Digital Leadership, Culture & Employee Capabilities: Sustainable Organizational Performance in Education - A Case Study

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ARTICLE INFO	ABSTRACT
Keywords: digital leadership digital culture employees' digital capabilities organizational performance sustainability educational organization	*In the rapidly advancing technological era, the integration of technology in education becomes crucial. However, research conducted by Askal (2015) reveals a gap between the school's culture and leadership style with the digital era. The study found that 93% of school principals acknowledge the importance of digital leadership, indicating awareness of the need to adapt to digital leadership in this era. Digital leadership, digital culture, and employees' digital capabilities influence the sustainability of organizational performance, particularly in the education sector. Therefore, this research aims to examine the impact of digital leadership, digital culture, and employees' digital capabilities on the sustainability of organizational performance, especially in educational organizations. The study employs survey and structural analysis methods, with a case study conducted at MPK KAJ Middle Schools in South Jakarta and South Tangerang. The results show a significant positive influence between digital leadership and digital culture, digital leadership and employees' digital capabilities, digital culture and organizational performance sustainability, employees' digital capabilities and organizational performance sustainability, as well as between digital leadership and organizational performance sustainability, with digital leadership and digital culture as factors influencing the sustainability of the school's organizational performance through digital leadership.*

INTRODUCTION

In the rapidly changing and instant era, advanced technologies are transforming teaching and learning landscapes swiftly. In an ideal teaching and learning setting, technological integration should be present, enabling students to utilize new technologies to support their learning, similar to other learning tools. However, as per Askal (2015), a gap exists between current school leadership and digital culture and leadership styles. Present school leaders experience a knowledge and application gap as they navigate leading digital advancements and implementing these practices in the school learning environment. In the study, it was found that 93% of school principals reported an awareness of digital leadership, indicating recognition of the move towards digital leadership in the digital era. Yet, they face limited opportunities to implement digital leadership due to inadequate training and technological infrastructure for utilizing technology in supporting learning and school improvement. This signifies a lack of understanding of rapidly advancing technology.

Further research by Crosby (2020) emphasizes digital competence as a crucial skill for students to learn and work effectively in an increasingly digital world. To excel in education, students are required to possess the necessary skills to adeptly and effectively use various technologies across different spaces, places, and situations. Digital competence not only aids students in personal engagement and communication but also in their future workplace success.

Supporting this, Gonzalez's study (2016) reveals that employers' attention towards the digital skills of their current and potential employees is on the rise, as nearly every organization relies on these skills in transitioning between different levels of maturity models. Thus, the connection between Gonzalez and Crosby's research is

Catarina Nur Retnowati[1]*, dan Budi Santosa[2]

elucidated in Pagani's study (2006), highlighting the crucial inclusion of digital competence in teaching and learning activities. One way to identify digital capabilities in these activities is through assessment rubrics developed by academic coordinators.

Taking the context described into consideration, the following inquiries have been raised, and a research model has been established, as illustrated in Figure 1 for this study.
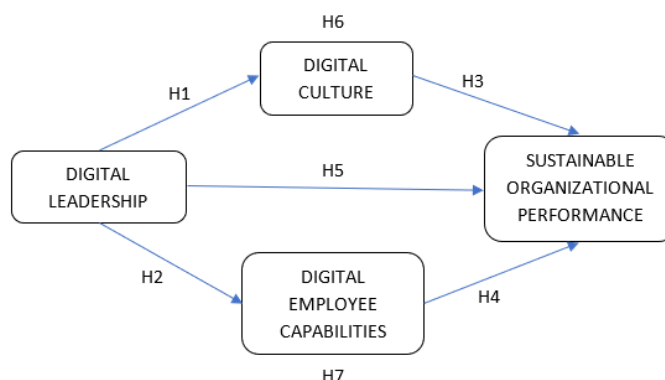

Figure 1. Proposed Research Model

1. How does digital leadership influence digital culture?
2. What is the impact of digital leadership on employee digital competence?
3. How does digital culture influence organizational performance sustainability?
4. What is the relationship between employee digital competence and organizational performance sustainability?
5. How does digital leadership affect organizational performance sustainability?
6. What is the indirect influence of digital leadership on organizational performance sustainability mediated by digital culture?
7. What is the indirect influence of digital leadership on organizational performance sustainability mediated by employee digital competence?

Hence, this research aims to explore the influence of digital leadership, digital culture, and employee digital competence on organizational performance sustainability, particularly in educational organizations. It is hoped that this study will assist educational institutions in implementing aspects that enhance school performance, particularly in the current digital era.

METHOD

In this study, primary data sources consisted of stakeholders from the Secondary School (SMP) MPK located in South Jakarta and South Tangerang, hereafter referred to as respondents. The population for this research comprised stakeholders of the Secondary School MPK KAJ in South Jakarta and South Tangerang, Indonesia. A total of 111 individuals were included in the sample, comprising stakeholders from the Secondary School MPK in South Jakarta and South Tangerang. The questionnaire responses were distributed among various stakeholder groups, with 74% being teachers, 10% administrative staff, 9% vice principals, and 7% school principals. The respondents who completed the questionnaire displayed diverse lengths of work experience: less than 5 years (25%), 5 – 10 years (12%), 10 – 15 years (12%), and more than 16 years (51%). Furthermore, the respondents who participated in the questionnaire covered a wide range of age groups: individuals under 25 years (9%), those aged 26 – 35 (25%), those aged 36 – 45 (16%), those aged 46 – 55 (27%), and individuals above 55 (23%). The gender distribution of the respondents who completed the questionnaire consisted of 44% male and 56% female participants. Regarding the highest level of education, the respondents who completed the questionnaire had a varied educational background: 1% with high school diploma or equivalent, 2% with a Diploma (D3), 86% with a Bachelor's degree (S1), 11% with a Master's degree (S2), and 1% with other qualifications.

This study employs a survey method to examine sociological relationships between variables. It utilizes quantitative research techniques to analyze the psychological connections within the sampled population, employing a specific research approach—structural methods including Path Analysis and Structural Equation Modeling (SEM). This method aims to generalize cases and individual statuses for a broader understanding.

Catarina Nur Retnowati[1]*, dan Budi Santosa[2]

The study focuses on the dependent variable of organizational performance sustainability and independent variables of digital leadership, digital culture, and employee digital capabilities. Likert scales measure these variables' indicators. Data collection techniques encompass:

1. Interviews with School Principals to gather necessary information.
2. Documentation analysis, examining supporting data or documents.
3. Questionnaires distributed to School Principals, Vice Principals, Teachers, and Educators to gauge responses regarding digital leadership, organizational culture, employee digital capabilities, and organizational performance sustainability within the context of the Secondary School MPK KAJ in South Jakarta and South Tangerang areas.

The measurement of variables was carried out by assigning indicators to each variable. For the variable organizational performance sustainability, 8 indicators were adopted from the study by Magd, H. and Karyamsetty, H. (2020). For the variable digital leadership, 9 indicators were drawn from the research by Avolio, Bruce J. and Dodge, George E. (2000) and Wesly, J., et al. (2021). In the case of the variable digital culture, 9 indicators were taken from the study by GorjianKhanzad, Z. and Ali A. Gooyabadi (2022) and Ferdian, A. and Annisaa Rahmawati (2019). Lastly, for the variable employee digital capabilities, 10 indicators were adopted from the research by Korhonen, J. J., and Asif Q. Gill (2018) and Balyk, N., et al. (2020).

Instrument validity and reliability are tested. Pearson's Product-Moment Correlation is used for validity testing. If the correlation value exceeds the critical value (0.05 significance level), the sample is deemed sufficient for further analysis. Table 1 indicates that each indicator is valid to proceed to the next stage of analysis.

Table 1. Results of Validity Testing

Variable	Indicator	R table	R calculated	Validity
Organizational Performance Sustainability (A)	A1	0,187	0,740	Valid
	A2	0,187	0,685	Valid
	A3	0,187	0,604	Valid
	A4	0,187	0,718	Valid
	A5	0,187	0,778	Valid
	A6	0,187	0,761	Valid
	A7	0,187	0,681	Valid
	A8	0,187	0,672	Valid
Digital Leadership (B)	B1	0,187	0,815	Valid
	B2	0,187	0,826	Valid
	B3	0,187	0,830	Valid
	B4	0,187	0,760	Valid
	B5	0,187	0,735	Valid
	B6	0,187	0,767	Valid
	B7	0,187	0,856	Valid
	B8	0,187	0,743	Valid
	B9	0,187	0,817	Valid
Digital Culture (C)	C1	0,187	0,656	Valid
	C2	0,187	0,436	Valid
	C3	0,187	0,638	Valid
	C4	0,187	0,793	Valid
	C5	0,187	0,662	Valid
	C6	0,187	0,751	Valid
	C7	0,187	0,750	Valid
	C8	0,187	0,568	Valid
	C9	0,187	0,709	Valid
Employee Digital Capabilities (D)	D1	0,187	0,665	Valid
	D2	0,187	0,773	Valid
	D3	0,187	0,659	Valid
	D4	0,187	0,658	Valid
	D5	0,187	0,767	Valid
	D6	0,187	0,662	Valid
	D7	0,187	0,690	Valid
	D8	0,187	0,867	Valid
	D9	0,187	0,853	Valid

Catarina Nur Retnowati[1]*, dan Budi Santosa[2]

	D10	0,187	0,691	Valid

Reliability testing employs Cronbach's Alpha formula, with values > 0.70 indicating reliability. Table 2 displays that every indicator is reliable and can proceed to the subsequent stage of analysis.

Table 2. Results of Reliability Testing

Variable	Number of Indiactors	Crombah's Alpha	Reliability
Organizational Performance Sustainability	8	0,854	Reliable
Digital Leadership	9	0,927	Reliable
Digital Culture	9	0,829	Reliable
Employee Digital Capabilities	10	0,900	Reliable

For modeling, Structural Equation Modeling (SEM) with Partial Least Squares (PLS) is employed. PLS-SEM is chosen due to small sample size and non-normally distributed data (Hair, et. al., 2014), as well as its accuracy in evaluating latent constructs (Tajpour, 2021). SEM's first-order model is used, establishing direct relationships between latent variables and measurement variables (Rashid, 2020). By utilizing the indicators and variables provided earlier and aligning them with the research questions previously formulated, a PLS-SEM model can be constructed as depicted in Figure 2.
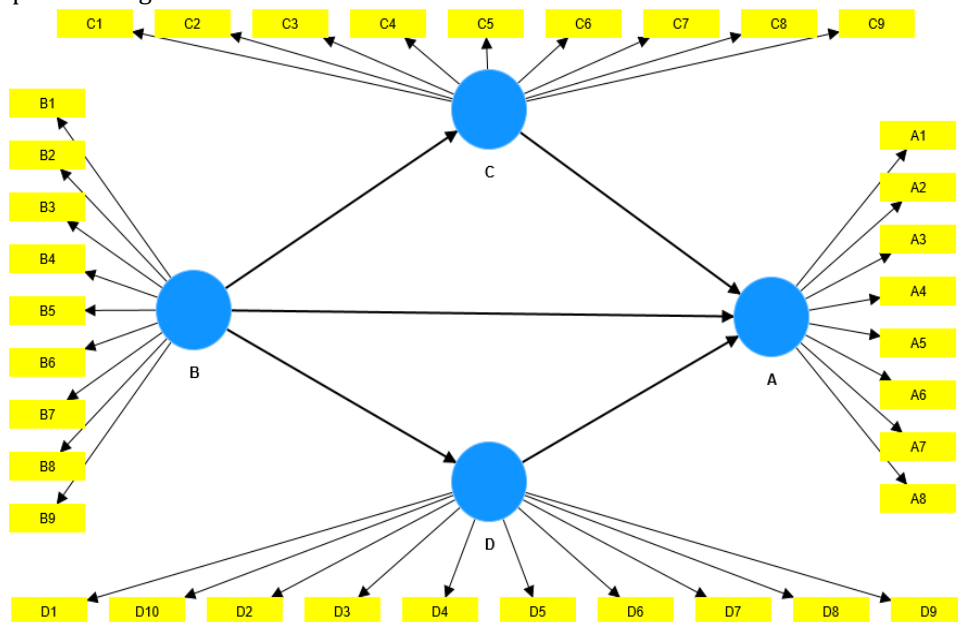

Figure 2. Initial PLS-SEM Model

To assess the suitability of the model, an outer model test is required. The Outer Model Testing involves evaluating the relationship between construct variables and their corresponding indicators. This examination is conducted by measuring the outer loadings, which represent the regression outcomes of each indicator variable on its respective construct variable. Hair et al. (2014) stipulate that acceptable outer loading values should exceed 0.7, while values below 0.4 are considered inadequate. Table 3 presents the results of the outer loading analysis that has been performed.

Table 3. Outer Loading Values of Indicator Variables

Indicator	A	B	C	D
A1	0.725			
A2	0.667			
A3	0.563			
A4	0.741			
A5	0.793			
A6	0.760			
A7	0.696			
A8	0.688			

Catarina Nur Retnowati[1]*, dan Budi Santosa[2]

B1	0.808		
B2	0.825		
B3	0.823		
B4	0.758		
B5	0.743		
B6	0.770		
B7	0.853		
B8	0.763		
B9	0.803		
C1		0.679	
C2		0.287	
C3		0.599	
C4		0.767	
C5		0.719	
C6		0.788	
C7		0.786	
C8		0.566	
C9		0.737	
D1			0.639
D2			0.774
D3			0.671
D4			0.665
D5			0.762
D6			0.644
D7			0.692
D8			0.884
D9			0.870
D10			0.675

As observed in the presented table, there are several values that fall below 0.7. This signifies that certain indicators fail to adequately represent their corresponding construct variables. To enhance the accuracy of the model, as per Hair (2014), these indicators should be eliminated. Consequently, the indicators with outer loading values below 0.7 need to be removed. After removing these indicators, the resulting outer loading values are displayed in Table 4.

Table 4. Outer Loading Values of Indicator Variables after Analysis

Indicator	A	B	C	D
A4	0.760			
A5	0.832			
A6	0.772			
A7	0.752			
A8	0.742			
B1		0.807		
B2		0.824		
B3		0.821		
B4		0.755		
B5		0.739		
B6		0.770		
B7		0.853		
B8		0.762		
B9		0.813		
C4			0.755	
C5			0.756	
C6			0.793	
C7			0.839	
C9			0.763	
D2				0.777
D3				0.700

D5	0.758
D7	0.716
D8	0.896

It can be observed from the provided table that the outer loading values of each indicator now exceed 0.7. This indicates that the indicators used effectively represent their respective construct variables. Hence, these indicators will be utilized for further analysis. Following the analysis of outer loading and the selection of relevant indicators, the subsequent step involves conducting Average Variance Extracted (AVE) analysis. According to Hair (2014), AVE serves as a criterion for testing the convergent validity of a construct variable by examining the average squared outer loading values of each indicator connected to the construct variable. Consequently, a recommended AVE value is above 0.5, signifying that the construct can explain more than 50% of the variance in its constituent indicators. The AVE results for each construct variable in the model can be observed in Table 5. It is evident that the AVE values for each variable exceed 0.5, indicating that the model conforms to the criteria set by Hair (2014).

Table 5. AVE of Construct Variables in the Model

Variable	AVE
A	0.596
B	0.631
C	0.611
D	0.626

By incorporating the revised indicators, Figure 3 illustrates the final model that will be employed for the Inner Model analysis and hypothesis testing in this research.
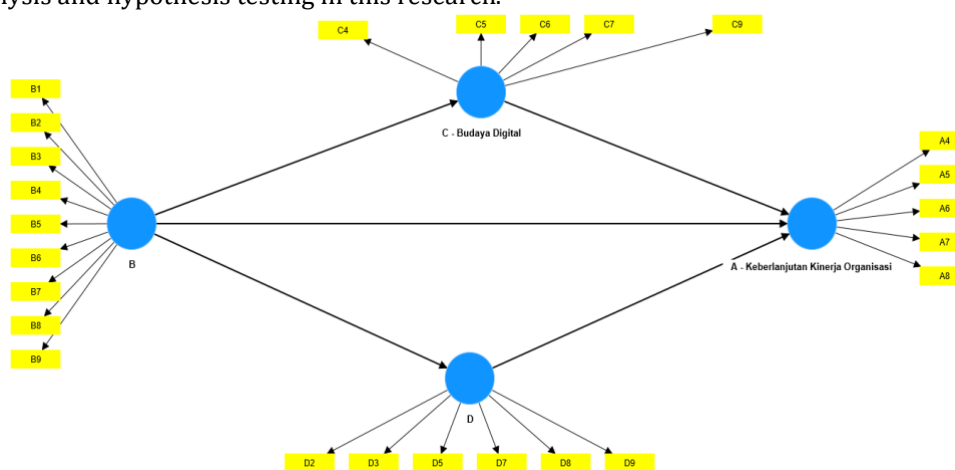

Figure 3. Final PLS-SEM Model

Inner Model testing or structural model testing is one of the methods used to assess the formulated hypotheses. This testing process consists of two parts: the test of direct influence significance and the examination of indirect influence or mediation. Table 6 presents the values of the significance test for the influences of each variable. The results of indirect effects or mediation can be calculated and their outcomes presented in Table 7.

Table 6. Significance Test of Influences

Variable	Path Coefficient	P-Values
B → C	0.678	< 0.001
B → D	0.609	< 0.001
C → A	0.178	0.037
D → A	0.358	0.005
B → A	0.348	< 0.001

Table 6. Mediation Significance Test

Variable	Coefficient	P-Values
B → C → A	0.12	0.041

Catarina Nur Retnowati[1]*, dan Budi Santosa[2]

B → D → A	0.218	0.01

Hypothesis testing involves comparing p-values with error or significance values:
1. p < 0.01 signifies very significant correlation, accepting the hypothesis.
2. p < 0.05 signifies significant correlation, accepting the hypothesis.
3. p > 0.05 signifies insignificant correlation, rejecting the hypothesis.

RESULTS AND DISCUSSION

In Table 6, it can be seen that Variable B influences Variable C with a positive coefficient and a P-value below the significance level (0.05). Hence, Variable B, or digital leadership, significantly affects Variable C, or digital culture. Thus, H1 is accepted. Digital leadership, rooted in social influence processes, embodies the initiation of sustainable change by leveraging technology for organizational success. It signifies a gradual transformation led by leaders to instigate continuous change within an organization. This transformative process demands the establishment of specific habits that become ingrained as the organization's new culture. As digital culture is an integral part of digital transformation, the efficient route to cultivating it within an organization lies in the adoption of digital leadership. Through technological utilization and digital strategies, digital leadership shapes a robust and progressive digital culture within the entrepreneurial community. Practicing digital leadership empowers leaders to inspire, guide, and educate community members to optimize digital technology, fostering technology adoption, online collaboration, and innovation. The digital culture fostered by digital leadership profoundly influences communication, participation, and technology utilization within the community, ultimately contributing to overall business growth and success.

Moving on to test H2, which is whether digital leadership significantly affects employees' digital capabilities, we need to examine the influence of Variable B on Variable D. Variable B affects Variable D with a positive coefficient and a P-value below 0.05, indicating that digital leadership significantly influences employees' digital capabilities. Therefore, H2 is accepted. Digital leadership can be understood as setting direction, influencing others, initiating continuous change through access to digital information, and building relationships to anticipate significant shifts for an organization's future success. This definition highlights the capacity of digital leadership to impact and drive change by leveraging digital information and influencing employees to enhance their digital skills. Leaders can establish rules and activities to improve employees' digital capabilities. Thus, it can be concluded that digital leadership significantly and positively affects employees' digital skills. Practicing digital leadership, leaders support employees in developing digital competencies by providing guidance, training, and resources. Leaders focused on digital leadership empower employees to effectively utilize digital technology, enhance productivity, adapt to technological changes, and contribute to the digital development of entrepreneurial communities.

For H3, the variables of interest are digital culture (C) representing organizational performance sustainability (A). In the table, the influence of Variable C on A has a positive coefficient with a P-value of 0.037, below 0.05. This indicates that digital culture significantly impacts organizational performance sustainability, thus H3 is accepted. Digital culture signifies a participatory approach that leverages technology to interact with humans, making it crucial for organizations to integrate technology for growth. By fostering a digital culture, organizations can enhance their performance sustainability, especially in the digital age. This sustenance is reflected in improved outcomes, such as educational success in the case of this study. Digital culture embodies values, norms, and practices that embrace technology across organizational operations, enabling better collaboration, innovation, and adaptability. In community entrepreneurship, a robust digital culture fosters efficient technology adoption, effective collaboration, and long-term performance sustainability.

To test H4, we need to consider the impact of employees' digital capabilities (D) on organizational performance sustainability (A). In the table, the influence of Variable D on A has a positive coefficient with a P-value of 0.005, which is below 0.05. Hence, employees' digital capabilities significantly affect organizational performance sustainability, leading to the acceptance of H4. Digital capabilities among employees can be understood as their ability to integrate and utilize data and information technology in their activities and responsibilities to enhance value for beneficiaries. This aligns well with the concept of organizational sustainability, which involves meeting present needs without compromising the needs of future generations. In the context of educational organizations, social performance serves as a crucial indicator for assessing organizational sustainability. Schools can improve their social performance by enhancing the digital skills of their employees. By elevating their digital capabilities, employees can better understand their students' needs, allowing

Catarina Nur Retnowati[1]*, dan Budi Santosa[2]

them to adapt teaching styles accordingly. Consequently, students' abilities improve, contributing to overall organizational sustainability. Hence, the digital capabilities of employees significantly and positively impact organizational sustainability.

Subsequently, for H5, we focus on the impact of digital leadership (B) on organizational performance sustainability (A). In the table, the influence of Variable B on A has a positive coefficient with a P-value below 0.05. This confirms that digital leadership significantly affects organizational performance sustainability, and H5 is accepted. Digital leadership can be defined as a social influence process mediated by information technology to drive organizational performance improvement. Hence, digital leadership has the potential to impact organizational performance. By embracing digital leadership, leaders can alter the direction of an organization, which in turn can lead to changes in its performance. When the direction change is appropriate and effective, it can significantly enhance the organization's performance.

According to Table 7, Variables C and D act as mediators linking Variables B and A. In this context, H6 is tested by examining the role of digital culture (C) as a mediator between digital leadership (B) and organizational performance sustainability (A). In the table, Variable C acts as a mediator with a positive coefficient and a P-value of 0.041, below the significance level of 0.05. This demonstrates that digital culture significantly mediates the influence of digital leadership on organizational performance sustainability, validating H6. Digital culture can influence organizational performance sustainability and is also influenced by digital leadership. It becomes a leader's responsibility to manage and control this digital culture within the organization. Thus, it can be ensured that digital leadership significantly affects digital culture. Subsequently, digital culture also impacts organizational performance sustainability because the establishment of new and positive habits within the organization can enhance its performance. The organization's performance is influenced by the habits practiced by its employees. Therefore, digital culture serves as a mediator between digital leadership and organizational performance sustainability, where leaders can establish new policies to transform the existing digital culture within the organization, and these habits will subsequently impact the sustainability of organizational performance.

Next, for testing H7, the focus shifts to employees' digital capabilities (D) acting as a mediator between digital leadership (B) and organizational performance sustainability (A). In Table 7, Variable D acts as a mediator with a positive coefficient and a P-value of 0.01, below the significance level of 0.05. Hence, employees' digital capabilities effectively mediate the influence of digital leadership on organizational performance sustainability, leading to the acceptance of H7. As previously explained in the preceding points, digital leadership significantly influences the digital capabilities of employees, and these digital capabilities also have a positive and significant impact on the sustainability of organizational performance. Therefore, it can be stated that the digital capabilities of employees are a crucial aspect for an organization's success and sustainability. These capabilities can be achieved when leaders implement a digital leadership approach. By establishing policies that enhance these capabilities, such as conducting training and workshops, organizations can experience a significant improvement in performance. Hence, the digital capabilities of employees can be confirmed as mediating the influence between digital leadership and organizational performance sustainability.

CONCLUSION

Positive and significant relationships were identified between digital leadership and digital culture, indicating that leaders adopting digital leadership styles can cultivate new habits that evolve into the organization's digital culture. Similarly, a positive and significant association was found between digital leadership and employee digital capabilities, suggesting that digital leadership has the potential to enhance employees' digital proficiency.

Furthermore, the study revealed positive and significant connections between digital culture and organizational performance sustainability. This affirms that integrating a digital culture within an organization can lead to improvements and, subsequently, enhance organizational performance sustainability. Similarly, the analysis demonstrated a positive and significant relationship between employee digital competence and organizational performance sustainability. Improved digital competence among employees positively affects student capabilities and consequently contributes to better organizational performance sustainability.

Moreover, the research uncovered a positive and significant correlation between digital leadership and organizational performance sustainability. This highlights that the implementation of digital leadership can significantly influence an organization's trajectory and lead to improved sustainability in its performance. The study also indicated that digital culture mediates the relationship between digital leadership and organizational

Catarina Nur Retnowati¹, dan Budi Santosa²*

performance sustainability. This suggests that leaders' policies and interventions can transform the existing digital culture, which, in turn, impacts organizational performance sustainability.

Additionally, the research found that employee digital competence mediates the link between digital leadership and organizational performance sustainability. This implies that the digital capabilities of employees plays a mediating role in how digital leadership influences the organizdation's sustainability in performance.

In conclusion, this study's implications shed light on the intricate interplay between digital leadership, digital culture, employee digital capabilities, and organizational performance sustainability within the context of the Secondary School MPK KAJ. Implementing a digital culture and embracing digital leadership have the potential to enhance employee skills and drive the sustained performance of educational organizations. Looking ahead, future research could consider exploring the influence of budget allocation for digitalization and expanding the scope to larger educational organizations to draw comprehensive insights about sustainable performance practices in the Indonesian context.

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