

DIGITALIZATION OF MADRASAHS AND ITS RELATIONSHIP WITH EDUCATOR AND STAFF PERFORMANCE

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ABSTRACT

As Islamic educational institutions, madrasahs hold a strategic role in shaping morally grounded and knowledgeable generations amid the era of digital transformation. The digitalization of madrasahs constitutes a critical aspect of educational modernization, impacting various dimensions of institutional performance, particularly among educators and administrative staff. This study investigates the correlation between the implementation of digitalization in madrasahs and the performance of educators and education personnel at State Islamic Senior High Schools (Madrasah Aliyah Negeri) across Bandung Regency. Employing a descriptive quantitative design with a correlational approach, data were gathered through structured surveys and analyzed using Pearson's correlation test. The findings reveal a statistically significant positive relationship between madrasah digitalization and staff performance ($p = 0.005$, $p < 0.05$), indicating that the integration of digital systems contributes meaningfully to improving the operational effectiveness of Islamic educational institutions, especially at the senior secondary level.

Kata Kunci: *Madrasah Digitalization, Educator Performance, Educational Staff, Educational Modernization*

ABSTRAK

Sebagai institusi pendidikan Islam, madrasah memegang peran strategis dalam membentuk generasi yang berakhlak mulia dan berpengetahuan di tengah era transformasi digital. Digitalisasi madrasah menjadi aspek krusial dalam modernisasi pendidikan, yang memengaruhi berbagai dimensi kinerja institusional, khususnya di kalangan pendidik dan tenaga kependidikan. Penelitian ini menginvestigasi korelasi antara implementasi digitalisasi madrasah dengan kinerja pendidik dan tenaga kependidikan di Madrasah Aliyah Negeri (MAN) se-Kabupaten Bandung. Menggunakan desain kuantitatif deskriptif dengan pendekatan korelasional, data dikumpulkan melalui survei terstruktur dan dianalisis menggunakan uji korelasi Pearson. Temuan menunjukkan adanya

hubungan positif yang signifikan secara statistik antara digitalisasi madrasah dan kinerja staf ($p = 0.005$, $p < 0.05$). Hal ini mengindikasikan bahwa integrasi sistem digital berkontribusi secara berarti dalam meningkatkan efektivitas operasional institusi pendidikan Islam, khususnya pada jenjang madrasah aliyah.

Key Words: *Digitalisasi Madrasah, Kinerja Pendidik, Tenaga Kependidikan, Modernisasi Pendidikan*

INTRODUCTION

The digital transformation has brought substantial changes across various sectors, including education. These changes extend beyond instructional methods to encompass the entire educational management system. In this digital era, madrasahs as formal Islamic educational institutions are increasingly expected to adopt and integrate information and communication technologies (ICT) to enhance the effectiveness and efficiency of both learning processes and administrative operations. Digitalization in madrasahs is therefore a strategic step toward establishing an education system that is responsive and adaptive to contemporary developments.

Educational digitalization encompasses the integration of software, applications, and digital platforms that support online learning, academic data management, and communication among school stakeholders. According to Dudeney (2011), digitalization serves to enhance efficiency, effectiveness, and productivity in both business and government sectors. Similarly, Tjiptono (2019) emphasizes the essential role of digitalization in meeting the dynamically evolving needs of the education sector. Dewanti (2020) asserts that madrasah digitalization is a logical consequence of societal progress, requiring educational institutions to master science and technology. The establishment of websites and other digital platforms has become a vital necessity in supporting madrasah performance and functionality.

Research conducted by Arifin and Mufid (2023) in madrasahs across East Java found that the implementation of digital systems based on Learning Management Systems (LMS) significantly improved the efficiency of instructional administration and increased teacher job satisfaction. Similarly, a study by Sutrisno et al. (2022) demonstrated that proficiency in digital tools is positively correlated with the enhanced performance of madrasah teachers in the context of online learning, both in urban and rural settings.

In response to the growing demand for digitalization, the Indonesian government has issued a series of regulatory frameworks, including Law No. 20 of 2003 on the National Education System, Government Regulation No. 57 of 2021 on National Education Standards, and Ministerial Regulation of Religious Affairs (PMA) No. 66 of 2016 on the Organization of Madrasah Education. These policies promote the availability of digital learning materials, the implementation of online learning, and the strengthening of ICT infrastructure in educational institutions.

However, preliminary observations conducted by the authors on February 18, 2024, across several State Islamic Senior High Schools (Madrasah Aliyah Negeri/MAN) in Bandung Regency revealed that madrasah digitalization has not

yet been optimally implemented. Challenges remain in the operation of digital devices, the utilization of instructional media, and the variation of teaching methods. Moreover, learning evaluations have yet to fully adopt digital platforms. These conditions reflect a gap between normative policy frameworks and actual practices in the field. On the other hand, the performance of educators and education personnel is a central component in the success of educational implementation. According to Majid B. (2022), performance is defined as work outcomes that align with responsibility, legality, and ethical standards. This performance encompasses aspects of knowledge, skills, and professional attitudes. Consequently, proficiency in digital technologies has become an essential competency in supporting their professional responsibilities.

Furthermore, the quality of education is not solely determined by physical infrastructure, but also by the personal character and exemplary conduct of educators. Encu (2022) underscores the vital role of education in shaping the mindset of a civilized human being. Irawan (2019) even highlights that educators in madrasahs should emulate the Prophet Muhammad (peace be upon him), who prioritized *uswah hasanah* (exemplary behavior) over verbal instruction.

Based on the above background, this study aims to examine whether there is a significant relationship between the implementation of madrasah digitalization and the performance of educators and education personnel at State Islamic Senior High Schools (Madrasah Aliyah Negeri) in Bandung Regency. Specifically, it seeks to (1) describe the current state of educator and education personnel performance and (2) analyze the correlation between digitalization practices and professional performance. The findings are expected to contribute to the improvement of digital-based education quality within the madrasah system.

METHOD

This study employed a descriptive quantitative method with a correlational approach to analyze the relationship between the implementation of madrasah digitalization and the performance of educators and education personnel. The research was purposively conducted at MAN 1 Ciparay and MAN 2 Solokan Jeruk in Bandung Regency, as both institutions have adopted digital education practices but with differing implementation characteristics. A total of 60 respondents were selected using simple random sampling, based on Slovin's formula.

Data were collected through a Likert-scale questionnaire (1–5) constructed according to specific indicators of each variable. The madrasah digitalization variable consisted of three indicators: data literacy, technological literacy, and human literacy. Meanwhile, the performance of educators and education personnel was measured using two indicators: professional competence and work motivation. In addition to the questionnaire, qualitative data were gathered through observations, informal interviews, and document analysis to support and enrich the interpretation of quantitative results.

Instrument validity was tested using the Pearson Product Moment technique, while reliability was assessed using Cronbach's Alpha (considered reliable if $\alpha \geq 0.70$). Data analysis involved several steps: validity and reliability testing, classical assumption tests (normality and linearity), Pearson correlation

analysis, and the coefficient of determination (R^2). Qualitative data were integrated at the interpretation stage to contextualize statistical findings within the field setting. All analyses were conducted using SPSS version 26.

RESULTS AND DISCUSSION

Validity Test Results

The validity of the research instruments was assessed using the Pearson Product Moment correlation technique. The test was conducted on 60 respondents. For this study, an item was considered valid if the calculated correlation coefficient (r_{count}) exceeded the critical value (r_{table}). With $n = 60$ and a significance level of 5% ($\alpha = 0.05$), the value of r_{table} was determined to be 0.254. The questionnaire for variable X (madrasah digitalization) consisted of 28 items derived from three indicators. Using SPSS version 26, the analysis revealed that all items had r_{count} values greater than 0.254, indicating that all items were valid and suitable for use in this study. Similarly, the questionnaire for variable Y (performance of educators and education personnel) consisted of 16 items developed from two indicators. The analysis also showed that all items had r_{count} values exceeding r_{table} (0.254), confirming the validity of all items under variable Y. Therefore, all questionnaire items for both variables were deemed valid and could be utilized in the subsequent analysis.

Reliability Test Results

The reliability test was conducted to determine the consistency of the items in the questionnaire by referring to Cronbach's Alpha values. The decision criterion for this test was that an instrument is considered reliable if the Cronbach's Alpha value exceeds the critical value ($r_{table} = 0.254$). The reliability result for Variable X (madrasah digitalization) is presented in Table 1 below:

Tabel 1. Reliability Test Results for Variable X

Reliability Statistics	
Cronbach's Alpha	N of Items
.935	28

Source: SPSS Data Analysis, 2024

Based on the results, all 28 items under Variable X were deemed reliable, as the Cronbach's Alpha value of 0.935 is greater than the threshold of 0.254. The reliability test for Variable Y (performance of educators and education personnel) is presented in Table 2:

Tabel 2. Reliability Test Results for Variable Y

Reliability Statistics	
Cronbach's Alpha	N of Items
.901	16

Source: SPSS Data Analysis, 2024

As shown, all 16 items under Variable Y were also considered reliable, supported by the Cronbach's Alpha value of 0.901, which exceeds

$r _{table}$ (0.254). These results confirm that both instruments used in this study were statistically reliable and appropriate for further analysis.

Normality Test Results

The results of the normality test calculation are presented in Table 3 below:

Tabel 3. Normality Test Results

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residual
N		60
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	2.96447154
Most Extreme Differences	Absolute	.105
	Positive	.066
	Negative	-.105
Test Statistic		.105
Asymp. Sig. (2-tailed)		.095 ^c
Exact Sig. (2-tailed)		.486
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: SPSS Data Analysis, 2024

Based on the results of the Kolmogorov–Smirnov normality test using SPSS version 26, it was found that the significance value of the residuals for both the madrasah digitalization variable (X) and the performance of educators and education personnel (Y) was 0.095, which is greater than 0.05. Therefore, it can be concluded that the residual values are normally distributed, indicating that the assumption of normality has been met.

Linearity Test Results

The linearity test was conducted to examine whether the relationship between madrasah digitalization (Variable X) and the performance of educators and education personnel (Variable Y) follows a linear pattern. The test was performed using the *Deviation from Linearity* method in SPSS version 26. The results are presented in Table 4 below:

Tabel 4. Linearity Test Results

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Kinerja Pendidik dan Tenaga Kependidikan * Implementasi Digitalisasi Madrasah	Between Groups	(Combined)	294.971	16	18.436	.735	.743
		Linearity	174.335	1	174.33	6.95	.012
		Deviation from Linearity	120.637	15	8.042	.321	.990
Within Groups			1077.962	43	25.069		
Total			1372.933	59			

Source: SPSS Data Analysis, 2024

Based on Table 4, the significance value for *Deviation from Linearity* is 0.990, which is greater than the threshold of 0.05. Therefore, it can be concluded that the relationship between the implementation of madrasah digitalization and the performance of educators and education personnel is linear. This satisfies the linearity assumption required for subsequent parametric analysis.

Correlation Test Results

The final step in this study was to address the research question regarding the nature of the relationship between the implementation of madrasah digitalization and the performance of educators and education personnel in State Islamic Senior High Schools (MAN) across Bandung Regency. This relationship could be either positive or negative. The results of the correlation coefficient test between Variable X (madrasah digitalization) and Variable Y (educator and education personnel performance) are presented in Table 5:

Tabel 5. Correlation Test Results

		Implementasi Digitalisasi Madrasah	Kinerja Pendidik dan Tenaga Kependidikan
Implementasi Digitalisasi Madrasah	Pearson Correlation	1	.526**
	Sig. (2-tailed)		.005
	N	60	60
Kinerja Pendidik dan Tenaga Kependidikan	Pearson Correlation	.526**	1
	Sig. (2-tailed)	.005	
	N	60	60

** . Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Data Analysis, 2024

Based on the correlation coefficient test results shown in Table 5, the significance value for the relationship between madrasah digitalization and the performance of educators and education personnel is 0.005. Since $0.005 < 0.05$, this indicates a statistically significant correlation between the two variables. Furthermore, the Pearson correlation coefficient is 0.526, which falls within the range of 0.41–0.60. This suggests that the relationship is moderate to strong, meaning that the implementation of madrasah digitalization has a fairly strong positive association with the performance of educators and education personnel.

The Reality of Madrasah Digitalization Implementation at State Islamic Senior High Schools in Bandung Regency

Madrasah digitalization is a logical consequence of contemporary societal transformation, requiring educational institutions to adapt and optimally integrate technological competencies (Dewanti A. K., 2020). In the context of State Islamic Senior High Schools (*Madrasah Aliyah Negeri* or MAN) in Bandung Regency, digitalization has been implemented through three core indicators: data literacy, technological literacy, and human literacy (Aoun, 2019). These three pillars serve as the foundation for enhancing operational efficiency and the overall productivity of educators and administrative staff.

The indicator of digital data literacy—referring to the ability to read, analyze, and utilize information within a digital ecosystem—achieved an average score of 4.45, which falls into the “Very High” category (based on a scale range of 4.20–5.00). This achievement indicates that the majority of respondents are capable of utilizing digital data to support both instructional and administrative activities within the madrasah. Such capabilities have a direct impact on work efficiency, particularly in managing student data, generating academic reports, and accessing digital learning resources.

Meanwhile, the human literacy indicator—which encompasses humanistic aspects such as communication, instructional design, and lifelong learning, along with religiosity and local cultural values—achieved an average score of 4.46. This result reflects the readiness of madrasah human resources to manage digital interactions in an ethical, communicative, and contextually appropriate manner. Human literacy plays a crucial role in fostering a digital learning ecosystem that is not only technically proficient but also inclusive and value-driven.

The overall implementation of madrasah digitalization across MAN schools in Bandung Regency recorded an aggregate score of 4.46, which also falls within the “Very High” category. This score indicates that digitalization has been well implemented, with tangible impacts in accelerating administrative processes, expanding learning access, and enhancing the productivity of educators and education personnel. These findings are consistent with Roihatul Jannah’s (2023) research, which showed that digital education programs significantly influenced the performance of educational personnel in private Islamic junior high schools (MTs) in North Tapanuli Regency, contributing up to 96.1%. This suggests that the adoption of technology can be a major driver of improved performance in Islamic educational institutions. Jannah further argued that digital transformation in Islamic education management offers vast opportunities to enhance efficiency, effectiveness, and educational quality. This is reinforced by the integration of technology in data management, curriculum development, and more dynamic and flexible learning interactions.

The Performance of Educators and Education Personnel at State Islamic Senior High Schools in Bandung Regency

The performance of educators and education personnel reflects their work achievements, demonstrated through knowledge, skills, values, and attitudes in carrying out tasks and functions professionally (Majid, 2022). According to Suarga (2019), education personnel are members of the community specifically appointed to support the implementation of educational activities. In this context, the quality of performance is determined not only by the availability of facilities and infrastructure but also by individual factors such as capability and work motivation (Hasibuan, 2009).

The ability factor includes both intellectual potential (IQ) and actual competencies in the form of knowledge and skills. In this study, the average score for the ability indicator was 4.51, which falls into the “Very High” category. This suggests that the majority of educators and education personnel possess strong professional capabilities in fulfilling their duties. High individual ability has been shown to correlate positively with organizational performance (Armstrong &

Taylor, 2020), as individuals with greater abilities tend to better adapt to job demands and demonstrate relevant technical and pedagogical competencies.

The second factor analyzed was motivation, which arises from an individual's attitude toward their work environment and task-related situations. Motivation serves as an internal driving force that directs and sustains productive work behavior. The measurement for this indicator showed an average score of 4.56, which also falls into the "Very High" category. This finding aligns with Robbins and Judge (2019), who assert that work motivation is strongly correlated with performance, as highly motivated individuals tend to exhibit greater initiative, strong commitment, and a desire to achieve optimal outcomes in their roles.

Overall, the performance variable for educators and education personnel received an average score of 4.53, classified as "Very High." This value reflects the combined strength of the two primary indicators—ability and motivation—demonstrating that the professional performance of staff in State Islamic Senior High Schools (MAN) across Bandung Regency is exemplary and supports the broader goals of Islamic education institutions.

Furthermore, high performance typically emerges when organizational members possess a strong sense of responsibility and demonstrate work maturity. Marwati (2012) defines maturity as an individual's capacity to set meaningful goals and achieve them through responsibility, experience, and a willingness to grow. In the context of madrasahs, this maturity is manifested in work discipline, innovative teaching practices, and the ability to adapt to the ongoing evolution of digital education systems.

The Relationship Between Madrasah Digitalization and the Performance of Educators and Education Personnel at State Islamic Senior High Schools in Bandung Regency

According to Majid (2022, p. 101), madrasah digitalization refers to the implementation of digital transformation in educational institutions, with a focus on utilizing technology to enhance the quality of education and improve resource management efficiency. It emphasizes the development of digital competencies among educators and education personnel, as well as the application of technology to support the advancement of Islamic education. Muhasim (2017) similarly argues that the development of digital technology is the result of human intellect, reasoning, and intelligence, reflected in scientific and technological progress that benefits all aspects of human life.

This perspective aligns with the findings of Jannah (2023, p. 131), who states that digital transformation in Islamic education management offers significant opportunities to improve efficiency, effectiveness, and educational quality. These opportunities include the integration of technology into instructional activities, data management, and curriculum development at the madrasah level.

Madrasah digitalization is thus viewed as a comprehensive, flexible, and accessible approach to technology utilization, enabling Islamic schools to implement digital systems effectively. In the current educational landscape, digital media has become essential to support the work performance of educators and education personnel, allowing them to optimize outcomes. Digital tools serve as facilitators that streamline and accelerate various educational activities such as

instruction, data processing, and financial management. As a result, performance outcomes become more efficient and effective.

In relation to the performance standards of educators and education personnel, Kusmianto (1997), as cited in the official guidelines for performance assessment, emphasizes the importance of instructional planning and preparation. The implementation of digitalization significantly enhances the ability of staff to fulfill these responsibilities, especially when supported by adequate digital infrastructure and competencies. Therefore, digitalization not only supports but also amplifies professional performance within madrasahs, aligning with broader institutional goals for educational excellence.

Based on the research conducted in State Islamic Senior High Schools (*Madrasah Aliyah Negeri*) across Bandung Regency, there is a clear empirical relationship between the implementation of madrasah digitalization and the performance of educators and education personnel. The overall statistical analysis confirms the existence of this relationship, with a significance value of 0.005. Since $0.005 < 0.05$, it can be concluded that there is a statistically significant correlation between the implementation of digitalization and the professional performance of staff at the madrasah level.

The correlation coefficient obtained in this study was 0.526, which falls within the range of 0.41 to 0.60, indicating a moderately strong relationship between the implementation of madrasah digitalization (Variable X) and the performance of educators and education personnel (Variable Y). The nature of this relationship is positive, as shown by the Pearson correlation value being 0.526, with no negative sign.

Furthermore, the coefficient of determination (R^2) was found to be 0.875, suggesting that 87.5% of the variance in performance among educators and education personnel in State Islamic Senior High Schools in Bandung Regency can be explained by the implementation of digitalization, while the remaining 12.5% is attributed to other factors not examined in this study. This high coefficient indicates that digitalization has a substantial impact on professional performance outcomes.

In light of these findings, a strategic recommendation for madrasah institutions is to maintain consistency in responding to the demands of the digital era. Human resources (HR) must possess strong qualifications and competencies, along with agility, innovation, anticipatory thinking, creativity, a willingness to experiment, open-mindedness, and broad professional networks. These qualities are essential to ensure that digital transformation within madrasahs leads to improved service quality and institutional effectiveness (Hariyadi, 2023). It is therefore crucial for educators and education personnel to master digital tools and systems. Proficiency in using digital technologies can significantly enhance administrative efficiency, support teaching and learning processes, and expand access to education in increasingly digitalized environments.

CONCLUSION

This study demonstrates that the implementation of digitalization in State Islamic Senior High Schools (*Madrasah Aliyah Negeri* or MAN) across Bandung Regency is at a very high level, particularly in terms of data literacy, technological

literacy, and human literacy. Similarly, the performance of educators and education personnel—measured through indicators of ability and motivation—is also classified as very high. Correlational analysis revealed a positive and significant relationship between the two variables, with a Pearson correlation coefficient of 0.526 and a significance level of 0.005 (< 0.05). These findings indicate that increased digitalization contributes to improved human resource performance in the education sector. The results reinforce the importance of integrating technology into madrasah management and are consistent with previous research on the impact of digital transformation on the effectiveness of educational personnel. Accordingly, it is imperative to strengthen digital competency training and enhance technological infrastructure within madrasahs to promote greater efficiency and professionalism among educators in the digital era.

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