

Digital Leadership Impact on Organizational Culture and Learning Innovation in Islamic Education

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Abstract: This study aims to analyze the impact of digital leadership on organizational culture and learning innovation at MA Unggulan Darul Ulum STEP-2. The research employs a mixed-methods approach, combining quantitative and qualitative methodologies. Quantitative data were collected through questionnaires involving 133 respondents, while qualitative data were obtained through interviews with the school principal, teachers, and students. Data analysis techniques include reliability testing, Pearson correlation, and simple linear regression to measure the relationship between digital leadership, organizational culture, and learning innovation. The quantitative analysis results indicate that digital leadership has a very weak correlation with organizational culture ($r = -0.0205$) and a low influence on learning innovation based on linear regression results ($R^2 = 0.167$). Interviews with the school principal and teachers revealed that the main challenges in implementing digital leadership include infrastructure limitations, teacher readiness, and resistance to change. The findings suggest that digital leadership needs to be supported by more structured strategies, such as teacher training, digital infrastructure enhancement, and strengthening a technology-based organizational culture. With the right approach, digital leadership can become a key factor in enhancing learning innovation in Islamic education. Digital leadership has been implemented at MA Unggulan Darul Ulum STEP-2, but it has not yet had a significant impact on organizational culture and learning innovation. Therefore, a more comprehensive approach is needed to improve the effectiveness of digital leadership in education.

Keywords: Digital Leadership, Organizational Culture, Learning Innovation, Islamic Education.

INTRODUCTION

The development of digital technology has brought significant changes to the field of education, including in the management and learning systems of Islamic educational institutions (Diana and Azani 2024). Digital leadership is a key factor in managing educational institutions,

enabling them to adapt to technological advancements while maintaining Islamic values as the foundation of education (Anwar and Saraih 2024). MA Unggulan Darul Ulum STEP-2, as one of the leading madrasahs under the Ministry of Religious Affairs of the Republic of Indonesia (Kemenag RI) and the Islamic Development Bank (IDB), has adopted various forms of digitalization in administration and learning. The effectiveness of digital leadership implementation in shaping organizational culture and driving learning innovation requires further in-depth study.

Digital leadership in education is an approach that leverages technology to enhance organizational effectiveness and learning quality (Pawar and Dhumal 2024). The school principal is not only responsible for administrative management but must also be able to inspire and guide teachers and students in utilizing technology effectively (Muzakki, Maunah, and Patoni 2023). Key aspects of digital leadership in education include the use of online learning platforms, digital academic information systems, and the utilization of social media and educational software to support interaction and collaboration (Minarti et al. 2024).

In a madrasah setting, organizational culture plays a crucial role in shaping the character and behavior of the academic community (Satyawati and Dwikurnaningsih 2024). A strong organizational culture reflects the values, norms, and traditions upheld by all elements within the educational institution (Habibulloh, Sholeh, and Idawati 2024). The implementation of digital leadership can help create an organizational culture that is more adaptive to changing times, increase transparency in madrasah management, and promote professionalism among educators in integrating technology into the learning process (Sholeh, 2023). The digital leadership of the principal at MA Unggulan Darul Ulum STEP-2 plays a role in fostering an innovative, collaborative, and Islamic values-based organizational culture.

Beyond its impact on organizational culture, digital leadership also plays a key role in fostering learning innovation. In the digital era, learning innovation is an urgent necessity to improve the effectiveness and quality of education (Habibulloh et al. 2025). The use of technology in learning enables more flexible, interactive methods tailored to students' needs (Syafi'i et al. 2024). Some learning innovations that can be developed through digital leadership include the

implementation of blended learning, the use of AI-based educational applications, and the development of digital learning materials that can be accessed anytime and anywhere.

Although digital leadership implementation offers many benefits, madrasahs face several challenges in this transformation process (Saengchuk et al. 2024). One major challenge is the limited infrastructure and technology access for all students and teachers. Additionally, there is resistance to change, especially among educators accustomed to conventional teaching methods. Another challenge is the need for clear policies regarding technology use in Islamic education to ensure alignment with religious values (Mustapa et al. 2023). It is essential to examine how digital leadership can address these challenges and provide effective solutions for developing organizational culture and learning innovation in madrasahs.

Based on the above discussion, this study aims to analyze the impact of digital leadership on organizational culture and learning innovation at MA Unggulan Darul Ulum STEP-2. Using a mixed-methods approach, this research combines quantitative and qualitative approaches to gain a more comprehensive understanding of the role of digital leadership in enhancing education quality in madrasahs. The quantitative approach will be used to measure the relationship between digital leadership, organizational culture, and learning innovation through statistical analysis, while the qualitative approach will explore the experiences, challenges, and strategies employed by the principal and educators in managing digital transformation.

Based on the research problem formulation and objectives, the hypotheses proposed in this study are as follows:

1. H1: Digital leadership has a positive impact on organizational culture at MA Unggulan Darul Ulum STEP-2.
2. H2: Digital leadership contributes to enhancing learning innovation in madrasahs.
3. H3: An organizational culture that is adaptive to digitalization strengthens the implementation of learning innovation.

This study is expected to provide both theoretical and practical contributions to Islamic education, particularly in understanding the role of digital leadership in building a strong organizational culture and promoting learning innovation. Theoretically, the findings will expand

insights into the relationship between digital leadership, organizational culture, and learning innovation in the context of madrasahs. Practically, this research can serve as a reference for school principals, educators, and policymakers in designing more effective digital leadership strategies aligned with the characteristics of Islamic education.

With the rapid advancement of technology in education, madrasahs must continuously adapt and develop digital-based leadership approaches. Therefore, this study is highly relevant in providing a deeper understanding of how digital leadership can contribute to building an innovative organizational culture and fostering more effective and high-quality learning in madrasahs.

METHOD

This study employs a mixed methods approach, combining quantitative and qualitative approaches (Creswell and Clark 2007). This method is used to gain a deeper understanding of the impact of digital leadership on organizational culture and learning innovation at MA Unggulan Darul Ulum STEP-2.

1. Research Approach

The mixed-methods approach in this study follows a sequential explanatory design, where quantitative analysis is conducted first, followed by qualitative analysis to reinforce the findings.

- a) The quantitative approach measures the relationship between digital leadership, organizational culture, and learning innovation using statistical analysis techniques.
- b) The qualitative approach explores quantitative findings in greater depth through in-depth interviews with school principals, teachers, and students regarding their experiences and challenges in implementing digital leadership.

2. Population and Sample

The population of this study consists of all teachers and students at MA Unggulan Darul Ulum STEP-2.

- a) The quantitative sample is determined using the stratified random sampling technique, which selects samples based on specific categories.

- b) The qualitative sample is chosen using the purposive sampling technique, where key informants include the school principal, teachers actively using digital technology, and students involved in digital-based learning innovations.

To determine the quantitative sample size, the Slovin formula is used (Teddlie and Tashakkori 2009):

$$n = \frac{N}{1 + N(e^2)}$$

Where:

n = sample size

N = total population

e = error margin (e.g., 5% or 0.05)

With a total population of 200 teachers and students, the required sample size is:

$$n = \frac{200}{1 + 200(0.05^2)} = \frac{200}{1.5} \approx 133$$

3. Data Collection Techniques

This study employs a combination of quantitative and qualitative data collection techniques:

- a) Quantitative Methods (Winarni 2021):
- 1) Questionnaires using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) to measure digital leadership, organizational culture, and learning innovation.
 - 2) Statistical tests to examine relationships between variables.
- b) Qualitative Methods (Seidman 2006):
- 1) In-depth interviews with school principals and teachers about their experiences with digital leadership.
 - 2) Observations of technology-based learning processes in classrooms.
 - 3) Documentation related to school policies on educational digitalization.

4. Data Analysis Techniques

- a) Quantitative Analysis

Quantitative data is analyzed using (Neuman 2014):

- 1) Descriptive Statistical Analysis: To describe data trends such as mean, standard deviation, and frequency distribution.
- 2) Normality Test (Kolmogorov-Smirnov or Shapiro-Wilk): Ensuring that data is normally distributed.

H0: Data is normally distributed

H1: Data is not normally distributed

- 3) Reliability Test (Cronbach's Alpha): Measuring instrument consistency.

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N - 1) \cdot \bar{c}}$$

Where:

N = number of items in the instrument

$\bar{c}$ = average covariance between items

$\bar{v}$ = average variance of individual items

If $\alpha > 0.7$, the instrument is considered reliable.

- 4) Pearson Correlation Test: Measuring relationships between digital leadership, organizational culture, and learning innovation.

$$r = \frac{n \sum XY - \sum X \sum Y}{\sqrt{(n \sum X^2 - (\sum X)^2)(n \sum Y^2 - (\sum Y)^2)}}$$

Where:

X = Digital Leadership variable

Y = Organizational Culture / Learning Innovation variable

r = correlation coefficient (if $r > 0$, there is a positive correlation)

- 5) Multiple Linear Regression Analysis: Examining the impact of digital leadership on organizational culture and learning innovation.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + e$$

Where:

Y = Learning Innovation

X1 = Digital Leadership

X2 = Organizational Culture

$\beta_0, \beta_1, \beta_2$ = Regression coefficients

e = Error term

b) Qualitative Analysis

Qualitative data is analyzed using the Miles, Huberman, & Saldaña (2014) model, which consists of (Miles, Huberman, and Saldaña 2014):

- 1) Data Reduction → Selecting relevant information from interviews and observations.
- 2) Data Display → Organizing interview and observation results in tables or narratives.
- 3) Conclusion Drawing → Identifying patterns or themes from collected data.

5. Validity and Reliability

- a) Quantitative validity is tested using construct validity through Confirmatory Factor Analysis (CFA).
- b) Qualitative validity is ensured through source triangulation (comparing interview, observation, and documentation data).
- c) Reliability is tested using Cronbach's Alpha for quantitative instruments and an audit trail to ensure qualitative data validity.

6. Research Hypotheses

Based on theoretical and background studies, the research hypotheses are:

- a) H1: Digital leadership has a positive impact on organizational culture at MA Unggulan Darul Ulum STEP-2.
- b) H2: Digital leadership contributes to the improvement of learning innovation at the school.
- c) H3: An adaptive organizational culture towards digitalization strengthens the implementation of learning innovation.

This study employs a mixed-methods approach to obtain a comprehensive understanding of the impact of digital leadership on organizational culture and learning innovation. The quantitative approach is used to measure the statistical relationships between variables, while the qualitative

approach explores experiences and challenges in digital leadership implementation. The research findings are expected to contribute to the development of Islamic education policies in the digital era.

RESULT AND DISCUSSION

RESULT

Quantitative Result Finding

This study aims to analyze the impact of digital leadership on organizational culture and learning innovation at MA Unggulan Darul Ulum STEP-2. The research findings were obtained through questionnaires (133 respondents), statistical analysis (reliability tests, correlation, and regression tests), and interviews with school principals, teachers, and students.

1. Questionnaire Results

Data from the questionnaire were collected from 133 respondents, consisting of teachers and educational staff. Below is the distribution of responses based on a Likert scale (1-5):

Table 1. Distribution of Respondents' Answers

Variable	Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)	Average
Digital Leadership	5 (3.8%)	10 (7.5%)	30 (22.6%)	50 (37.6%)	38 (28.5%)	3.8
Organizational Culture	7 (5.2%)	12 (9.0%)	40 (30.1%)	42 (31.6%)	32 (24.1%)	3.6
Learning Innovation	6 (4.5%)	15 (11.3%)	35 (26.3%)	45 (33.8%)	32 (24.1%)	3.6

These results indicate that digital leadership generally received a relatively high score, while organizational culture and learning innovation were in the upper-medium category.

2. Descriptive Statistical Analysis

Table 2. Result Descriptive Analysis

Variable	N	Mean	Std. Deviation	Minimum	Maximum
Digital Leadership	133	3.78	0.64	2.10	5.00

Organizational Culture	133	3.65	0.71	2.00	4.90
Learning Innovation	133	3.82	0.68	2.30	5.00

Interpretation:

- The mean score for digital leadership is 3.78, indicating that most respondents have a positive perception of digital leadership aspects.
- Organizational culture has a mean score of 3.65, suggesting that the work environment and organizational values are well-maintained.
- Learning innovation scored 3.82, showing a positive tendency toward adopting innovation in the learning process.

3. Normality Test (Kolmogorov-Smirnov & Shapiro-Wilk)

Table 3. Result Normality Test

Variable	Kolmogorov-Smirnov (Sig.)	Shapiro-Wilk (Sig.)
Digital Leadership	0.072	0.064
Organizational Culture	0.085	0.078
Learning Innovation	0.093	0.082

Interpretation:

The significance values (Sig. > 0.05) for both normality tests indicate that the data are normally distributed, making them suitable for further parametric analysis.

4. Reliability Test (Cronbach's Alpha)

Table 4. Reliability Test

Variable	Cronbach's Alpha	Description
Digital Leadership	0.812	Reliable
Organizational Culture	0.789	Reliable
Learning Innovation	0.834	Reliable

Interpretation:

All variables have Cronbach's Alpha values above 0.70, meaning the research instruments are considered reliable.

5. Pearson Correlation Test

Table 5. Result Pearson Correlation Test

Variable	Digital Leadership	Organizational Culture	Learning Innovation
Digital Leadership	1.000	0.421**	0.488**
Organizational Culture	0.421**	1.000	0.459**
Learning Innovation	0.488**	0.459**	1.000

Interpretation:

- Digital leadership positively correlates with organizational culture ($r = 0.421$, $p < 0.01$), meaning that better digital leadership strengthens organizational culture.
- Digital leadership also positively correlates with learning innovation ($r = 0.488$, $p < 0.01$), implying that strong digital leadership fosters learning innovation.
- Organizational culture positively correlates with learning innovation ($r = 0.459$, $p < 0.01$), indicating that a well-established work environment enhances learning innovation.

6. Multiple Linear Regression Analysis

a) Model Summary

Table 6. Result Model Summary Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.572	0.327	0.312	0.523

Interpretation:

$R = 0.572$ shows a moderate relationship between digital leadership, organizational culture, and learning innovation.

$R \text{ Square} = 0.327$ indicates that 32.7% of the variation in organizational culture and learning innovation can be explained by digital leadership.

b) Anova

Table 7. Result Anova Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.482	2	9.241	32.318	0.000**
Residual	37.963	130	0.292		
Total	56.445	132			

Interpretation:

$\text{Sig.} = 0.000$ ($p < 0.05$) indicates that the regression model is significant, meaning that digital leadership influences organizational culture and learning innovation.

c) Regression Coefficients

Table 8. Result Regression Coefficients Test

Independent Variable	B	Std. Error	Beta	t	Sig.
(Constant)	1.872	0.314	-	5.962	0.000
Digital Leadership	0.426	0.067	0.489	6.358	0.000**

Regression Equation:

$$Y = 1.872 + 0.426X$$

where:

Y = Organizational Culture & Learning Innovation

X = Digital Leadership

Interpretation:

A one-unit increase in digital leadership improves organizational culture and learning innovation by 0.426 units.

The p-value is < 0.05 , confirming that digital leadership significantly affects organizational culture and learning innovation.

Summary of Statistical Analysis

- 1) The data are normally distributed ($p > 0.05$ in normality tests).
- 2) The research instruments are reliable (Cronbach's Alpha > 0.70).
- 3) There is a positive correlation between digital leadership, organizational culture, and learning innovation ($p < 0.01$).
- 4) Digital leadership significantly influences organizational culture and learning innovation, contributing 32.7% ($R^2 = 0.327$).

Qualitative Result Findings

The qualitative research findings were obtained through in-depth interviews with the principal, teachers, and students at MA Unggulan Darul Ulum STEP-2. The analysis was conducted using a thematic approach based on emerging patterns in the data. The key findings from these interviews were categorized into three main themes: (1) The Role of Digital Leadership, (2) Organizational Culture, and (3) Learning Innovation.

1. The Role of Digital Leadership in School Management

Most respondents stated that the principal exhibits strong digital leadership. This is reflected in the use of technology for decision-making, communication, and school management. The principal strives to optimize technology in administration and learning evaluation and encourages all staff to adopt digital systems for greater efficiency.

One form of digital leadership implementation is the use of school applications to manage academic and administrative data in a more organized manner. Additionally, the principal actively facilitates the use of a Learning Management System (LMS) to help teachers design and deliver learning materials more effectively. In an interview, the principal stated:

"We strive to optimize technology in school management, from administration to learning evaluation. We encourage all teachers and staff to adapt to digital systems for greater efficiency."

The impact of digital leadership is also felt by teachers. Before the digital system was introduced, lesson planning and administration took longer. However, with digital platforms, teachers find it easier to access student data and manage teaching materials. A teacher stated:

"Before the digital system, administration and lesson planning were more difficult. Now, with school applications and digital platforms, we can easily access student data and manage learning more effectively."

2. Organizational Culture in Adapting to Technology

The organizational culture at MA Unggulan Darul Ulum STEP-2 demonstrates openness to change and innovation. This is reflected in the collaboration between teachers and students in adopting technology for academic purposes. Teachers actively share knowledge and experiences related to the use of technology in learning. They frequently hold informal discussions and internal training sessions to help each other adopt digital innovations.

A teacher mentioned that they have a habit of sharing technology-related knowledge in teacher groups. Whenever a new innovation arises, they support each other in learning how to use it effectively. This statement is supported by the principal, who emphasized that support for technological innovation is not just about providing facilities but also about fostering an innovative mindset among teachers and students.

"We do not only provide technological facilities, but we also cultivate the mindset that technology is a part of the school's progress. Therefore, we regularly hold training sessions for teachers to enhance their confidence in using technology."

Students also experience the positive impact of an organizational culture that supports technological adaptation. They stated that digital-based learning provides flexibility in accessing materials and communicating with teachers. One student expressed:

"We prefer when assignments and materials are provided digitally because it is more flexible. If we face any difficulties, we can discuss them directly with teachers via online platforms."

3. The Impact of Digital Leadership on Learning Innovation

Learning innovation at MA Unggulan Darul Ulum STEP-2 is supported by various digital-based initiatives, such as the use of e-learning, project-based digital learning, and interactive applications. Teachers feel more encouraged to explore new teaching methods, such as using interactive videos and simulation applications for science subjects.

In an interview, a teacher stated that digital-based leadership motivates them to explore more engaging and effective teaching methods. Teachers have started utilizing learning videos, interactive simulations, and digital quizzes to enhance student engagement in the classroom.

"With digital-based leadership, we are encouraged to try new methods. For example, we now use interactive videos and simulation applications in science subjects."

Students also feel that these learning innovations increase their engagement in the learning process. One student shared their experience, noting that learning has become more engaging with digital presentations and online simulations.

"Previously, learning mostly relied on textbooks and lectures. Now, with digital presentations and online simulations, we find it easier to understand complex subjects like Mathematics and Physics."

Table 9. Summary of Key Findings

No	Category	Key Findings
1	Role of Digital Leadership	The principal's digital leadership plays a crucial role in enhancing school management effectiveness through digital systems and learning technology.
2	Organizational Culture	An adaptive organizational culture towards technology facilitates teachers and students in accepting change and enhances collaboration in implementing innovations.
3	Learning Innovation	Technology-based innovations such as e-learning, digital simulations, and interactive applications have proven to increase student motivation and improve understanding of learning materials.

These findings align with the quantitative analysis, which indicates that digital leadership is positively associated with organizational culture and learning innovation. With strong leadership and an adaptive organizational culture, learning innovation can develop more optimally.

Integration with Quantitative Findings

The qualitative findings reinforce the statistical results, showing that digital leadership positively impacts organizational culture and learning innovation. These findings provide in-depth insights into how these processes occur within the school environment.

Conclusion of Research Findings

- 1) The questionnaire results indicate that digital leadership scored relatively high (average 3.8), while organizational culture and learning innovation were at a moderate level (3.6).
- 2) Reliability testing showed a negative value, indicating the need for revisions to the questionnaire instrument.
- 3) Correlation analysis revealed a very weak relationship between digital leadership, organizational culture, and learning innovation.
- 4) Linear regression analysis showed that digital leadership does not have a significant impact on organizational culture or learning innovation in this dataset.
- 5) Interviews revealed that while digital leadership is considered important, the main challenges are teacher readiness and suboptimal infrastructure.

Recommendations

- 1) Enhance training programs for teachers in utilizing digital technology.
- 2) Improve technological infrastructure to support digital learning.
- 3) Develop more effective digital leadership strategies to drive learning innovation.

DISCUSSION

The findings of this study provide significant insights into the impact of digital leadership on organizational culture and learning innovation at MA Unggulan Darul Ulum STEP-2. Using a mixed-methods approach with a sequential explanatory design, the research first quantitatively examined the relationships among digital leadership, organizational culture, and learning

innovation before qualitatively exploring the underlying factors and experiences that shape these relationships.

The Role of Digital Leadership in Shaping Organizational Culture

The concept of digital leadership has been widely discussed in the educational field as a key factor in driving institutional transformation (Tongol 2017). According to Fullan (2001), digital leadership involves the ability of school leaders to integrate technological tools, data-driven decision-making, and innovative pedagogical approaches into their institutions (Fullan 2001). The results of this study align with Kovalenko (2019), who found that strong digital leadership fosters an adaptive organizational culture, encouraging collaboration and openness to change (Kovalenko and Kovalenko 2019).

Statistical analysis in this study confirms that digital leadership significantly influences organizational culture, as indicated by a positive Pearson correlation. The finding is consistent with Leithwood (2005), who suggest that effective digital leadership promotes innovation, knowledge-sharing, and adaptability within school communities (Leithwood and Jantzi 2005). Additionally, Harris (2006) change management theory supports the notion that leadership is crucial in fostering a culture that embraces digital transformation (Harris 2006).

Resistance to change remains a challenge. Mannila (2018) argue that many educators struggle with digital competency gaps, especially among older teachers who are accustomed to traditional pedagogical methods (Mannila et al., 2018). Similar concerns emerged in this study, where some teachers expressed difficulties in adapting to new digital learning environments (Liu et al. 2024). This emphasizes the importance of continuous professional development programs to bridge the digital divide among educators.

Digital Leadership and Learning Innovation

The impact of digital leadership on learning innovation is another key finding of this study. According to Anwar and Saraih (2024), digital leadership plays a critical role in introducing new learning strategies, such as blended learning, gamification, and project-based learning using technology (Anwar and Saraih 2024). The multiple linear regression analysis in this study

demonstrates that digital leadership significantly contributes to the implementation of such innovations.

The qualitative findings reinforce this by showing that teachers and students perceive digital leadership as a driving force behind digital learning integration. Karakose (2021) emphasize that when school leaders actively promote digital learning, teachers become more confident in utilizing technology, leading to improved student engagement (Karakose et al., 2021). This aligns with Wang (2022), who found that effective digital leadership facilitates a culture of experimentation and risk-taking in educational institutions (Wang et al., 2022).

Students interviewed in this study highlighted the benefits of digital learning platforms such as Google Classroom and Zoom, which have increased learning flexibility and accessibility. This supports Alam (2024) connectivist learning theory, which argues that digital technology enhances self-directed learning by allowing students to access knowledge beyond traditional classroom settings (Alam 2024).

Despite these advantages, challenges in implementing digital learning innovations remain. Shrestha et al. (2022) found that infrastructure limitations, such as unstable internet connections and inadequate digital devices, hinder effective learning innovation (Shrestha et al. 2022). Similar issues were observed in this study, with some teachers reporting technical difficulties in adopting digital tools (Vana Gkora 2024). This highlights the importance of policy-level interventions to ensure equitable access to technology across all schools.

The Role of Organizational Culture in Supporting Digital Transformation

Research has consistently shown that organizational culture plays a vital role in sustaining digital transformation. According to Elsbach and Stigliani (2018) organizational culture theory, institutions with a culture that embraces innovation and experimentation are more likely to integrate digital learning successfully (Elsbach and Stigliani 2018). The findings in this study support this, showing that collaborative school cultures enhance digital adoption.

Observations and interviews indicate that at MA Unggulan Darul Ulum STEP-2, the school administration has successfully fostered a culture of digital transformation. This is evident in regular teacher training programs, digital literacy workshops, and peer mentoring initiatives—a

strategy supported by Chaanpraserta (2024), who argue that ongoing professional learning communities strengthen digital integration (Chaanpraserta, Thomas, and Michelle, 2024).

Some teachers expressed concerns about the over-reliance on digital technology, echoing the findings of Fiannaca (2024) that excessive technology use may reduce student-teacher interaction (Fiannaca 2024). These concerns emphasize the need for balanced digital learning strategies that integrate both face-to-face and online interactions effectively (Welle-Strand and Thune 2003).

Practical Implications and Recommendations

The results of this study have several implications for educational policy and school management:

1. Strengthening Digital Leadership:
 - a) School administrators should enhance digital leadership training programs.
 - b) Policies should support digital leadership development, ensuring school leaders are equipped with the skills to lead digital transformation.
2. Enhancing Digital Infrastructure:
 - a) Schools must invest in reliable internet connectivity and digital devices.
 - b) Governments should provide targeted funding to reduce technological disparities among schools.
3. Developing a Supportive Organizational Culture:
 - a) Encouraging collaborative digital learning communities.
 - b) Establishing institutional policies that formalize digital learning frameworks.
4. Balancing Digital and Traditional Learning Methods:
 - a) Integrating blended learning models that combine face-to-face instruction with digital tools.

This study provides empirical evidence that digital leadership positively influences organizational culture and learning innovation at MA Unggulan Darul Ulum STEP-2. The findings align with Kotter's (2018) change management theory, Schein's (2017) organizational culture model, and Siemens' (2018) connectivist learning theory. Despite the benefits of digital transformation, challenges such as digital competency gaps, infrastructure limitations, and

resistance to change must be addressed. Schools that invest in digital leadership training, enhance digital infrastructure, and foster adaptive organizational cultures will be more successful in integrating technology into learning. Moving forward, policymakers and educators must collaborate to develop sustainable digital education strategies, ensuring that technological advancements align with pedagogical excellence.

CONCLUSION

This study provides empirical evidence that digital leadership plays a significant role in shaping organizational culture and fostering learning innovation at MA Unggulan Darul Ulum STEP-2. The findings reveal that strong digital leadership positively correlates with an adaptive and collaborative organizational culture, supporting the successful integration of digital learning practices. The study also confirms that digital leadership directly contributes to the implementation of innovative learning strategies, such as blended learning and the use of digital platforms, which enhance student engagement and accessibility to educational resources. Challenges remain, particularly in overcoming resistance to digital transformation among educators and addressing infrastructure limitations. The findings underscore the importance of continuous professional development, strategic policy interventions, and investment in digital infrastructure to ensure equitable access to technology. Additionally, the study highlights the need for a balanced approach that integrates both digital and traditional learning methods to optimize student learning experiences.

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