

DOI: <https://doi.org/10.71317/kjard.2.9.2026.525>

The Kashmir Journal of Academic Research and Development

Journal homepage: <https://rjsaonline.org/index.php/KJARD>

School Digital Transformation and Educational Innovation: The Role of Digital Leadership and Organizational Readiness

Muhammad Roshan

PhD Scholar, SZABIST University, Karachi

Email: roshanbozdar87@gmail.com**Zubaida Sattar**

Assessment Expert, Balochistan assessment and examination commission (BAEC), Quetta Blochistan

Email: zubi.mughal7@gmail.com**Nadia Qasim**

CPD Specialist STEDA, PMIU SELECT, Reform Support Unit, Govt. of Sindh

Email: mahmood.dool@iba-suk.edu.pk**ARTICLE INFO****ABSTRACT****Received:**

July 29, 2026

Revised:

August 11, 2026

Accepted:

August 22, 2026

Available Online:

September 03, 2026

Keywords:

Digital Leadership,
Organizational Readiness,
Educational Innovation, Digital
Transformation, School
Leadership, Educational
Technology

Corresponding Author:**Muhammad Roshan**

Email:

roshanbozdar87@gmail.com

In 21st century, digital transformation is an essential part of school improvement that demands effective leadership, organizational capacity and innovative education practices. This research explored the link between digital leadership, organizational readiness and educational innovation, as well as the mediating effect of organizational readiness on the link between digital leadership and educational innovation in school digital transformation. A quantitative cross-sectional correlational research design was used and the number of respondents was 300 public and private school teachers purposively selected in stratified random sampling. A structured questionnaire was used to gather data, which were then analyzed using descriptive statistics, Pearson correlation, regression analysis and bootstrapping mediation analysis. A strong positive relationship was found between digital leadership and organizational readiness ($r = .68, p < .001$). Organizational readiness was a significant predictor of educational innovation and accounted for 50.4% of the variance ($R^2 = .504$) as per regression analysis. Moreover, educational innovation was strongly predicted by digital leadership ($\beta = .65, p < .001, R^2 = .423$). The results of mediation analysis indicated that organizational readiness partially mediated between digital leadership and educational innovation, and had a significant indirect effect ($B = .35, 95\% CI [0.28, 0.44]$). The study ends the conclusion that digital transformation in schools is a sustainable process, which needs strong digital leadership, organizational readiness, teachers' capacity development and supportive institutional conditions.

Introduction

Digital transformation within schools is the comprehensive incorporation of digital technologies within a school's entire processes of teaching, learning, administration, communication and decision making, to enhance educational processes and outcomes. Schools' reliance on digital capacity has grown (Timotheou et al., 2023; McCarthy et al., 2023) due to the rapid development of online and blended learning, digital learning platforms, technology-supported administration, and data-informed decision-making. However, digital transformation is not simply about the adoption of technology, but involves changes in organizational practice, skills, culture, and leadership (Connolly et al., 2023; Ruloff & Petko, 2021). The increasing importance of digital leadership in creating a unified vision of digital technology, empowering educators to

integrate technology into their lessons, coordinating the use of digital tools and resources, and building the needed infrastructure (Sutopo, 2024; Hairani et al., 2025; Hamzah et al., 2025). The findings show that there is a correlation between the digital leadership of principals and digital teaching practices of teachers, as well as technology integration (Hamzah et al., 2021; Abinales & Callo, 2025; Witthöft et al., 2024). Meanwhile, the conditions for educational innovation are developed by organizational readiness by teacher readiness, institutional support, resources, and having a friendly school culture (Kustomo, 2025; Mustafa, 2025). Accordingly, the preparedness of an organization could be enhanced by effective digital leadership, leading to an enhancement of educational innovation (Anwar et al., 2026; Ntavlourou et al., 2026).

Schools have spent significant amounts of money on digital devices, platforms, connectivity and resources for learning, but availability of technology does not ensure meaningful school transformation (McCarthy et al., 2023; Karakose et al., 2024). There is some evidence that there is a great difference between schools in their ability to be effective in the integration of technology, with factors like leadership, infrastructure, teacher competence, professional development, and organizational conditions influencing digital transformation (Timotheou et al., 2023; Hairani et al., 2025; Kausar et al., 2025). School leaders might face challenges in developing a clear digital vision and setting up the conditions that enable teachers to appropriately utilize technology in a productive manner (Faisal et al., 2025; Kamran, 2025). The lack of infrastructure, digital literacy, professional development, time and support, as well as the resistance to change, are also ongoing challenges to digital transformation in schools (Karousiou, 2025; Akhmad, 2025; Freser, 2025). These weaknesses could make the organization less prepared and make it difficult to implement new learning practices effectively (Mustafa, 2025; Abinales & Callo, 2025). Thus, empirical focus is needed to find out if digital leadership is associated with organizational readiness, whether organizational readiness is pre-determined educational innovation, and whether organizational readiness is a mediator between digital leadership and educational innovation (Anwar et al., 2026; Paramansyah, 2026).

Research Objectives

- **RO1:** To examine the relationship between digital leadership and institutional readiness for digital transformation.
- **RO2:** To determine the effect of organizational readiness on educational innovation.
- **RO3:** To investigate whether organizational readiness mediates the relationship between digital leadership and educational innovation.

Research Questions

- RQ1: What relationship exists between digital leadership and organizational readiness for digital transformation?
- RQ2: To what extent does organizational readiness predict educational innovation?
- RQ3: Does organizational readiness mediate the relationship between digital leadership and educational innovation?

This study is important since it could provide insight into the relationship between leadership and organizational conditions, which are important contributors to innovation during the school digital transformation (SDT) process (McCarthy et al., 2023; Anwar et al., 2026). School principals can use the findings to identify key practices needed to build digital vision, teacher capacity building, and promoting supportive conditions for technology integration (Ruloff & Petko, 2021). The study can reveal that the use of innovative practice is an important way for teachers to develop their skills, digital competence, collaboration, and institutional support (Hamzah et al., 2025; Hairani et al., 2025; Connolly et al., 2023). The results can be used to optimize the distribution of resources, facilities, digital information, and strategies for change management in school administration (Kustomo, 2025; Akhmad, 2025). Policy makers in the education sector can use evidence to inform the development of policies that include technology investment along with leadership development and organizational capacity building (Kausar et al., 2025). The results can be presented to the educational technology experts who can then design a technology solution that matches the readiness and teaching needs of the school (Abinales & Callo, 2025; Paramansyah, 2026). Digital leadership and pedagogical competences with digital tools can be integrated into teacher education programs (Faisal et al., 2025; Ntavlourou et al., 2026). Lastly, the suggested connections between digital leadership, organizational readiness, and educational innovation allow researchers to further explore the empirical aspects of school digital transformation (OKunlola & Naicker, 2025; Witthöft et al., 2024; Anwar et al., 2026).

Literature Review

Digital Transformation in Schools

Digital transformation in schools is considered a systemic process that involves the digital technologies changing the way schools teach, learn, communicate and operate, and not simply replacing traditional tools with digital ones (McCarthy et al., 2023). Timotheou et al. (2023) pointed out that the factors of technology, individual, organization and context are interrelated in the process of successful school digital transformation. Digital platforms, learning management systems, online resources, and technology-enhanced activities are used to enable flexible and interactive learning in teaching and learning. Online and blended also provide a mixture of digital and in-person experiences, with evidence suggesting that blended learning can have positive education impacts when technology is purposefully incorporated into the pedagogical processes (Topping et al., 2022). The digitalisation of school administration, communication with stakeholders, information management and decision making based on information are also part of digitalisation. Therefore, technology acquisition is not the only condition for transformation, but the change of school structures, competencies of teachers, leadership practices, collaboration and organizational cultures (Reis-Andersson, 2024; Karakose et al., 2024).

Digital Leadership

Digital leadership is the ability of school leaders to strategically lead technology-infused organizational and pedagogical transformation (OKunlola & Naicker, 2025). This includes setting-up a shared digital vision, formulating strategic plans, implementing digital communication, distributing technological resources, supporting teachers and developing conditions for sustainable digital learning. Principals are especially significant since educators need access to digital technologies as well as organizational backing to ensure their effective implementation in the classroom (Reis-Andersson, 2024). Digital leaders also foster the professional learning of staff and support them to try out pedagogies that involve technology. The study conducted by Hamzah et al. (2021) found that there is a positive relationship between principals' digital leadership and teachers' digital teaching practices, thus emphasizing the need for planning and organizing digital leadership in schools. Similarly, Dasruth et al. (2024) emphasized principals' digital leadership practices in navigating schools' transition toward digital learning environments. Therefore, the role of digital leader is a synthesis of technical knowledge and leadership skills, professional support, resource management, communication, and fostering a culture of innovation in the digital school (Hamzah et al., 2025).

Organizational Readiness

Organizational readiness refers to the ability and joint commitment of a school to change. Digital transformation readiness involves having the technology infrastructure, the right hardware and software, the digital skills of teachers, institutional resources, leadership support, professional learning opportunities, and an accepting culture (Abinales & Callo, 2025). The school readiness is thus technological and human. Digital competence, access to technology, a shared culture, clear guidelines, collaboration and time can support digitalization in schools, while inadequate support and resources can hinder digitalization (Reis-Andersson, 2024). Likewise, Timotheou et al. (2023) have shown that school digital capacity is tied to interrelated factors related to teachers, leaders, infrastructure, professional development, and general organizational factors. Staff confidence and commitment is especially relevant as technology can't drive transformation if staffs don't have the skills and motivation to do so. As a result, the level of organizational readiness can be used to indicate a school's preparedness for adopting, sustaining and institutionalizing digital change (Hairani et al., 2025).

Educational Innovation

Educational innovation is the introduction of new or significantly enhanced teaching, learning, assessment and engagement practices. In digitally transforming schools, innovation can take various forms, such as digital pedagogy, the use of digital tools to enhance learning, blended learning, digital assessment, collaborative learning, and personalized learning experiences (Witthöft et al., 2024). It is a valuable innovation when technology helps to improve pedagogy, not just to create a digital version of pedagogy. In a systematic review of the literature on school-based digital learning, Topping et al. (2022) identified mostly positive evidence for digital learning, with blended learning showing the most positive evidence than traditional learning. Digital innovation can also facilitate student collaboration, access to a variety of learning resources, interaction in assessment and more flexible learning experiences. Nevertheless, the role of teachers to connect technology to pedagogy and student needs is crucial to the educational value of technology (Timotheou et al., 2023).

Digital Leadership and Organizational Readiness

Digital leadership ought to make a positive impact on organizational readiness since it sets the contexts in which digital change happens. Leaders can articulate a vision for digital, allocate resources strategically, develop policies, offer

professional development, and foster collaboration (Sutopo, 2024). These practices can help build student teachers' confidence and skills, as well as lessen their uncertainty and opposition to digital transformation. Since evidence shows that leadership support is an essential element to establishing conditions for teachers to integrate technology in a successful manner (Reis-Andersson, 2024), the study sought to identify how leadership support is perceived. The study aimed to determine how leadership support is perceived, given that evidence has shown that leadership support is essential for the conditions teachers need for successful technology integration. Similarly, digital leadership of principals is linked to digital teaching practices of teachers (Hamzah et al., 2021). So, organizational readiness for digital transformation will be positively linked to strong digital leadership (Dasruth & Naicker, 2026).

Organizational Readiness and Educational Innovation

The resources for success of educational innovation are embedded within organizational readiness. Schools that have the necessary infrastructure, resources, digitally competent teachers, leadership support, and collaborative culture are more likely to indulge in new pedagogical practices (Mustafa, 2025). The interaction between technological and organizational factors in determining the digital capacity and transformation of schools is shown by Timotheou et al. (2023). Readiness can thus help teachers to shift from using technology to engaging in innovative digital pedagogy, from collaborative to blended learning to technology supported assessment. However, limited resources, skills, support, or collaboration can hinder innovation even if technology is available (Karousiou, 2025).

Mediating Role of Organizational Readiness

Based on the literature, there is a logical sequence of Digital Leadership leading to Organizational Readiness and then finally to Educational Innovation. Digital leadership doesn't always mean innovation direct leadership but can be about the organizational climate that is conducive to innovation. Leaders can grow the readiness of a school for transformation by developing a digital vision, by providing infrastructure, and resources, by supporting teacher professional learning, by fostering collaboration, and by building teachers' confidence (Reis-Andersson, 2024; Timotheou et al., 2023). This increased preparedness can then enable the testing and implementation of innovative learning methods (Anwar et al., 2026). Organizational readiness may thus be regarded as a mediating factor between digital direction and support and educational innovation.

Theoretical and Conceptual Framework

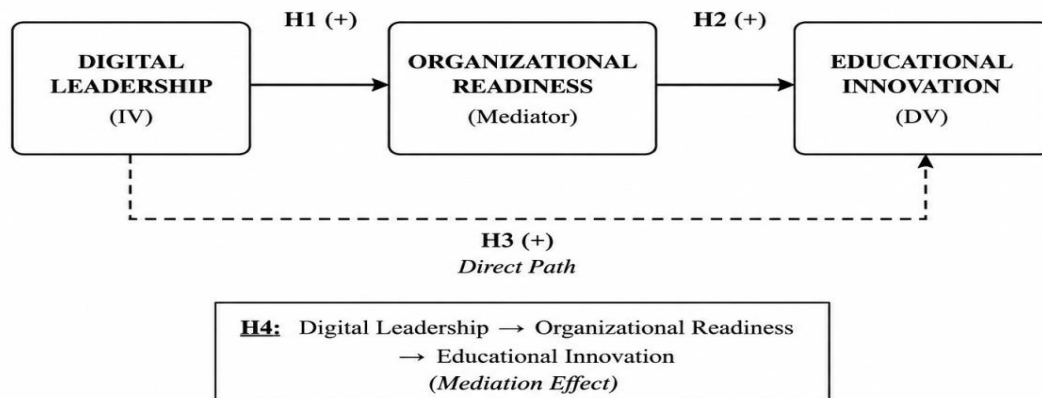
Theoretical Framework

The research is based on Organizational Readiness for Change Theory that describes the readiness of organizational members on implementing planned change. Organizational readiness is seen to have two key factors: change commitment (how committed the members are to the proposed change) and change efficacy (how confident the members are that the change will be successful) (Weiner, 2020). School readiness is especially significant when talking about school digital change as it encompasses teachers and administrators' attributes, such as technological readiness, commitment, competence, confidence, and organizational support (Abinales & Callo, 2025). Digital leadership can enhance this preparedness by developing a clear vision for digital, allocating resources, providing professional development support, fostering collaboration, and building a culture that is open to digital change (Reis-Andersson, 2024). Schools' improved organizational readiness can enhance schools' readiness to implement the new digital pedagogies and innovative practices, thereby facilitating teachers' willingness to do so (Hairani et al., 2025). Therefore, readiness is a theoretical mechanism that digital leadership can support educational innovations (Anwar et al., 2026).

Conceptual Framework

The conceptual model has digital leadership as an independent variable; organizational readiness as a mediating variable; and educational innovation as a dependent variable. The expected outcomes of digital leadership are to enhance organisational readiness that in turn will foster educational innovation (Dasruth & Naicker, 2026). A direct relationship between digital leadership and educational innovation is also proposed (Witthöft et al., 2024). As such, it is hypothesized that organizational readiness would serve as a mediator in the relationship between digital leadership and education innovations, as shown in Figure 1.

Figure 1: Conceptual Framework of Digital Leadership, Organizational Readiness, and Educational Innovation



Note. The model illustrates the direct and indirect relationships among digital leadership, organizational readiness, and educational innovation. Organizational readiness serves as the mediating variable between digital leadership and educational innovation.

Research Hypotheses

Based on the theoretical foundation and proposed relationships, the following hypotheses are formulated:

- **H1:** Digital leadership is significantly related to organizational readiness for digital transformation.
- **H2:** Organizational readiness has a significant positive effect on educational innovation.
- **H3:** Digital leadership has a significant positive effect on educational innovation.
- **H4:** Organizational readiness significantly mediates the relationship between digital leadership and educational innovation.

Research Methodology

Research Approach

A quantitative research approach was used to examine the digital leadership, organizational readiness and innovative education of school teachers. The quantitative approach was suitable for the study because it allowed the variables under study to be measured numerically, the relationship and predictive effects among the variables were tested statistically, the hypothesis was tested and the role of organizational readiness as a mediator was examined (Hayes, 2013).

Research Design

A cross-sectional correlational research design was adopted. The data was gathered from the respondents only once without manipulation of any study variable. This design allowed for the examination of the naturally occurring relationships between digital leadership, organizational readiness, and educational innovation, and was suitable for the correlation, regression and mediation analyses.

Study Population

The population under study was teachers in public and private schools. The participants comprised teachers from primary, middle, and secondary schools with various subject areas, academic qualifications, and years of teaching experience. This population chosen because teachers experienced hands-on the implementation of school leadership practices, organizational conditions and the use of technology in educational innovation.

Sample Size

The main study included a fixed sample of 300 school teachers. This sample size yielded enough observations for conducting correlation, regression and mediation analyses as well as examining the proposed relationship between the variables in the study.

Sample Distribution

In order to have a balanced representation, 150 public-school teachers were chosen, along with 150 private-school teachers. The equal distribution allowed the study to ensure an adequate representation of the two sectors of school.

Sampling Technique

Stratified random sampling method was used. The strata were public and private schools. Within each stratum, teachers were then randomly sampled to enhance representation of different school contexts and to minimize possible sampling imbalance.

Research Instrument

Data were collected through a structured questionnaire consisting of four sections. Demographic data on gender, age, qualification, teaching experience, type of school, level of school and previous digital training was gathered in section A. Section B evaluated digital leadership in terms of digital vision, technology support, digital communication, professional development and innovation support. In this section C, organizational preparedness for change was assessed based on the following dimensions: change commitment, staff readiness, digital competence, infrastructure, resources and organizational support. Section D explored themes of educational innovation related to innovative teaching, digital pedagogy, digital learning with technology, digital assessment and collaborative practices. The instruments were measured on a 5-point Likert scale, and all construct items were measured.

Validity and Reliability

Content validity was accomplished by experts reviewing the questionnaire. In addition, a pilot study with 30 teachers in the school was conducted, and these teachers were eliminated from the sample. The internal consistency was analyzed using Cronbach's alpha, where α values around .70 or above were considered acceptable for research (Taber, 2018).

Data Collection Procedure

Institutional ethical approval was obtained and then schools were asked for permission to participate. Teachers were recruited, explained about the study and gave informed consent. Questionnaires were filled voluntarily and completed questionnaires were collected and checked for completeness prior to analysis.

Data Analysis

Descriptive and inferential statistical procedures were used in analyzing the data. For RQ1, Pearson correlation was employed and for RQ2, linear regression was used. To perform mediation analysis for RQ3, regression-based mediation procedures were used as suggested by Hayes (2013). The results presented were r , R^2 , β , t , and p values, as well as the direct, indirect, and total effects and the 95% bootstrap confidence intervals.

Ethical Considerations

The ethical principles of informed consent, voluntary participation, confidentiality, anonymity, right to withdraw, secure data storage, and institutional approval were included. The information of the participants was used only for research purposes.

Results

Demographic Characteristics

Table 1 gives the demographic features of the 300 school teachers that participated in the work. The female teachers were 56.0% and the males 44.0% of the sample. The majority of participants had a master's degree (45.0%) and was between the ages of 31-40 years (36.0%). In terms of teaching experience, 36.0% had 6-10 years of experience. There were equal numbers of women and men public and private school teachers (50.0%). The secondary-school teachers were the biggest group (40.0%), and 64.0% of the respondents had previous digital training experience.

Table 1: Demographic Characteristics of Participants

Characteristic	Category	n	%
Gender	Male	132	44.0
	Female	168	56.0
Age	20-30 years	78	26.0

Qualification	31-40 years	108	36.0
	41-50 years	75	25.0
	Above 50 years	39	13.0
	Bachelor's	72	24.0
Teaching experience	Master's	135	45.0
	MPhil/MS	78	26.0
	PhD/Other	15	5.0
	≤5 years	81	27.0
School type	6-10 years	108	36.0
	11-15 years	66	22.0
	>15 years	45	15.0
	Public	150	50.0
School level	Private	150	50.0
	Primary	81	27.0
	Middle	99	33.0
	Secondary	120	40.0
Digital training experience	Yes	192	64.0
	No	108	36.0

Note. N = 300.

Descriptive Statistics and Reliability

Descriptive statistics of the study variables and internal consistency estimates are shown in Table 2. Digital leadership had a mean of 3.82 (SD = 0.61), organizational readiness a mean of 3.74 (SD = 0.65) and educational innovation a mean of 3.86 (SD = 0.59). The scores for these reflect generally good perceptions of the three constructs. Cronbach's alpha coefficients ranged from .86 to .91, which was above .70, the standard criterion for acceptable internal consistency of measures.

Table 2: Descriptive Statistics and Reliability of Study Variables

Variable	M	SD	Cronbach's α
Digital Leadership	3.82	0.61	.91
Organizational Readiness	3.74	0.65	.89
Educational Innovation	3.86	0.59	.86

Note. N = 300. All variables were measured on a five-point Likert scale.

Digital Leadership and Organizational Readiness

To address RQ1 and test H1, Pearson's product-moment correlation was performed. The results of the correlation analysis conducted between the digital leadership and organizational readiness are presented in Table 3, which shows that digital leadership was strongly and positively correlated with the organizational readiness, $r(298) = .68$, $p < .001$. The coefficient is a strong positive relationship, suggesting that the more participants felt they were digital leaders, the higher they were found to be on the organizational readiness for digital transformation. The R^2 (.46) indicates that 46% of the variance was common to the two constructs. So, it was found that H1 was supported, meaning that there is a statistically significant relationship between digital leadership and the readiness of the organization.

Table 3: Correlation Between Digital Leadership and Organizational Readiness

Variables	1	2
1. Digital Leadership	1	
2. Organizational Readiness	.68***	1

Note. N = 300. *** $p < .001$.

Digital Leadership and Educational Innovation

For the purpose of testing H3, simple linear regression analysis was conducted to see if digital leadership significantly explained the educational innovation. The regression model was statistically significant, $R = .65$, $R^2 = .423$, adjusted $R^2 = .421$, $F(1, 298) = 218.52$, $p < .001$. The variance in the educational innovation was explained by about 42.3% of digital leadership. The standardized regression coefficient indicated that digital leadership had significant positive effect on educational innovation ($\beta = .65$, $t = 14.78$, $p < .001$). Therefore, a stronger digital leadership was correlated with greater educational innovation. So it was agreed that H3 should be accepted.

Table 4: Regression Analysis Predicting Educational Innovation from Digital Leadership

Predictor	R	R ²	Adjusted R ²	F	β	t	p
Digital Leadership	.650	.423	.421	218.52	.650	14.78	< .001

Note. Dependent variable = Educational Innovation. N = 300. $F(1, 298) = 218.52$.

Organizational Readiness and Educational Innovation

A simple linear regression analysis was conducted to identify the relationship between organizational readiness and educational innovation in response to RQ2, and to test H2. The overall regression model was statistically significant, $R = .71$, $R^2 = .504$, adjusted $R^2 = .502$, $F(1, 298) = 302.81$, $p < .001$. The variance in educational innovation was explained by organizational readiness by about 50.4%. The standardized regression coefficient was positive and statistically significant ($\beta = .71$) suggesting that as organizational readiness increased, educational innovation increased, $t = 17.40$, $p < .001$. Therefore, H2 was supported.

Table 5: Regression Analysis Predicting Educational Innovation from Organizational Readiness

Predictor	R	R ²	Adjusted R ²	F	β	t	p
Organizational Readiness	.710	.504	.502	302.81	.710	17.40	< .001

Note. Dependent variable = Educational Innovation. N = 300. $F(1, 298) = 302.81$.

Mediation Analysis

For the purposes of answering RQ3 and testing H4, mediation analysis was performed using 5,000 bootstrap resamples to check if organizational readiness mediated the relationship between digital leadership and educational innovation. The digital leadership was a significant predictor of organizational readiness (path a: $B = 0.72$, $SE = 0.045$, $t = 16.00$, $p < .001$). Digital leadership in turn was a strong predictor of educational innovation, controlling for organizational readiness (path b: $B = 0.49$, $SE = 0.048$, $t = 10.21$, $p < .001$).

The results of the model with organizational readiness as a predictor remained statistically significant, with a value of $c' = 0.25$, $SE = 0.051$, $t = 4.90$, and $p < .001$ for direct effect of digital leadership on educational innovation. The indirect effect of digital leadership on educational innovation via organizational readiness was 0.35, with a bootstrap SE of 0.041, and a 95% bootstrap CI of [0.28, 0.44]. Since there was no zero in the confidence interval, the indirect effect was statistically significant. The total effect was 0.60 ($SE = 0.046$, $t = 13.04$, $p < .001$).

The findings indicate that digital leadership to some extent lay the groundwork for educational innovation. Digital leadership thus had direct and indirect impacts on educational innovation, via improved organizational readiness. Therefore, H4 was supported.

Table 6: Mediation Effect of Organizational Readiness Between Digital Leadership and Educational Innovation

Effect/Path	B	SE	t	p	Boot SE	95% Boot CI
Path a: DL $\rightarrow$ OR	0.72	0.045	16.00	< .001	—	—
Path b: OR $\rightarrow$ EI	0.49	0.048	10.21	< .001	—	—
Direct effect (c'): DL $\rightarrow$ EI	0.25	0.051	4.90	< .001	—	—
Indirect effect (ab): DL $\rightarrow$ OR $\rightarrow$ EI	0.35	—	—	—	0.041	[0.28, 0.44]
Total effect (c): DL $\rightarrow$ EI	0.60	0.046	13.04	< .001	—	—

Note. DL = Digital Leadership; OR = Organizational Readiness; EI = Educational Innovation. A bootstrapped confidence interval was computed with 5000 resamples. The indirect effect is statistically significant if the corresponding 95% bootstrap confidence interval is not null.

Table 7: Summary of Hypothesis Testing

Hypothesis	Relationship Tested	Statistical Test	Result	Decision
H1	Digital Leadership $\leftrightarrow$ Organizational Readiness	Pearson correlation	$r = .68$, $p < .001$	Supported
H2	Organizational Readiness $\rightarrow$ Educational Innovation	Linear regression	$\beta = .71$, $p < .001$	Supported
H3	Digital Leadership $\rightarrow$ Educational Innovation	Linear regression	$\beta = .65$, $p < .001$	Supported

H4	DL → OR Innovation	→ Educational	Bootstrap mediation	Indirect effect = .35, 95% CI [0.28, 0.44]	Supported
----	-----------------------	---------------	---------------------	---	-----------

Overall, all four hypotheses were supported. Organizational readiness was significantly positively related to digital leadership and significantly predicted educational innovation. Organizational readiness also had a significant effect on educational innovation, and partially mediated the relations between digital leadership and educational innovation.

Discussion

The results of the present study show that the Digital leadership is one of the key factors in enhancing the organizational readiness of schools for digitalization. The results reveal that there is a statistically significant positive correlation between digital leadership and organizational readiness ($r = .68$, $p < .001$), suggesting that the higher the level of digital leadership, the higher the levels of organizational readiness for change. The discovery indicates that digital transformation is not just about the provision of technologies – teachers need to be supported, school leaders need to define a digital vision and make appropriate resources available and make on-going professional development a regular part of school life. The finding aligns with Hamzah et al. (2021) who reported that the digital leadership of principals positively correlated with teachers' digital teaching practices. Similarly, Reis-Andersson (2024) and Sutopo (2024) highlighted that strategic direction, leadership support, resource allocation, and professional learning are crucial factors in building the capacity of schools to undergo digital transformation.

The findings also revealed that organizational readiness had significant influence on the educational innovation ($\beta = .71$, $p < .001$), accounting for 50.4% of the variance in educational innovation. This discovery suggests that if a school has enough technological infrastructure, resources, technologically competent teachers, institutional support, and a culture favorable to change, they are more likely to have innovative teaching and learning practices. Organizational readiness also creates a conducive context for teachers to transcend working with technology to the more advanced application of digital pedagogy, technology enhanced learning, collaborative learning, and innovative assessment. This finding aligns with Timotheou et al. (2023), which identified that technological, individual and organizational factors interact when considering schools' digital capacity. It is also in line with the studies of Mustafa (2025) who highlighted the need for the development of a supportive digital learning culture for educational innovation.

Importantly, results of a mediation analysis showed that the relationship between digital leadership and educational innovation was partially mediated by organizational readiness. Digital leadership had a direct significant influence on educational innovation ($B = 0.25$, $p < .001$) and the indirect effect via organizational readiness was significant with 95% confidence intervals (IC [0.28, 0.44]). The results suggest that digital leadership directly contributes to innovation in education as well as through contributing to the conditions in which changes can take place in the organization. This mechanism is in line with Organizational Readiness for Change Theory (Weiner, 2020) and also with the work of Anwar et al. (2026) that associated digital leadership with organizational capabilities and innovations.

The results have practical implications as they underscore the need for a systemic strategy for school digital transformation. Teachers must have ongoing digital competence training and school leaders must be developed in digital leadership, strategic planning and change management. At the same time, administrators and policymakers need to build technological infrastructure, increase resources, establish organizational support, and provide professional learning opportunities. For a school to tap into the learning potential of investing in digital means it may be necessary for them to foster a culture of experimentation and innovation.

Conclusion

The present study concludes that digital leadership is an important organizational factor in promoting schools' readiness for digital transformation and supporting educational innovation. A highly positive correlation between Digital leadership and the readiness of the organisation suggests that Digital leadership makes it easier to create conditions that support change driven by technology. Moreover, the variance of education innovation was 50.4% explained by organizational readiness, highlighting the role of institutional capacity in promoting innovative educational practices. The mediation results also indicated that the relationship between digital leadership and educational innovation was partially mediated by the organizational readiness. Therefore, digital leadership enables innovation both directly and indirectly, as it builds the capacity and readiness of schools to respond to digital transformation.

Recommendations

The results indicated that the schools need to enhance digital leadership skills through systematic leadership development and develop digital transformation strategies. School management should focus on upgrading the school's digital facilities

and providing sufficient technological facilities. Ongoing professional development is needed to build teachers' digital skills and ability to use digital tools in learning and teaching. Schools must also create more organizational and technical support and foster a culture of collaboration with the sharing of knowledge, experimentation, and innovative teaching methods. Furthermore, administrators should continually review the organizational readiness to determine gaps in infrastructure, staff competence, resources and institutional support. These activities can build the capacity of schools to institutionalize, sustain and implement meaningful educational innovations.

Limitations and Future Directions

This study has several limitations that should be taken into consideration when interpreting the results. The cross sectional design only obtained teachers' perceptions at one point of time, and thus makes it difficult to make strong causal inferences about the relationship between digital leadership, organizational readiness and educational innovation. Self-reported questionnaire data may also have led to response bias and common-method bias. In addition, the sample size of 300 teachers and the geographic scope may limit the applicability of the results to other educational settings. Further studies would benefit from using a longitudinal and mixed methods approach, involve principals and administrators, identify other geographical regions and other potential mediators or moderators that could impact school digital transformation and educational innovation.

References

- Abinales, R. S., & Callo, E. C., EdD. (2025). The impact of school heads' digital leadership competence and readiness to education 4.0 in promoting elementary schools' digital transformation. *International Journal of Social Science Humanity & Management Research*, 04(12). <https://doi.org/10.58806/ijsshr.2025.v4i12n10>.
- Akhmad, A. (2025). Digital Leadership Practices in Educational Management: A Narrative Literature Review on trends and challenges. *International Journal of Learning Teaching and Educational Research*, 24(8), 112–135. <https://doi.org/10.26803/ijlter.24.8.6>
- Anwar, S., Memon, H., & Soomro, B. A. (2026). The role of digital leadership in enhancing E-knowledge, organizational agility and innovation to drive digitalization in higher education. *Asian Education and Development Studies*, 1–26. <https://doi.org/10.1108/aeds-04-2025-0168>.
- Connolly, C., O'Brien, E., & O'Ceallaigh, T. J. (2023). Ensuring knowledge sustainability in a digital era: Empowering digital transformation through digital educational leadership. *Technology Knowledge and Learning*, 31(1), 175–191. <https://doi.org/10.1007/s10758-023-09707-0>.
- Dasruth, J., & Naicker, S. R. (2026). Conceptualising a School Leaders' Digital Leadership Framework to Lead Education 4.0 in a South African school district. *SAGE Open*, 16(2). <https://doi.org/10.1177/21582440251415081>.
- Dasruth, J., Naicker, S. R., & Smith, C. (2024). Teachers' perceptions of principals' digital leadership practices in a school district in a developing country. *Social Sciences & Humanities Open*, 10, 101192. <https://doi.org/10.1016/j.ssaho.2024.101192>.
- Faisal, F., Ali, S., Shehnaz, & Haque, R. (2025). Educational leadership in the age of digital transformation. *ACADEMIA International Journal for Social Sciences*, 4(4), 537–560. <https://doi.org/10.63056/acad.004.04.0915>.
- Freser, J. (2025). Innovative approaches to educational management in the digital era. *ALACRITY Journal of Education*, 1119–1128. <https://doi.org/10.52121/alacrity.v5i3.890>
- Hairani, E., Winarno, A., & Hermana, D. (2025). Enhancing Leadership for Sustainable Digital Transformation: Insights from Secondary Schools. *AL-ISHLAH Jurnal Pendidikan*, 17(2). <https://doi.org/10.35445/alishlah.v17i2.6519>
- Hamzah, N. H., Nasir, M. K. M., & Wahab, J. A. (2021). The Effects of Principals' Digital Leadership on Teachers' Digital Teaching during the Covid-19 Pandemic in Malaysia. *Journal of Education and e-Learning Research*, 8(2), 216–221. <https://doi.org/10.20448/journal.509.2021.82.216.221>.
- Hamzah, N. H., Radzi, N. M., & Omar, I. M. (2025). DIGITAL LEADERSHIP COMPETENCIES THROUGH a SYSTEMATIC LITERATURE REVIEW: BRIDGING EDUCATIONAL DEVELOPMENT AND ORGANIZATIONAL SUCCESS. *International Journal of Modern Education*, 7(24), 37–64. <https://doi.org/10.35631/ijmoe.724003>
- Hayes, A. F. (2013, August). Introduction to mediation, moderation, and conditional process analysis.

- Kamran, M. (2025). Educational leadership in a digital era: Navigating challenges and opportunities. *AL-ĪMĀN Research Journal*, 3(01), 188–199. <https://doi.org/10.63283/54wxa275>.
- Karakose, T., Polat, H., Tülübaşı, T., & Demirkol, M. (2024). A review of the conceptual structure and evolution of digital leadership research in education. *Education Sciences*, 14(11), 1166. <https://doi.org/10.3390/educsci1411166>.
- Karousiou, C. (2025). Navigating challenges in school digital transformation: insights from school leaders in the Republic of Cyprus. *Educational Media International*, 62(1), 54–76. <https://doi.org/10.1080/09523987.2025.2461324>.
- Kausar, S., Arif, M., & Sebgag, S. (2025). Transformational Leadership and the Challenges of Educational Digitalization: A Systematic Literature Review (2020-2025). *Nidhomul Haq Jurnal Manajemen Pendidikan Islam*, 10(2), 312–332. <https://doi.org/10.31538/ndhq.v10i2.196>
- Kustomo, K. (2025). Digital management and transformational leadership in educational institutions. *Global Education International Journal of Educational Sciences and Languages*, 2(3), 07–14. <https://doi.org/10.70062/globaleducation.vii3.221>.
- McCarthy, A. M., Maor, D., McConney, A., & Cavanaugh, C. (2023). Digital transformation in education: Critical components for leaders of system change. *Social Sciences & Humanities Open*, 8(1), 100479. <https://doi.org/10.1016/j.ssaho.2023.100479>.
- Mustafa, M. (2025). Building a digital learning culture; strategic educational leadership in smart school ecosystems. *Journal of Research in Educational Management*, 4(1), 12–21. <https://doi.org/10.71392/jrem.v4i1.88>.
- Ntavlourou, A., Antonopoulou, H., & Halkiopoulos, C. (2026). Exploring Educational Leadership Orientations through Survey-Based Pattern Analysis: Digital Transformation and Leadership Self-Concept in Primary Education teachers. *Sustainability*, 18(3), 1555. <https://doi.org/10.3390/su18031555>.
- OKunlola, J. O., & Naicker, S. R. (2025). Digital Leadership in Education: A Bibliometric Analysis of Research Trends from 2010 to 2024. *F1000Research*, 14, 687. <https://doi.org/10.12688/f1000research.166667.1>.
- Paramansyah, A. (2026). Digital Leadership Strategies of School Principals in Addressing Educational Technology Disruption. *Oikonomia*, 3(3), 20–30. <https://doi.org/10.61942/oikonomia.v3i3.576>.
- Reis-Andersson, J. (2023). Leading the digitalisation process in K–12 schools – The school leaders' perspective. *Education and Information Technologies*, 29(3), 2585–2603. <https://doi.org/10.1007/s10639-023-11935-x>
- Ruloff, M., & Petko, D. (2021). School principals' educational goals and leadership styles for digital transformation: results from case studies in upper secondary schools. *International Journal of Leadership in Education*, 28(2), 422–440. <https://doi.org/10.1080/13603124.2021.2014979>.
- Sutopo, L. (2024). Innovative leadership of school principals in promoting digital transformation in the learning process. *SCAFFOLDING Jurnal Pendidikan Islam Dan Multikulturalisme*, 6(3), 725–738. <https://doi.org/10.37680/scaffolding.v6i3.8486>
- Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in science education*, 48(6), 1273–1296.
- Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S. V., Giannoutsou, N., Cachia, R., Monés, A. M., & Ioannou, A. (2022). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. *Education and Information Technologies*, 28(6), 6695–6726. <https://doi.org/10.1007/s10639-022-11431-8>.
- Topping, K. J., Douglas, W., Robertson, D., & Ferguson, N. (2022). Effectiveness of online and blended learning from schools: A systematic review. *Review of Education*, 10(2). <https://doi.org/10.1002/rev3.3353>.
- Weiner, B. J. (2020). A theory of organizational readiness for change. In Edward Elgar Publishing eBooks. <https://doi.org/10.4337/9781788975995.00015>
- Witthöft, J., Aydin, B., & Pietsch, M. (2024). Leading digital innovation in schools: the role of the open innovation mindset. *Journal of Research on Technology in Education*, 57(6), 1430–1449. <https://doi.org/10.1080/15391523.2024.2398528>.



2026 by the authors; Journal of The Kashmir Journal of Academic Research and Development. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).