership of a madrasah leader is understood as the ability to influence, guide, coordinate, motivate, and collaborate in achieving the established goals of the madrasah (Latif & Marimon, 2019). According to Janudin et al. (2024), to perform leadership tasks

effectively, a madrasah leader is expected to master three core skills: conceptual skill, technical skill, and human skill. Research by Supermane (2019) concluded that intellectual intelligence alone has a limited contribution to a madrasah leader's success in managing the institution, with a more significant impact coming from technical and human skills. In line with these findings, Abdullah et al. (2018) argued that a leader's success in performing leadership duties is more dependent on their development in technical and human skills, rather than conceptual skill alone. This is further supported by Purwanto et al. (2022), who emphasize that internal factors, such as technical skills, human skills, self-confidence, energy, vision, and courage, are crucial in determining a leader's success (Sarnoto & Rahmawati, 2022). These internal factors play a vital role in shaping the effectiveness and overall performance of madrasah leaders, as illustrated in the following figure:

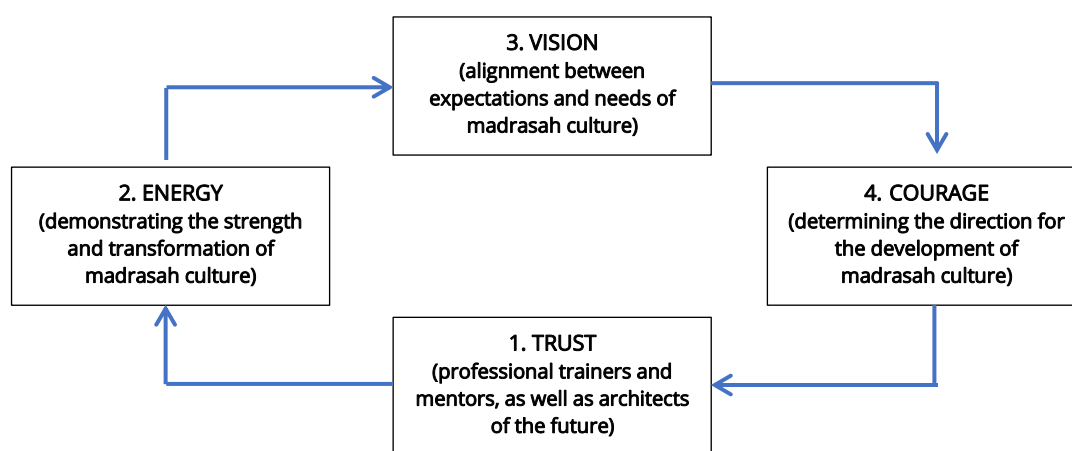


Figure 1. Characteristics of a Successful Madrasah Leader

The relevant leadership model for sustaining madrasah culture in the Industry 4.0, which is crucial for madrasah productivity, is visionary leadership (Hidayah, 2025). This leadership style focuses on shaping a future full of challenges, becoming an agent of change with high standards and excellence (Pribudhiana et al., 2020), and acting as the primary guide for the direction and policies of the madrasah, understanding its priority needs (Al-Husseini et al., 2021). It also emphasizes being a professional coach who can guide madrasah members toward the desired work professionalism (Janudin et al., 2024).

Visionary leadership is distinct from other leadership models, such as transactional and transformational leadership, because it prioritizes long-term vision, strategic goal-setting, and anticipating future trends. Unlike transactional leadership, which focuses on short-term goals and rewards for specific performance, or transformational leadership, which inspires and motivates followers through change, visionary leadership emphasizes the foresight to align an organization's culture with future demands. This model is essential in facing the challenges of the Fourth Industrial Revolution, where madrasahs must demonstrate the strength and unique characteristics of their culture to meet the high standards of education expected by stakeholders (Khan et al., 2020).

Currently, visionary leadership is regarded as the most appropriate model for preserving madrasah culture (Malla et al., 2020), as it responds to the statement, "the only thing permanent is change," requiring that madrasah leaders possess the courage to develop the madrasah while consistently engaging in exploratory innovation (Lee et al., 2020). Exploratory innovation refers to how a leader thinks creatively and generates ideas beyond existing norms to address the challenges of the Fourth Industrial Revolution (Cortes & Herrmann, 2021). Nonetheless, a visionary madrasah leader strives to build and sustain the madrasah's culture based on the values, beliefs, and behaviors they uphold (Jumahir et al., 2023). The strategies for visionary leadership in maintaining madrasah culture are as follows: creating a long-term oriented madrasah culture (Erhan et al., 2022); positioning themselves as an "agent of change" (Abdurrahman et al., 2022); guiding the direction of the madrasah (Umlati & Nur, 2023); serving as a professional mentor for madrasah members (Mahfuddin et al., 2023); and demonstrating competence grounded in professional experience in preserving madrasah culture (Bellibaş & Gümüş, 2019).

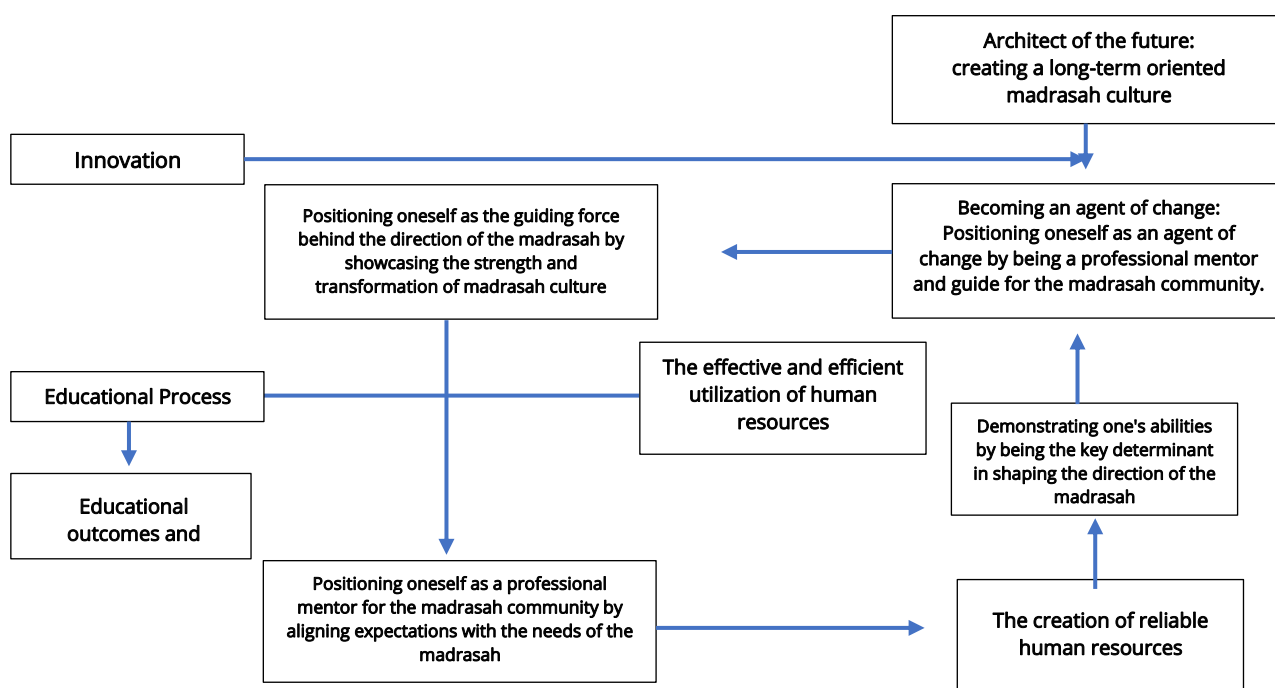


Figure 2. Visionary Leadership Strategies for Sustaining Madrasah Culture

Successful visionary leadership in maintaining madrasah culture is achieved by aligning the madrasah's objectives with both institutional tasks and effective human relations between the leadership and its members. This approach is crucial in adapting to the prevailing conditions and situations, ensuring that leadership practices are responsive to change while remaining rooted in the values and goals of the madrasah (Pribudhiana et al., 2020; Hidayah, 2025). Visionary leaders must foster collaboration, guide members toward shared goals, and create an environment conducive to both individual and collective growth. This balance between strategic leadership and human-centered

relationships facilitates the achievement of the madrasah's mission, allowing it to thrive in dynamic circumstances:

- a. **The Leader's Influence:** The ability of the madrasah leader to influence its members is strongly linked to the leader's strength and competence in realizing the commitment of the members and motivating them to perform their duties and responsibilities (Malla et al., 2020). A true madrasah leader is one who constantly considers the well-being of their members and the future of the madrasah (Latif & Marimon, 2019).
- b. **Leadership Behavior:** The behavior of the madrasah leader consistently directs the members toward achieving the institution's objectives, despite the diversity of views and characteristics among the members (Abdurrahman et al., 2022). Here, the leader's behavior is tested in adapting to the needs and personalities of the members (Khan et al., 2020).
- c. **Leadership Competence:** A competent madrasah leader is capable of managing the members effectively, ensuring that tasks and responsibilities are assigned to the "right person for the right place" based on the competencies of each member, while also utilizing other resources that can support the completion of these tasks to avoid waste (Bellibaş & Gümüş, 2019).
- d. **Mentorship and Guidance:** The madrasah leader serves as both a mentor and trainer for the members, guiding them to understand human values and norms that reflect shared beliefs and goals, aiming to shape the members' behavior in line with the established guidelines (Jumahir et al., 2023). The presence of these humanistic and familial norms fosters harmony and comfort within the madrasah culture (Mahfuddin et al., 2023).

To assess the effectiveness of a madrasah leader in maintaining madrasah culture, it is essential to observe and evaluate their leadership qualities, which serve as criteria for performance assessment (Umlati & Nur, 2023). These qualities include high personal motivation (Lee et al., 2020), energy and the ability to work extended hours (Cortes & Herrmann, 2021), skill in teaching and educating (Zaid et al., 2022), emotional stability (Erhan et al., 2022), social competence (Al-Husseini et al., 2021), knowledge of human relations (Septariani, 2024), technical and managerial skills (Supermane, 2019), and proficiency in communication across various languages (Ridwan, 2020). These qualities can be measured using performance evaluation tools, such as 360-degree feedback surveys, self-assessment questionnaires, peer reviews, and direct observations, which allow for a comprehensive and objective analysis of a leader's capabilities and overall performance.

The leadership of a madrasah plays an active role in enhancing its culture, which is key to improving educational quality (As' ad, A., Purwanto, P., & Rohmadi, Y., 2020). Therefore, a madrasah leader must effectively manage available educational resources to

achieve educational goals (Abdullah et al., 2018). The leader must also be capable of creating a positive work environment that encourages all madrasah members to contribute collectively toward achieving organizational objectives (Sarnoto & Rahmawati, 2022). The characteristics of a visionary madrasah leader who successfully maintains madrasah culture are as follows:

- a. **Engagement with Members:** A visionary madrasah leader is able to engage with members effectively (Utomo et al., 2025). This approach is essential for the leader to remain close to their members, offering guidance in executing their assigned tasks (Obi et al., 2021). The leader does not set barriers between themselves and their members, as they understand the value of all contributions, no matter how small (Siuda-Ambroziak & Bahia, 2020).
- b. **Professionalism:** A visionary leader places the madrasah's interests above personal interests, ensuring that members are assigned roles based on their capabilities and skills (Habibulloh et al., 2025).
- c. **Change Management:** A visionary leader excels in managing change, particularly in the context of Industry 4.0, which is characterized by rapid social transformation (Mufida & Syam, 2024). Madrasahs will remain relevant if their leaders actively respond to developments and changes (Al-Husseini et al., 2021). Conversely, passive leadership, which fails to adapt to the changing educational landscape, can contribute to the institution's decline. Empirical studies show that in educational settings, passive leadership is associated with lower teacher morale, reduced innovation in teaching practices, and an inability to engage with new technological advancements, leading to a decline in student performance and institutional relevance (Erhan et al., 2022; Smith & Jones, 2021). Thus, active leadership is crucial for the institution's success in the face of global competition and technological advancements.
- d. **Selecting the Right Members:** A visionary leader is adept at selecting members who are well-suited for specific tasks (Bellibaş & Gümüş, 2019). If a madrasah has many underperforming members, it may fail to achieve its goals effectively (Khan et al., 2020).
- e. **Avoiding "One-Man Show" Leadership:** A visionary madrasah leader avoids the "one-man show" mentality (Latif & Marimon, 2019). If the leader attempts to handle all tasks alone, it risks leading the madrasah toward failure (Malla et al., 2020).
- f. **Resilience in the Face of Failure:** A visionary madrasah leader is not afraid of failure, understanding that success often stems from previous setbacks (Lee et al., 2020). Such leaders are proactive in seeking solutions and will not be discouraged by challenges, viewing failure as a stepping stone to eventual success (Cortes & Herrmann, 2021).

In addition to the efforts outlined above, successful visionary leadership in maintaining madrasah culture is one that achieves the madrasah's objectives through a combination of institutional tasks and human relations between the madrasah leadership

and its members, adjusted to the prevailing conditions and situations (Pribudhiana, R., Don, Y. B., & bin Yusof, M. R., 2020; Hidayah, N., 2025). This can be observed in the following aspects:

- a. **The Leader's Influence:** The ability of the madrasah leader to influence its members is strongly linked to the leader's strength and competence in realizing the commitment of the members and motivating them to perform their duties and responsibilities. A true madrasah leader is one who constantly considers the well-being of their members and the future of the madrasah.
- b. **Leadership Behavior:** The behavior of the madrasah leader consistently directs the members toward achieving the institution's objectives, despite the diversity of views and characteristics among the members. Here, the leader's behavior is tested in adapting to the needs and personalities of the members.
- c. **Leadership Competence:** A competent madrasah leader is capable of managing the members effectively, ensuring that tasks and responsibilities are assigned to the "right person for the right place" based on the competencies of each member, while also utilizing other resources that can support the completion of these tasks to avoid waste.
- d. **Mentorship and Guidance:** The madrasah leader serves as both a mentor and trainer for the members, guiding them to understand human values and norms that reflect shared beliefs and goals, aiming to shape the members' behavior in line with the established guidelines. The presence of these humanistic and familial norms fosters harmony and comfort within the madrasah culture.

To assess the effectiveness of a madrasah leader in maintaining the madrasah culture, one must observe and evaluate their leadership qualities, which serve as criteria for performance assessment (Bellibaş & Gümüş, 2019). These qualities include: (a) high personal motivation (Abdullah et al., 2018); (b) energy and the ability to work extended hours (Cortes & Herrmann, 2021); (c) skill in teaching and educating (Zaid et al., 2022); (d) emotional stability (Malla et al., 2020); (e) social competence (Latif & Marimon, 2019); (f) knowledge of human relations (Mahfuddin et al., 2023); (g) technical and managerial skills (Supermane, 2019); and (h) proficiency in communication across various languages (Erhan et al., 2022).

The leadership of a madrasah plays an active role in enhancing its culture, which is key to improving educational quality (Hidayah, 2025). Therefore, a madrasah leader must effectively manage available educational resources to achieve educational goals (Khan et al., 2020). The leader must also be capable of creating a positive work environment that encourages all madrasah members to contribute collectively toward achieving organizational objectives (Lee et al., 2020). The characteristics of a visionary madrasah leader who successfully maintains madrasah culture are as follows:

- a. **Engagement with Members:** A visionary madrasah leader is able to engage with members effectively (Janudin et al., 2024). This approach is essential for the leader to remain close to their members, offering guidance in executing their assigned tasks (Utomo et al., 2025). The leader does not set barriers between themselves and their members, as they understand the value of all contributions, no matter how small (Jumahir et al., 2023).
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- d. **Selecting the Right Members:** A visionary leader is adept at selecting members who are well-suited for specific tasks (Abdurrahman et al., 2022). If a madrasah has many underperforming members, it may fail to achieve its goals effectively (Umlati & Nur, 2023).
- e. **Avoiding "One-Man Show" Leadership:** A visionary madrasah leader avoids the "one-man show" mentality (Purwanto et al., 2022). If the leader attempts to handle all tasks alone, it risks leading the madrasah toward failure (Sarnoto & Rahmawati, 2022).
- f. **Resilience in the Face of Failure:** A visionary madrasah leader is not afraid of failure, understanding that success often stems from previous setbacks (Septariani, 2024). Such leaders are proactive in seeking solutions and will not be discouraged by challenges, viewing failure as a stepping stone to eventual success (Mufida & Syam, 2024).

Discussion

The results of this study underscore the pivotal role of leadership in the successful preservation and transformation of madrasah culture, particularly in the context of the Fourth Industrial Revolution (Industry 4.0) (Hidayah, 2025). This finding aligns with existing literature that emphasizes leadership as a critical determinant of organizational success, particularly in educational settings (Bellibaş & Gümüş, 2019). However, unlike traditional leadership models that focus on stability and routine, visionary leadership in the digital age requires leaders to embrace rapid technological changes, such as Artificial Intelligence (AI), Learning Management Systems (LMS), and the Internet of Things (IoT). The ability of a madrasah leader to innovate through the integration of these technologies is crucial to maintaining the institution's cultural integrity while adapting to modern educational

practices (Cortes & Herrmann, 2021). This shift highlights the need for educational leaders who are not only capable of managing change but also anticipate technological advancements as tools for fostering educational growth (Al-Husseini et al., 2021).

In line with these findings, visionary leadership is distinguished from other leadership models, such as transactional and transformational leadership, through its proactive approach to innovation and long-term strategic planning. Transactional leadership, focused on short-term goals and rewards, lacks the adaptability required in Industry 4.0, while transformational leadership, although motivating, does not emphasize technological foresight to the same extent. Visionary leadership, however, is forward-looking and emphasizes the integration of modern technologies within the institution's culture. A comparative analysis of these leadership models reveals that visionary leadership is more effective in guiding madrasahs through digital transformation. Table 1 illustrates the key differences between visionary, transformational, and transactional leadership models, highlighting their respective strengths and limitations in the context of the Fourth Industrial Revolution.

Table 1. Comparison of Leadership Models in the Context of Industry 4.0

Leadership Model	Focus	Strengths	Limitations
Visionary	Long-term vision, technological innovation, adaptability	Proactive in digital transformation, sustainable cultural integration	Requires high levels of foresight and adaptability
Transformational	Motivation, inspiration, change management	High engagement and motivation among followers	May not emphasize technology integration
Transactional	Short-term goals, rewards for performance	Efficient in achieving immediate results	Lacks focus on long-term planning and technological foresight

Theoretical implications of this research are significant (Habibulloh et al., 2025). The study contributes to the body of literature on educational leadership by linking visionary leadership with madrasah culture in the context of the Fourth Industrial Revolution. It suggests that the role of leadership in madrasahs must evolve in response to the challenges and opportunities presented by technological advancements (Obi et al., 2021). Specifically, the findings indicate that visionary leadership facilitates the integration of emerging technologies into madrasah practices, acting as a mediator between technology adoption and cultural preservation. This theoretical framework can guide future studies in exploring the mechanisms through which leadership influences the implementation of technology in Islamic educational institutions, fostering innovation while maintaining cultural values.

Practically, this research offers several actionable recommendations for madrasah leaders aiming to enhance their effectiveness in the Industry 4.0 (Hidayah, 2025). Leaders should focus on continuous professional development to stay abreast of technological advancements such as AI, LMS, and IoT, integrating these tools into the madrasah's educational framework (Pribudhiana et al., 2020). Additionally, madrasah leaders should establish clear Key Performance Indicators (KPIs) to measure the success of technology integration and cultural preservation. These KPIs should include metrics such as digital literacy improvement, engagement with online learning platforms, and the ability to maintain madrasah values amidst digital transformation. Regular monitoring through feedback loops from teachers, students, and other stakeholders will be essential in assessing the effectiveness of these initiatives and ensuring alignment with the institution's mission (Janudin et al., 2024). A continuous review process, including regular meetings with faculty and students, can help leaders stay responsive to the evolving needs of the madrasah community.

The successful preservation and transformation of madrasah culture in the Industry 4.0 require visionary leadership that integrates a clear vision with technological innovation and adaptability. Madrasah leaders who are capable of blending traditional values with modern technologies will be best positioned to ensure the continued relevance and success of their institutions in a rapidly changing educational landscape (Khan et al., 2020). As demonstrated by this study, visionary leadership is not merely a desirable trait but a critical requirement for educational leaders to navigate the complexities of the Fourth Industrial Revolution (Cortes & Herrmann, 2021).

Conclusion

This study examines the role of visionary leadership in sustaining madrasah culture amidst the challenges posed by the Fourth Industrial Revolution. The findings indicate that a strong madrasah culture is essential for effective and efficient operation, especially in adapting to Industry 4.0. A robust culture shapes members' understanding of their daily responsibilities within the madrasah environment. The development and maintenance of this culture require leadership that fully comprehends the cultural framework in which the institution operates. Visionary leadership, identified as the most relevant and desirable model, emphasizes the importance of leaders who not only preserve the madrasah's values and beliefs but also drive innovation and change. Visionary leaders guide the institution through challenges, creating a long-term, future-oriented madrasah culture, positioning themselves as agents of change, and mentoring their communities while demonstrating expertise in evolving madrasah culture to meet modern demands.

The study highlights the critical implications of visionary leadership in madrasahs, particularly in ensuring the institution remains relevant amidst technological advancements and societal shifts. By combining tradition with innovation, madrasah

leaders can ensure that their institutions uphold core values while adapting to the needs of the digital age. However, the study's focus on a single leadership model limits its ability to compare the effectiveness of visionary leadership with other models in different cultural and technological contexts. Future research could explore these comparative leadership models and assess their impact on madrasah culture in varying regions. Based on these findings, it is recommended that madrasah leaders invest in professional development, especially in technological literacy and innovation management. Creating a collaborative environment where all stakeholders contribute to shaping the institution's vision can also help ensure the madrasah's continued success. Regular assessments through feedback mechanisms, such as surveys and community engagement, are crucial for monitoring the effectiveness of leadership strategies in preserving madrasah culture.

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