

Bridging Local Wisdom and Digital Transformation: The Role of Ki Hajar Dewantara-Based Leadership in Enhancing Teacher Competency

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Article Info

Received: June 18, 2024

Accepted: August 15, 2026

Published: September 30, 2026

Online First: September 20, 2026

Keywords

Leadership;
Ki Hajar Dewantara Trilogy;
Digital Skills;
Teacher Competency;
Educational Transformation.

Abstract

The rapid expansion of digital technology has transformed educational practices worldwide, raising concerns about teachers' competencies and the preservation of educational values in digital learning environments. While previous studies have examined educational leadership and digital competence separately, limited attention has been given to how culturally grounded leadership and digital skills interact in shaping teacher competency. This study aimed to examine the direct and indirect relationships between leadership based on the Ki Hajar Dewantara trilogy, digital skills, and teacher competency among Indonesian elementary school teachers. Employing a quantitative approach with an ex post facto correlational design, the study involved 197 teachers from Lampung Province, Indonesia, selected through cluster sampling. Data were collected using structured questionnaires and analyzed through Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 3.0. The findings revealed that trilogy-based leadership significantly influenced digital skills and teacher competency, while digital skills positively affected teacher competency and mediated the relationship between leadership and professional development. These findings demonstrated that technological competence and culturally grounded leadership functioned as complementary rather than competing forces within educational transformation. The study contributes to the literature on educational leadership by proposing an integrative framework that combines ethical values, cultural identity, and technological adaptation, thus providing insight into the development of more humanistic, inclusive, and sustainable educational systems in both national and international contexts.

A. Introduction

The accelerating expansion of digital technology has created one of the most profound paradoxes in contemporary education. Never before have teachers enjoyed such unprecedented access to information, learning resources, and technological tools, yet educational systems around the world continue to struggle with declining learning quality, widening inequalities in digital competence, and the erosion of the humanistic values that traditionally define the educational process (Beardsley et al., 2021; Jackman et al., 2021; Oviyanti et al., 2025). This paradox reveals that digital transformation does not automatically produce educational transformation. Rather, the rapid diffusion of technology has exposed a deeper crisis concerning how education should reconcile innovation, ethical responsibility, cultural identity, and human development within increasingly complex learning environments. Consequently, educational leadership is no longer merely a managerial function but has become a strategic and moral endeavor through which institutions seek to balance technological progress with the broader purpose of education itself (Jannah et al., 2026; Isbahi, 2023; Mincu, 2022).

This challenge has become increasingly evident as schools are expected to respond simultaneously to technological disruption, organizational change, and growing demands for educational accountability. In this context, school leaders play a central role in shaping institutional culture, fostering collaboration, managing organizational resources, and creating environments that encourage sustainable learning and continuous professional development (Dacholfany et al., 2024; Maulida et al., 2024; Jannah et al., 2026). However, the expansion of digital technology has fundamentally transformed the nature of leadership itself. Educational leaders are now required not only to manage technological adaptation but also to ensure that such transformation remains aligned with broader educational values and objectives. This situation has intensified global discussions concerning the extent to which educational leadership can preserve its humanistic orientation while responding effectively to the demands of digitalization.

Within the Indonesian educational landscape, these concerns have stimulated renewed interest in Ki Hajar Dewantara's educational philosophy, particularly the leadership trilogy consisting of *Ing Ngarso Sung Tulodo*, *Ing Madyo Mangun Karso*, and *Tut Wuri Handayani* (Arifin & Hermawan, 2022; Ivan Riyadi & Sri Sumarni, 2025). Rather than emphasizing authority alone, this philosophical framework conceptualizes leadership as a process grounded in exemplary conduct, collective engagement, and continuous

empowerment (Supriadi et al., 2025). In this perspective, leaders are expected not merely to direct institutional activities but also to shape moral awareness, strengthen social relationships, and cultivate an educational culture capable of responding constructively to change (Hidayanto, 2023; Dacholfany et al., 2026). The growing adoption of these principles in Indonesian schools demonstrates an increasing recognition that technological innovation must be accompanied by strong ethical and cultural foundations (Tamjidnory et al., 2025).

At the same time, digital competence has emerged as a defining characteristic of teacher professionalism in the twenty-first century. The integration of digital technologies into educational practice has transformed learning into a more flexible, collaborative, and interactive process while simultaneously redefining teachers' professional responsibilities (Prasetyo et al., 2021). Digital skills have consequently evolved beyond technical proficiency and now encompass a broad range of competencies, including information management, communication, collaboration, problem-solving, creativity, and pedagogical adaptation (Jackman et al., 2021). Nevertheless, the rapid expansion of technological innovation has also revealed substantial disparities in teachers' abilities to utilize digital resources effectively (Fadli et al., 2024; Nurdiantami et al., 2026). More importantly, technology is frequently employed merely as an instrument of efficiency rather than as a means of reinforcing the fundamental values underlying educational practice (Maharani & Soesanto, 2022; Sari, 2023). As a result, the increasing integration of digital technology often appears disconnected from the broader moral and philosophical dimensions of education.

The resulting contradiction suggests that teacher competency cannot be adequately understood solely through technological or managerial perspectives. Learning digital skills undoubtedly constitutes an essential element of professional development (Jackman et al., 2021). However, these competencies become substantially more meaningful when supported by leadership practices capable of integrating technological adaptation with ethical principles and educational values (Aji et al., 2025; Ayu et al., 2025). In this regard, school leaders play a crucial role in ensuring that teachers' professional development remains sustainable, contextually relevant, and firmly grounded in the philosophical foundations of education (Purbonuswanto et al., 2024). Such an approach not only enriches teachers' competencies but also establishes a balance between innovation and cultural continuity within increasingly digitalized learning environments.

Previous studies have demonstrated the importance of leadership in promoting professional development and institutional effectiveness (Imara & Altinay, 2021). Other investigations have highlighted the contribution of digital competencies to teachers'

adaptability, instructional quality, and student engagement (Kim et al., 2021). Meanwhile, studies focusing on local wisdom have emphasized the importance of incorporating culturally embedded values into educational practice (Arrahmi & Nisa, 2024; Munajah et al., 2023). Despite these advances, the existing body of literature remains conceptually fragmented. Leadership grounded in local wisdom and teachers' digital competencies have generally been examined as separate constructs, while the interaction between these dimensions has received only limited scholarly attention (Perifanou et al., 2021). Consequently, the mechanisms through which culturally rooted leadership influences teacher competency through the mediation of digital skills remain insufficiently explored.

This limitation reveals a broader theoretical problem. Much of the contemporary literature on digital leadership continues to emphasize efficiency, innovation, and organizational adaptation while paying comparatively little attention to the normative, ethical, and cultural dimensions of leadership itself. Consequently, existing frameworks provide only limited explanations regarding how culturally grounded leadership models shape teachers' responses to technological transformation (Ajid et al., 2025; Purbonuswanto et al., 2024; Sholeh et al., 2024). Furthermore, earlier studies have rarely conceptualized digital competence as a strategic mechanism connecting leadership values and professional development. This omission creates a significant blind spot in understanding how educational institutions can simultaneously promote technological advancement and preserve the cultural values that sustain meaningful learning processes.

Addressing this gap is particularly important because the relationship between local wisdom and technological transformation has become increasingly relevant in global discussions concerning educational sustainability. The contribution of this study, therefore, extends beyond the immediate context of Indonesian education. Theoretically, it enriches existing discussions concerning value-based leadership by demonstrating that local philosophical traditions can serve as adaptive frameworks capable of responding to contemporary educational challenges. Practically, it offers a more comprehensive understanding of how teachers' professional competencies may be strengthened through the integration of technological capabilities and culturally embedded leadership values. More importantly, this study challenges the assumption that tradition and innovation necessarily represent competing forces within educational transformation.

The novelty of this study lies in the development of an integrated analytical framework that positions digital skills as a mediating mechanism through which leadership based on Ki Hajar Dewantara's trilogy contributes to teacher competency development.

Unlike previous studies, which have predominantly examined these dimensions independently, the present study conceptualizes leadership, digital competence, and teacher development as interconnected components of a broader transformational process. This perspective not only strengthens recent arguments concerning multidimensional approaches to teacher development (Supriadi et al., 2025; Susanti et al., 2024; van Werven et al., 2023; Wallace et al., 2023) but also introduces a culturally grounded perspective into contemporary discussions of digital leadership.

Against this background, the present study seeks to examine the direct and indirect relationships among leadership based on the Ki Hajar Dewantara trilogy, digital skills, and teacher competency among Indonesian elementary school teachers. More specifically, the study aims to develop and empirically validate a conceptual framework capable of explaining how local wisdom and digital transformation may operate as complementary rather than contradictory forces in strengthening teacher competency within an increasingly dynamic educational environment.

B. Method

This study employed a quantitative approach using an ex post facto correlational design to examine the relationships among leadership based on the Ki Hajar Dewantara trilogy, digital skills, and teacher competency (Johnson & Christensen, 2022). Structural equation modelling (SEM) was used to investigate the direct and indirect relationships among the proposed variables (Memon et al., 2021). In this model, Trilogy-Based Leadership (TBL) and Digital Skills (DS) were treated as exogenous variables, whereas Teacher Competency (TC) was considered the endogenous variable.

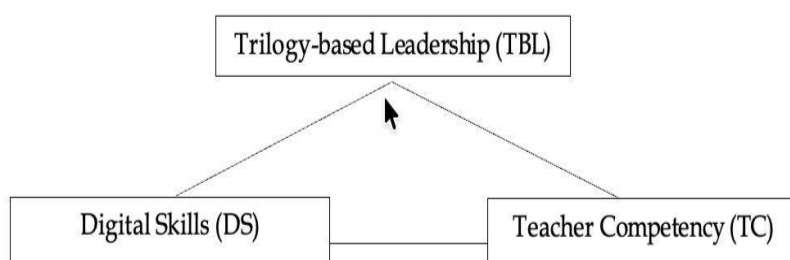


Figure 1. Research model framework

The study involved elementary school teachers from Metro City, Lampung Province, Indonesia. A total of 197 respondents were selected using a cluster sampling

technique to ensure representative participation across the selected schools. The sample consisted of 90 male teachers and 107 female teachers. Several participants also served as school principals, enabling the study to capture perspectives associated with both instructional and managerial responsibilities.

Table 1. Total Population and Sample of Elementary School Teachers

No.	School	Gender		N
		Male	Female	
1.	State Elementary School 2 East Metro	17	22	23
2.	State Elementary School 3 Central Metro	19	20	29
3.	Elementary School Muhammadiyah Sang Pencerah Metro	18	19	31
4.	Elementary School Muhammadiyah Central Metro	20	23	36
5.	Elementary School Aisyiyah Metro	16	23	24
Total		90	107	197

Data were collected through a structured questionnaire adapted from previous studies concerning leadership, digital competence, and teacher professionalism (Gardner et al., 2020; Jackman et al., 2021; Siri et al., 2020). The instrument comprised three sections: the Trilogy-Based Leadership Questionnaire (TBL), the Digital Skills Questionnaire (DS), and the Teacher Competency Questionnaire (TC). Prior to the main data collection process, the instrument was piloted with teachers who were not included in the final sample to assess the clarity, relevance, and consistency of the questionnaire items.

The final instrument consisted of 20 statements measured using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Instrument quality was evaluated through validity and reliability assessments. Internal consistency was examined using Cronbach's Alpha and Composite Reliability values, whereas construct validity was assessed according to established measurement criteria.

Data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) through SmartPLS 3.0 software. This technique was selected because of its suitability for analysing complex relationships among latent variables and its flexibility regarding sample size and data distribution (Hair et al., 2021b). Convergent validity was assessed using factor loadings (> 0.70) and Average Variance Extracted ($AVE > 0.50$), whereas discriminant validity was evaluated through cross-loading analysis, the Fornell-Larcker criterion, and the Heterotrait-Monotrait Ratio ($HTMT < 0.90$) (Hoyle, 2023). The structural model was subsequently examined through

bootstrapping procedures, with statistical significance determined according to path coefficients, t-statistics, p-values, and the coefficient of determination (R^2) (Kline, 2023).

The study adhered to established ethical principles by obtaining informed consent from all participants, ensuring the confidentiality of respondents' identities, and restricting the use of data exclusively to academic purposes. These procedures were implemented to ensure the integrity and credibility of the research process.

C. Results and Discussion

This section presents the empirical findings concerning the relationships among Trilogy-Based Leadership (TBL), Digital Skills (DS), and Teacher Competency (TC). The analysis was conducted in two stages. The first stage focused on evaluating the measurement model through validity and reliability assessments to ensure the adequacy of the research instrument. The second stage examined the structural model to test the proposed hypotheses and determine the direct and indirect relationships among the variables. The findings are subsequently interpreted within the broader context of educational leadership, digital transformation, and teacher competency development, thereby providing both empirical evidence and theoretical insights into the role of culturally rooted leadership in contemporary educational settings.

1. Results

This section presents the empirical findings derived from the measurement model and structural model analyses. The results are organized into four stages: the assessment of construct validity and reliability, the evaluation of discriminant validity, the examination of model fit, and the testing of the proposed hypotheses. Collectively, these analyses provide empirical evidence regarding the relationships among Trilogy-Based Leadership (TBL), Digital Skills (DS), and Teacher Competency (TC).

The first stage of the analysis focused on evaluating the validity and reliability of the measurement model. Convergent validity was assessed using the Average Variance Extracted (AVE), while internal consistency reliability was examined through Cronbach's Alpha and Composite Reliability (CR). The analysis results showed that all constructs met the validity (convergent and discriminant) and reliability criteria. Factor loadings were above 0.70 and were supported by Cronbach's Alpha, Composite Reliability (CR), and AVE, which met the standards. Details of the test results are presented in the following table.

Table 2. Results of Validity and Reliability Test Analysis of The Path Model

Variable	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Digital Skills (DS)	0.869	0.902	0.605
Teacher Competency (TC)	0.771	0.852	0.590
Trilogy-based Leadership (TBL)	0.776	0.868	0.687

Table 2 demonstrates that all constructs fulfilled the recommended threshold values for validity and reliability. The AVE values ranged from 0.590 to 0.687, exceeding the minimum criterion of 0.50 and indicating satisfactory convergent validity. Similarly, Cronbach's Alpha values ranged from 0.771 to 0.869, while Composite Reliability values varied from 0.852 to 0.902. These findings confirm that the measurement items consistently represented the intended constructs and adequately captured the dimensions of trilogy-based leadership, digital skills, and teacher competency.

Among the three constructs, Digital Skills (DS) demonstrated the highest internal consistency, with a Cronbach's Alpha value of 0.869 and a Composite Reliability value of 0.902. Trilogy-Based Leadership (TBL) achieved the highest AVE value (0.687), indicating that the construct accounted for a substantial proportion of the variance in its indicators. Teacher Competency (TC) also demonstrated acceptable levels of validity and reliability, confirming the suitability of the measurement model.

Following the evaluation of convergent validity and internal consistency, the outer model was examined to determine the adequacy of individual indicators in measuring their respective latent constructs. The results of the outer loading analysis are presented below.

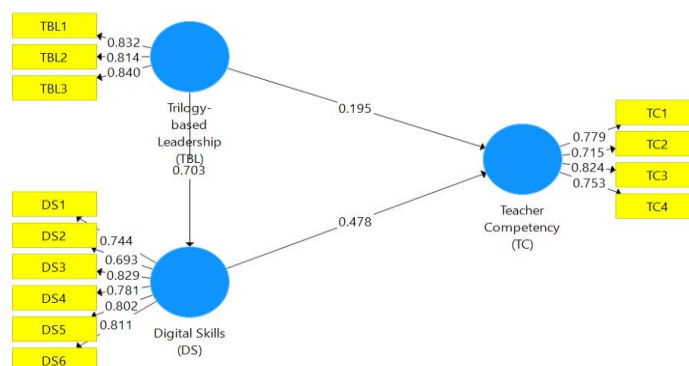


Figure 2. Significant path coefficient PLS Algorithm results

Figure 2 shows the results of the validity and reliability tests for the research constructs. All indicators in the Trilogy-based Leadership (TBL), Digital Skills (DS), and Teacher Competency (TC) variables had loading factor values above 0.7, indicating that they are valid measures of their constructs. Furthermore, the composite reliability and Average Variance Extracted (AVE) values for each variable also met the established criteria, thereby indicating that the research instrument is reliable. Therefore, the measurement model used was deemed suitable for further analysis of the relationships between the variables.

The model's suitability before testing the hypotheses was assessed using the Goodness-of-Fit Index (NFI) and the Standardized Root Mean Square Residual (SRMR) in SmartPLS 3.0. The model was deemed fit if the $NFI > 0.80$ and the $SRMR < 0.10$. The analysis results showed an NFI value of 0.832 and an SRMR of 0.091, thus meeting the feasibility criteria. Next, hypothesis testing was carried out using the bootstrapping method to see the significance of the relationship between variables based on the path coefficient, t-statistic, and p-value. The results of hypothesis analysis using the bootstrapping test method can be seen in the following table.

Table 3. HTMT Value

Variable	DS	TC	TBL
TBL	0.778		
DS	0.615	0.768	
TC	0.703	0.530	0.829

The results presented in Table 3 indicate that all HTMT values were below the threshold value of 0.85 (Hair et al., 2021a), confirming adequate discriminant validity among the constructs. The highest value was observed between Trilogy-Based Leadership (TBL) and Teacher Competency (TC), whereas the lowest value was identified between Digital Skills (DS) and Teacher Competency (TC). Overall, these findings demonstrate that the constructs retained their conceptual distinctiveness and that no substantial overlap occurred among the measured dimensions.

After confirming the adequacy of the measurement model, the structural model was assessed to determine the overall suitability of the proposed framework. The model fit evaluation was performed using the Normed Fit Index (NFI) and the Standardized Root Mean Square Residual (SRMR). The analysis produced an NFI value of 0.832 and

an SRMR value of 0.091. Since the NFI value exceeded the minimum threshold of 0.80 and the SRMR value remained below 0.10, the model was considered acceptable for hypothesis testing.

The relationships among the proposed variables were subsequently examined through bootstrapping procedures. The results of the hypothesis testing are summarized below.

Table 4. Results of Hypothesis Analysis via SEM

Variable	Original Sample (O)	T-Statistics	P-Values
(DS) -> (TC)	0.478	7.280	0.000
(TBL) -> (DS)	0.703	26.238	0.000
(TBL) -> (TC)	0.595	2.780	0.006
(TBL) -> (DS) -> (TC)	0.336	6.741	0.000

The analysis results in Table 3 show the Heterotrait-Monotrait Ratio (HTMT) values used to test discriminant validity. All construct pairs had HTMT values <0.85 (Hair et al., 2021a), thus meeting the criteria for discriminant validity. This indicates that each construct in the model has clear distinctions and no measurement overlaps. With these criteria met, the model can proceed to the structural analysis stage. to demonstrate adequate discriminant validity.

Table 4 shows the results of the hypothesis test using SEM, where all relationship paths have a t-statistic value > 1.96 and a p-value < 0.05, so that all relationships are declared statistically significant. The path coefficient values indicate a relationship between Digital Skills (DS) and Teacher Competency (TC) of 0.478, a relationship between Trilogy-based Leadership (TBL) and Digital Skills (DS) of 0.703, and a relationship between TBL and TC of 0.595. The indirect effect of TBL on TC through DS had a coefficient value of 0.336. The R-Square (R^2) value of 0.512 for the Teacher Competency (TC) variable indicates that TBL and DS explain 51.2% of teacher competency, while the remaining 48.8% is explained by factors outside the model. Based on this value, the model's predictive ability is classified as moderate. This demonstrates that digital skills mediate, strengthening the relationship between trilogy leadership and teacher competence. Based on these findings, the proposed hypotheses were supported as follows:

H1 : Digital Skills (DS) positively and significantly influence Teacher Competency (TC).

- H2 : Trilogy-Based Leadership (TBL) positively and significantly influences Digital Skills (DS).
- H3 : Trilogy-Based Leadership (TBL) positively and significantly influences Teacher Competency (TC).
- H4 : Trilogy-Based Leadership (TBL) positively and significantly influences Teacher Competency (TC) through the mediating role of Digital Skills (DS).

Finally, the explanatory power of the model was evaluated using the coefficient of determination (R^2). The analysis revealed an R^2 value of 0.512 for Teacher Competency (TC), indicating that Trilogy-Based Leadership (TBL) and Digital Skills (DS) jointly explained 51.2% of the observed variance in teacher competency. The remaining 48.8% of the variance was attributable to factors beyond the scope of the present model. These results suggest that the proposed framework possesses a moderate level of predictive accuracy and adequately captures the relationships among the investigated constructs.

Overall, the findings consistently demonstrate that trilogy-based leadership and digital competence contribute both independently and collectively to teacher competency development. Moreover, the results indicate that digital skills serve not merely as technical capabilities but also as a strategic mechanism through which leadership practices contribute to the enhancement of professional competence in contemporary educational environments.

2. Discussion

The findings of this study demonstrate that leadership based on the Ki Hajar Dewantara trilogy and digital skills operate not as separate variables but as complementary and mutually reinforcing dimensions within the broader process of teacher competency development. More importantly, the results reveal that the contribution of leadership to teacher competency becomes substantially stronger when supported by adequate digital capabilities. This finding is significant because it challenges the assumption that technological transformation in education is primarily driven by infrastructure, technological access, or individual technical expertise alone. Instead, the present study argues that sustainable educational transformation depends on the integration of technological competence, institutional culture, and value-based leadership (Ishak & Hussin, 2022; Suyudi et al., 2022). In other words, digital transformation becomes meaningful only when it is directed toward broader educational goals and guided by ethical and cultural principles (Sholeh et al., 2024; Yuliana et al., 2023; Siswanto et al.,

2026). Consequently, leadership should not be understood merely as a managerial function but as a normative process that determines how educational change is interpreted, accepted, and implemented within schools (Jannah et al., 2025).

This interpretation is consistent with the direct influence of trilogy-based leadership on teacher competency identified in the present study. Ki Hajar Dewantara's leadership philosophy, embodied in the principles of *Ing Ngarso Sung Tulodo*, *Ing Madyo Mangun Karso*, and *Tut Wuri Handayani*, emphasizes exemplary conduct, guidance, and empowerment as the central pillars of educational leadership (Martinah, 2023; Oviyanti et al., 2025; Nurdiantami et al., 2026). The significance of this finding extends beyond the Indonesian educational context because it demonstrates that local philosophical traditions remain highly relevant in addressing contemporary educational challenges. Contrary to the common perception that tradition and innovation represent opposing forces, the findings suggest that local wisdom may function as a strategic resource that strengthens institutional adaptability and supports technological transformation (Astuti et al., 2021; Zimmer & Matthews, 2022; Arif et al., 2025). This adaptability is particularly important because educational institutions increasingly face the challenge of maintaining ethical and cultural continuity while simultaneously responding to technological disruption.

The present findings also indicate that trilogy-based leadership contributes significantly to the development of teachers' digital competencies. This relationship suggests that leadership creates an institutional environment that encourages experimentation, collaboration, and continuous professional learning. Such a finding supports the argument that teachers' technological competencies do not develop in isolation but emerge through interactions among organizational culture, institutional support, and leadership practices. Accordingly, leadership based on the Ki Hajar Dewantara trilogy appears to function not merely as an administrative mechanism but also as a social process through which professional values are translated into educational practices.

The role of digital skills identified in this study also deserves particular attention. The results demonstrate that digital competence extends far beyond the operational ability to use technological devices and applications. Rather, digital competence encompasses a multidimensional set of capabilities related to communication, information management, problem-solving, creativity, and collaborative learning (Antonopoulou et al., 2021;

Saikkonen & Kaarakainen, 2021). This interpretation is highly consistent with the Technological Pedagogical Content Knowledge (TPACK) framework, which emphasizes the integration of technological, pedagogical, and content-related knowledge as the foundation of effective educational practice (Petko et al., 2025; Ayu et al., 2025). Therefore, the significance of digital competence should be understood not in terms of technological sophistication alone but in relation to its capacity to enhance the quality of learning experiences.

This perspective helps explain why teachers possessing stronger digital competencies demonstrate higher levels of professional effectiveness. Digital competence enables teachers to design more flexible learning environments, select instructional strategies more appropriately, and respond more effectively to students' diverse educational needs (Rubach & Lazarides, 2021; Anggareni et al., 2024). Consequently, digital skills should not be viewed merely as complementary abilities but as essential competencies that shape teachers' capacity to function effectively within increasingly dynamic educational environments. The present findings therefore reinforce previous studies emphasizing that technological literacy has become an indispensable component of contemporary teacher professionalism (Antonopoulou et al., 2021; Saikkonen & Kaarakainen, 2021; Rubach & Lazarides, 2021).

Perhaps the most important contribution of the present study lies in demonstrating the mediating role of digital skills in the relationship between trilogy-based leadership and teacher competency. The findings indicate that leadership does not influence teacher competency solely through direct intervention. Instead, leadership establishes the conditions necessary for technological adaptation, continuous learning, and professional growth. This finding supports Leithwood's argument that the influence of educational leadership frequently operates through indirect pathways rather than through immediate intervention (Leithwood et al., 2020). Similarly, Hargreaves and Woods (2019) emphasize that educational transformation emerges through complex interactions involving individuals, organizations, and broader social environments. The present findings extend these perspectives by demonstrating that leadership values and digital competencies function as interconnected mechanisms within the broader process of educational transformation.

This argument is further strengthened by previous studies showing that technological competence serves as a mediating factor linking institutional leadership

and professional performance (Reisoğlu, 2022; Setyaningsih & Sunaryo, 2021). Likewise, Fullan (2026) argues that successful educational transformation depends upon the simultaneous development of values, institutional capacity, and innovation. Bass's theory of transformational leadership similarly emphasizes the role of inspiration, empowerment, and collective vision in facilitating sustainable organizational change (Kühn, 2025). However, the present study contributes an additional dimension to these perspectives by demonstrating that transformational leadership principles may be operationalized through locally grounded philosophical traditions. Consequently, the present findings suggest that local wisdom should not be regarded as an obstacle to modernization but rather as a strategic resource capable of supporting sustainable educational development.

Another important implication concerns the multidimensional character of teacher competency itself. The findings indicate that professional development extends beyond technical expertise and encompasses pedagogical, personal, social, and professional dimensions (Darazha et al., 2021; Mutohhari et al., 2021; Tondeur et al., 2021). The integration of leadership values and digital competence therefore contributes not only to improving technical capabilities but also to strengthening teachers' professional identity, ethical awareness, and social adaptability (Masitoh & Wagino, 2023; Rosanawati et al., 2023; Sandra & Juniar, 2021). This finding reinforces the argument that technological transformation cannot be fully understood apart from the human, cultural, and ethical contexts in which educational practices occur.

From a broader international perspective, the findings of this study contribute to ongoing debates concerning the nature of digital leadership in contemporary education. Existing frameworks generally emphasize efficiency, technological innovation, organizational flexibility, and change management as the defining characteristics of digital leadership (Saleh et al., 2021; Zhang & Tian, 2025). Although these approaches have generated important insights, they often devote comparatively little attention to the role of cultural values and social context in shaping educational transformation. In contrast, Ki Hajar Dewantara's leadership philosophy offers an alternative perspective that places exemplary conduct, collective engagement, and empowerment at the centre of educational practice. This approach resonates strongly with Vygotsky's sociocultural perspective, which emphasizes the importance of social interaction and cultural context in the construction of knowledge and learning processes (Balakrishnan & Claiborne,

2012; Maulida et al., 2024). However, unlike more general sociocultural approaches, the Ki Hajar Dewantara framework provides a more explicit normative orientation rooted in indigenous educational philosophy.

The international relevance of this finding extends beyond Indonesia because educational institutions worldwide continue to search for leadership models capable of reconciling technological advancement with ethical responsibility, cultural diversity, and sustainable human development (Mincu, 2022; Imara & Altinay, 2021). In this respect, the present study offers an alternative conceptual model demonstrating that local values and digital transformation need not exist in opposition to one another. Instead, the findings indicate that culturally grounded leadership models may provide a more adaptive, humanistic, and contextually responsive framework for addressing the complexities of twenty-first-century education (Purbonuswanto et al., 2024; Supriadi et al., 2025; Wallace et al., 2023; van Werven et al., 2023). Consequently, the study not only contributes to the development of educational leadership theory but also enriches broader international discussions concerning culturally responsive leadership and sustainable educational transformation.

This perspective also has important implications for teacher competency in digitally mediated educational environments. Digital transformation cannot be reduced to technological proficiency alone, because effective teaching continues to depend on interpersonal competence, professional growth, motivational capacity, and the ability to sustain meaningful relationships with learners. Oviyanti et al. (2025) demonstrate that interpersonal competence plays an important role in supporting teachers' professional development, while Sholeh et al. (2024) highlight the continuing significance of teachers in fostering students' learning motivation. These findings reinforce the argument that digital leadership should integrate technological capacity with relational and pedagogical competencies. Within the Ki Hajar Dewantara framework, such integration is particularly relevant because leadership is understood not merely as managerial direction but as exemplary, participatory, and empowering practice. Accordingly, culturally grounded digital leadership may strengthen teacher competency by linking technological adaptation with human interaction, professional responsibility, and educational values.

The findings further suggest that digital transformation becomes more sustainable when technological innovation is embedded within culturally meaningful pedagogical practices. Research on innovative digital media in Islamic education

indicates that technology can enrich learning when it is aligned with pedagogical objectives and contextual needs (Susanti et al., 2024). Similar patterns are evident in the transformation of Hadith teaching in *pesantren*, where educational innovation is used to revitalize traditional knowledge without disconnecting it from its intellectual and cultural foundations (Tamjidnor et al., 2025). Likewise, the transformation of Fiqh learning demonstrates how pedagogical renewal can be directed toward both academic development and character formation (Siswanto et al., 2026). These studies support the present finding that local educational philosophies should not be treated as barriers to modernization. Rather, they can function as normative resources that guide digital transformation toward more culturally responsive, ethically grounded, and human-centered educational practices.

Despite the significance of these findings, several limitations should be acknowledged. Although the model successfully explained a substantial proportion of the observed variation in teacher competency, a considerable proportion remained unexplained. This suggests that teacher competency is influenced by a broader set of factors, including institutional culture, personal motivation, organizational support, self-efficacy, and educational policy environments. In addition, the quantitative design adopted in this study was particularly effective in identifying general patterns and structural relationships among variables but was less capable of capturing the complexity of teachers' experiences within their everyday professional environments. Furthermore, because the study was conducted within a specific educational and cultural context, caution should be exercised when generalizing the findings to different educational systems and sociocultural environments. Nevertheless, these limitations provide important opportunities for future studies aimed at developing a more comprehensive understanding of the relationship between leadership, digital competence, and teacher professional development.

D. Conclusion

This study examined the relationships among leadership based on the Ki Hajar Dewantara trilogy, digital skills, and teacher competency within the context of elementary education in Indonesia. The findings demonstrate that trilogy-based leadership positively influences teacher competency both directly and indirectly through the mediating role of digital skills. These results indicate that teachers' professional development cannot be fully understood through technological or managerial perspectives alone. Instead,

competency development emerges through the interaction of leadership values, technological adaptation, institutional culture, and continuous professional learning.

The findings also reveal that digital competence extends beyond technical proficiency and should be understood as a multidimensional capability that enables teachers to design more adaptive, interactive, and student-centred learning environments. At the same time, leadership based on the principles of *Ing Ngarso Sung Tulodo*, *Ing Madyo Mangun Karso*, and *Tut Wuri Handayani* provides an ethical and cultural foundation that guides the effective use of technology in educational settings. In this respect, the study reinforces the argument that local wisdom and technological innovation should not be viewed as contradictory forces but rather as complementary elements within the broader process of educational transformation.

From a theoretical perspective, this study contributes to the growing literature on educational leadership by introducing a framework that integrates leadership values, digital competence, and teacher development into a single analytical model. More specifically, the study expands contemporary discussions concerning digital leadership by demonstrating that culturally grounded leadership models can provide alternative pathways toward more humanistic, inclusive, and sustainable educational practices. These findings also hold practical implications for policymakers, educational institutions, and school leaders by emphasizing the importance of integrating value-based leadership development and digital capacity building within teacher professional development programs.

Considering the limitations of the present study, future research should incorporate broader institutional settings, additional explanatory variables, and more diverse methodological approaches, including qualitative and mixed-method designs. Such approaches would provide a more comprehensive understanding of the complex social, cultural, and organizational factors influencing teacher competency development.

Finally, this study affirms that the success of educational transformation depends not solely on technological advancement but also on the ability of educational institutions to ensure that innovation remains firmly grounded in ethical values, cultural identity, and a shared commitment to human development. In this regard, Ki Hajar Dewantara's philosophy continues to offer an important and globally relevant foundation for shaping the future of education.

Acknowledgments

The author would like to express his deepest gratitude to Universitas Muhammadiyah Metro for its assistance in aiding with this research with letter number 0038/II.3.AU/D/ST/UMM/2024. The assistance and support provided has been very significant in advancing and completing this research.

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