



Ki Hadjar Dewantara's Leadership Trilogy for Technology-Integrated Learning: A Systematic Literature Review

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Abstract

This study examines Ki Hadjar Dewantara's leadership trilogy and its relevance to technology-integrated learning through a systematic literature review. The study aims to synthesize previous research findings and to develop a conceptual framework of pedagogical leadership based on Ki Hadjar Dewantara's leadership philosophy in the context of digital learning environments. This research employed a systematic literature review method using the stages of identification, screening, eligibility, and inclusion. A total of 15 journal articles published between 2020 and 2025 were selected based on relevance to Ki Hadjar Dewantara's leadership and educational practices. Data were analysed using content analysis and narrative synthesis by summarizing, comparing, and interpreting the findings of each study. The results indicate that the principles of *Ing Ngarso Sung Tulodho*, *Ing Madya Mangun Karso*, and *Tut Wuri Handayani* are consistently implemented in educational leadership practices through exemplary leadership, participatory leadership, and mentoring roles. The findings also show that these leadership principles are relevant to technology-integrated learning, particularly in the roles of teachers as learning designers, facilitators, and mentors in digital learning environments. This study conceptually reconstructs Ki Hadjar Dewantara's leadership trilogy as a pedagogical leadership framework that integrates instructional design, digital pedagogy, and technology-integrated learning.

Keywords: Educational Leadership; Ki Hadjar Dewantara; Leadership Trilogy; Pedagogical Leadership; Technology-integrated Learning; Systematic Literature Review

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INTRODUCTION

Educational transformation in the era of globalization and the Industrial Revolution 4.0 has created increasingly complex, dynamic, and uncertain conditions for educational institutions. Schools are required to respond to adaptive curriculum changes, demands for improved learning quality, digital technology integration, and the need to strengthen student character development simultaneously. These challenges occur not only in Indonesia but also globally, as education systems are required to continuously adapt to technological change, policy reform, and global competition (Ayyaswamy et al.,

2025). In this context, the quality of school leadership becomes a key factor in determining how effectively educational institutions respond to these changes, particularly in maintaining learning quality, managing innovation, and developing adaptive school cultures (Okunlola & Naicker, 2025; Demir & Kalman, 2025; Heenan et al., 2024; Adams et al., 2020). However, in practice, not all school principals are able to carry out their strategic roles optimally, particularly in managerial leadership, instructional leadership, and the development of innovative and adaptive school environments.

Leadership is generally understood as the ability of an individual to influence, guide, and mobilize others to achieve organizational goals. In the context of educational organizations, leadership is not only associated with authority or formal position, but also with the capacity to translate institutional goals into strategic actions, build organizational culture, and support continuous improvement in teaching and learning processes. Educational leadership literature emphasizes that effective leaders are characterized by clear vision, adaptability, collaborative capacity, and the ability to respond to change and organizational challenges (Heenan et al., 2024; Ibrahim et al., 2024; Gül & Özdil, 2023). Therefore, leadership in education should be viewed not merely as a structural role, but as a dynamic process that involves influence, decision-making, and the development of a productive learning environment (Pribadi et al., 2024).

In the context of educational technology development, school leadership is closely related not only to managerial and administrative responsibilities but also to instructional leadership in technology-integrated learning environments. The rapid development of digital technology has transformed learning systems from conventional classroom settings into digital, online, and blended learning environments, requiring schools to redesign instructional strategies, learning management, and evaluation systems. Consequently, school leaders and teachers are required to possess the competence to integrate technology into pedagogical practices, instructional design, and learning evaluation. This condition places leadership as a critical component in the successful implementation of technology-integrated learning, as leadership influences technology adoption, teacher readiness, digital learning culture, and innovation in instructional practices (Karaköse et al., 2021; Alghamdi, 2023; Okunlola & Naicker, 2025; Habiballah et al., 2021).

In accordance with the standards issued by the Ministry of Education as stipulated in Permendiknas No. 13/2007 concerning School/Madrasah Principal Standards, school principals are required to possess a set of competencies that include personality, social, managerial, supervisory, and entrepreneurial competencies. These standards emphasize that school principals are not only responsible for administrative management but also for leading educational change, directing organizational development, and ensuring the quality of learning processes in schools (Kristini et al., 2023). In the broader discourse of educational leadership, various leadership models have been developed to explain how school leaders can effectively influence school improvement, teacher performance, and student learning outcomes (Adams et al., 2020; Heenan et al., 2024). In the Indonesian educational context, one of the philosophical foundations of educational leadership is derived from Ki Hadjar Dewantara's leadership trilogy, namely *Ing Ngarso Sung Tulodho*, *Ing Madya Mangun Karso*, and *Tut Wuri Handayani*, which emphasizes exemplary leadership, motivational leadership, and supportive leadership within educational environments. This leadership philosophy reflects values-based leadership that emphasizes moral example, empowerment, and encouragement, which are also discussed in contemporary leadership literature as part of transformational and instructional leadership practices (Said et al., 2023; Ibrahim et al., 2024).

A number of empirical studies show that the implementation of Ki Hadjar Dewantara's leadership trilogy contributes to improving teacher performance, shaping school culture, and strengthening student character (Widyantoro et al., 2023; Wikansari et al., 2024; Yanti et al., 2023). Other studies have also linked principals' understanding of the trilogy values to leadership effectiveness and school quality (Zakhanah, 2022). Specifically, *Ing Ngarso Sung Tulodho* emphasizes the role of teachers and school leaders as role models; *Ing Madya Mangun Karso* highlights the role of leaders in motivating, guiding, and inspiring members of the organization; and *Tut Wuri Handayani* emphasizes the importance of providing support, encouragement, and facilitation for learners and teachers. These three principles indicate that leadership is not only positioned as authority but also as a process of modeling, motivating, and empowering members of the school community. From the perspective of

contemporary educational leadership, these principles are closely related to instructional leadership, transformational leadership, and distributed leadership, which have been shown to influence teacher performance, innovation, and school effectiveness (Demir & Kalman, 2025; Heenan et al., 2024; Bao, 2024). However, most studies on Ki Hadjar Dewantara's leadership focus more on character education, educational philosophy, and general leadership practices, while studies that connect Ki Hadjar Dewantara's leadership values with educational technology, digital pedagogy, and technology-integrated learning are still limited. In fact, the values of *Ing Ngarso Sung Tulodho*, *Ing Madya Mangun Karso*, and *Tut Wuri Handayani* are conceptually relevant to student-centered learning, digital learning environments, and technology-based instructional practices, particularly in the context of teacher facilitation, learning guidance, and learner autonomy in digital environments (Okunlola & Naicker, 2025; Habiballah et al., 2021; Karaköse et al., 2021). Therefore, it is important to examine Ki Hadjar Dewantara's leadership trilogy from the perspective of educational technology to understand its role in supporting technology-integrated learning in modern education.

The implications of these findings can serve as a foundation for improving educational policies and professional development programs for teachers and school principals, particularly in implementing innovative and technology-integrated learning approaches. This indicates that the higher the level of understanding and implementation of Ki Hadjar Dewantara's leadership trilogy, the better the performance of teachers and the quality of learning processes in schools (Zakhanah, 2022). Conversely, limited understanding and implementation of these leadership values may influence the effectiveness of teaching practices and school development. Through this study, the author examines Ki Hadjar Dewantara's leadership practices in educational institutions, particularly in relation to technology-integrated learning. This research also explores the application of Ki Hadjar Dewantara's leadership in various educational contexts as an effort to adopt and adapt these leadership practices within modern educational institutions. Furthermore, this study is expected to contribute to the development of Indonesian-based educational leadership theory, particularly in the context of educational technology and leadership in digital learning environments, as well as to provide recommendations for leadership development and policy improvement in education (Kenayathulla et al., 2024; Salleh & Hatta, 2019; Adams et al., 2020; Ibrahim et al., 2024).

RESEARCH METHODS

This study employed a Systematic Literature Review (SLR) method to systematically identify, evaluate, and synthesize previous research related to Ki Hadjar Dewantara's leadership trilogy and its relevance to educational leadership and technology-integrated learning. The SLR method was used to ensure that the review process was conducted in a structured, transparent, and replicable manner.

Research Strategy

The literature search was conducted using the Google Scholar database, which was selected because it indexes a wide range of national and international journal articles relevant to educational leadership and educational technology. The search was carried out using the following keywords:

- “Ki Hadjar Dewantara leadership”
- “Leadership trilogy in education”
- “*Tut Wuri Handayani* leadership”
- “Educational leadership Ki Hadjar Dewantara”

The search focused on articles published between 2020 and 2025 to ensure that the reviewed studies reflect recent research trends and contemporary educational contexts.

Inclusion and Exclusion Criteria

The inclusion criteria in this study were as follows:

1. Journal articles published between 2020 and 2025.
2. Articles discussing Ki Hadjar Dewantara's leadership, educational philosophy, teacher leadership, or the leadership trilogy in educational contexts.
3. Articles published in Indonesian or English.
4. Articles published in peer-reviewed journals.

The exclusion criteria included:

1. Theses, dissertations, conference proceedings, and non-journal publications.
2. Articles that did not specifically discuss Ki Hadjar Dewantara's leadership trilogy or educational leadership.
3. Articles without clear research results or discussion relevant to leadership practices in education.

Article Selection Process

The article selection process was conducted in several stages, namely identification, screening, eligibility, and inclusion. In the identification stage, articles were collected from Google Scholar based on the specified keywords. In the screening stage, article titles and abstracts were reviewed to determine their relevance to the research topic (Triandini et al., 2019). In the eligibility stage, the full texts of the articles were examined to ensure that they met the inclusion criteria. Based on this process, 15 articles were selected and included in this systematic literature review.

Data Extraction and Analysis

Data from the selected articles were analysed using a qualitative descriptive approach through article content analysis. Each article was reviewed and summarized based on several aspects, including:

1. Author and year of publication
2. Research title
3. Research context and focus
4. Main findings related to Ki Hadjar Dewantara's leadership trilogy
5. Implications for educational leadership and learning processes

The data analysis process was carried out through three stages:

1. Data reduction, by selecting and focusing on findings related to leadership practices and educational processes.
2. Data display, by organizing the findings of each article into a summary table to facilitate comparison across studies.
3. Conclusion drawing and synthesis, by comparing and synthesizing the findings of each study to identify patterns, similarities, and differences in the implementation of Ki Hadjar Dewantara's leadership trilogy in educational settings and its relevance to technology-integrated learning.

The synthesis in this study was conducted using a narrative synthesis approach, where the findings from each article were described, compared, and interpreted to develop a conceptual understanding of Ki Hadjar Dewantara's leadership trilogy as a pedagogical leadership framework in technology-integrated learning environments.

RESULTS AND DISCUSSION

Result

A literature review on the practice of Ki Hadjar Dewantara's leadership concept in schools is the subject of discussion. A review of the literature, analysis, and summary of related journal articles are presented in the following Table.

Table 1. Review result

Author	Title	Result of The Research
Salam et al. (2024)	Konsep kepemimpinan dalam pendidikan menurut Ki Hadjar Dewantara.	The influence of Ki Hajar Dewantara's leadership concept on the development of education in Indonesia, both in theory and in practice, has played a major role in the development and advancement of education in Indonesia, producing an educated generation that has contributed to the advancement of politics, economics, society, arts and culture, education, and pshycology.

Author	Title	Result of The Research
Widyantoro et al. (2023)	Trilogi kepemimpinan Ki Hadjar Dewantara	Ki Hadjar Dewantara's Leadership Trilogy needs to be implemented in its entirety in schools, because exemplary behavior is the foundation for fostering enthusiasm and support in leadership.
Kristini et al. (2023)	Inovasi kepemimpinan kepala sekolah berasaskan trilogi kepemimpinan Ki Hajar Dewantara dalam upaya meningkatkan kompetensi guru di gugus 2 Nanggulan.	The leadership of the principal at Cluster 2 Nanggulan is based on Ki Hajar Dewantara's Trilogy and effectively improves teacher competence through exemplary behavior, facilitation, and motivation.
Anggoro (2020)	Implementasi trilogi kepemimpinan pendidikan Ki Hadjar Dewantara di SDN 2 danden bantul yogyakarta	The application of Ki Hadjar Dewantara's Trilogy of Educational Leadership at SD N 2 Sanden implements the among system as an educational system based on the principles of independence and natural law, which has been developed into five basic principles called Pancadarma Taman Siswa, including the principles of independence or freedom, natural law, culture, nationality, and humanity.
Pribadi et al. (2024).	Implementasi trilogi kepemimpinan pendidikan Ki Hadjar Dewantara di SDN 2 danden bantul yogyakarta.	The implementation of this educational trilogy concept means that school principals cannot act arbitrarily in their leadership roles. Being a leader does not mean always being above others and being served, but rather being able to position oneself at the front as a role model, in the middle as someone who inspires enthusiasm, and at the back as someone who provides encouragement and motivation.
Sumardi et al. (2024)	Proses pembelajaran di sekolah dasar dalam perspektif Ki Hadjar Dewantara	The results of the study show that the implementation of the learning process at SDN Cimacan 1 Cianjur has begun to apply Ki Hadjar Dewantara's learning concept, such as a more flexible learning style and appreciating each child's potential in the learning process.
Yanti et al. (2023)	Analisis implementasi teori Ki Hajar Dewantara: mengungkap praktik-praktik pendidikan inovatif di sekolah dasar	The results of this study indicate that Ki Hajar Dewantara's theories have a positive impact on enhancing learning innovation in elementary schools. Innovative educational practices such as character development, holistic approaches, and student empowerment are evident in the implementation of these theories. This research contributes to enriching the understanding of the application of Ki Hajar Dewantara's theories in the context of elementary education. The implications of these findings can serve as a basis for improving educational policies and teacher training to more effectively apply innovative approaches in the learning process.
Mujahid et al. (2021)	Restorasi kepemimpinan nasional berlandaskan nilai luhur budaya bangsa: studi kasus kepemimpinan Ki Hajar Dewantara	The results of research on Ki Hajar Dewantara's leadership model can be applied today. This leadership model can serve as a reference for the restoration of national leadership based on noble cultural values. These noble values are reflected in the relevance of Ki Hajar Dewantara's leadership model to Asta Brata, which reflects culture. This research indicates that to create national leadership restoration, a concept of leadership rooted in noble cultural values is needed, one that touches the heart, mind, and behavior.

Author	Title	Result of The Research
Susanto et al. (2023)	Pengaruh keadilan organisasi, trilogi kepemimpinan Ki Hajar Dewantara terhadap motivasi berprestasi melalui lingkungan kerja fisik	The KHD Leadership Trilogy creates a safe, communicative, and conducive working environment through the exemplary leadership of the principal, support facilities, regular coaching, instilling values, and involving the entire school community in developing the vision and potential of students.
Mansyur and Bunyamin (2022)	Wawasan kepemimpinan guru (teacher leadership) dan konsep guru penggerak	Teachers are central figures in learning and need to exercise democratic and collaborative leadership. The concept of motivational teachers positions teachers as learning leaders who are oriented towards students, empower fellow teachers, and are based on Ki Hajar Dewantara's educational philosophy.
Elitasari (2022)	Analisis konsep guru penggerak: pandangan Ki Hajar Dewantara	The government hopes that with the presence of motivational teachers, there will be changes in education. This idea is also in line with Ki Hajar Dewantara's belief that to become a professional teacher, one must fulfill several aspects, including: 1) teachers must be willing to initiate positive changes; 2) teachers should position themselves as mentors, advisors, educators, and motivators; 3) teachers must be sincere and dedicated in educating students; and 4) teachers must understand and master the competencies required of educators, including professional, personal, social, and pedagogical competencies.
Janah (2021)	Implementasi kepemimpinan Ki Hajar Dewantara dalam manajemen pembelajaran praktik mata pelajaran prakarya.	The implementation of Ki Hajar Dewantara's leadership at SMP Negeri 1 Jatinom Klaten has been successful, as reflected in the planning, implementation, and evaluation of learning that is focused, participatory, and has an impact on improving the discipline and responsibility of the school community.
Salihin and Andriany (2024)	Relevansi pemikiran pendidikan Ki Hajar Dewantara pada abad ke-21	This study concludes that there is a relevance between Ki Hadjar Dewantara's thinking and 21st century learning. Regarding the Foundational Literacies component, closely related concepts are Tri-Ngo/Tri-Nga, Tri-No, and Trisilas. For the Competencies component, the related concepts are Tri Sakti Jiwa, Tripusat, and Tri-N. Finally, for the Character Qualities component, the related concepts are Panca Dharma, Budi Pekerti, Tri-Kon, Sistem Among, Trilogi Kepemimpinan, and Trihayu.
Zakhanah (2022)	Penerapan trilogi kepemimpinan Ki Hajar Dewantara terhadap kinerja guru SMA	Ki Hajar Dewantara's Leadership Trilogy has a positive and significant effect on teacher performance, with the aspect of ing madya mangun karsa as the most dominant factor.
Albany (2021)	Perwujudan pendidikan karakter pada era kontemporer berdasarkan perspektif Ki Hajar Dewantara	The moral crisis in the contemporary era demands the strengthening of character education. Therefore, Ki Hajar Dewantara's ideas need to be reactivated in order to build a civilized nation with dignity that is capable of competing globally.

Discussion

Ki Hadjar Dewantara's educational philosophy conceptualizes education as a process of human liberation that emphasizes not only intellectual development but also character formation, independence, and the balance between moral and cognitive development. This perspective positions education as a holistic process that integrates ethical values, cultural identity, and intellectual growth within the learning process. In the context of modern education in Indonesia, this philosophy remains

relevant, particularly in responding to contemporary moral and social challenges that require education systems to focus not only on academic achievement but also on character development and social responsibility (Albany, 2021). This suggests that education rooted in cultural values and national identity can function as a foundation for developing learners who are not only academically competent but also possess integrity, responsibility, and strong personal character. From a broader educational perspective, this view aligns with contemporary educational paradigms that emphasize holistic education, character education, and values-based education as essential components of modern schooling.

A number of studies reinforce the relevance of Ki Hadjar Dewantara's leadership concept in the development of national education. Salam et al. (2024) explain that Ki Hadjar Dewantara's leadership concept, both theoretically and practically, contributes significantly to the advancement of education in Indonesia and supports the development of individuals who are capable of contributing to various sectors, including social, cultural, political, and educational fields. Furthermore, Mujahid et al. (2021) emphasize that Ki Hadjar Dewantara's leadership model remains applicable in contemporary contexts and can serve as a reference for strengthening leadership practices rooted in cultural and moral values. This relevance is also reflected in its conceptual connection to the Asta Brata leadership concept, which represents culture-based leadership that integrates moral values, emotional intelligence, and social responsibility. These findings indicate that Ki Hadjar Dewantara's leadership framework can be categorized as a form of culturally responsive leadership, where leadership practices are grounded in local wisdom, cultural values, and ethical principles, which are increasingly recognized as important components in educational leadership literature.

From a 21st-century learning perspective, Ki Hadjar Dewantara's educational ideas remain highly relevant, particularly in relation to the development of essential competencies such as critical thinking, problem solving, creativity, metacognition, communication, digital literacy, civic responsibility, and global awareness. These competencies are aligned with Ki Hadjar Dewantara's vision of education, which aims to develop individuals who are cultured, independent, creative, and adaptable to social change. This alignment suggests that Ki Hadjar Dewantara's educational philosophy can be interpreted as an early conceptualization of learner-centered education that emphasizes holistic human development and adaptability. Therefore, Ki Hadjar Dewantara's concept of education can be viewed not as a conventional educational model, but as a progressive and visionary framework that is compatible with contemporary educational paradigms, particularly those related to student-centered learning and competency-based education.

In the school context, Ki Hadjar Dewantara places teachers as central figures in the educational process, particularly through the implementation of the educational leadership trilogy: *ing ngarsa sung tulada*, *ing madya mangun karsa*, and *tut wuri handayani*. This philosophy emphasizes that teachers are expected to act as role models, motivators, and facilitators who support student development both academically and personally. From a leadership perspective, this framework reflects the concept of teacher leadership, where teachers are not only responsible for delivering instructional content but also for leading learning processes, facilitating student engagement, and creating collaborative learning environments. Teacher leadership based on Ki Hadjar Dewantara's philosophy can be interpreted as a democratic and participatory leadership approach that encourages collaboration between teachers and students. The policy of positioning teachers as leaders in the classroom is substantively rooted in Ki Hadjar Dewantara's educational philosophy, which requires reflective and contextual abilities in implementing these values in diverse learning situations (Mansyur & Bunyamin, 2022). This indicates that teacher leadership in this framework is not hierarchical, but facilitative and developmental in nature.

Research by Widyanoro et al. (2023) shows that school leadership innovation based on Ki Hadjar Dewantara's leadership trilogy can improve teacher competence through role modeling, professional development facilitation, and motivational support provided by school leaders. Similarly, Zakhanah (2022) found a positive and significant relationship between understanding and implementing Ki Hadjar Dewantara's leadership trilogy and teacher performance. Among the three components of the trilogy, *ing madya mangun karsa* was found to have the most dominant influence on improving teacher performance, particularly in terms of motivation, collaboration, and professional engagement. This

finding is reinforced by Susanto et al. (2023), who demonstrate that trilogy-based leadership contributes to creating a conducive, open, and psychologically safe work environment for teachers.

This finding indicates that Ki Hadjar Dewantara's leadership trilogy functions not only as a philosophical framework but also as an operational leadership model that directly influences teacher professional development, work motivation, and school organizational culture. From a contemporary leadership perspective, these findings are consistent with instructional leadership and transformational leadership theories, which emphasize the role of leaders in improving teaching quality, teacher motivation, and school effectiveness (Demir & Kalman, 2025; Heenan et al., 2024; Bao, 2024; Lestari, 2019). This suggests that Ki Hadjar Dewantara's leadership trilogy can be interpreted as a contextual form of instructional and transformational leadership rooted in local cultural values but aligned with modern educational leadership frameworks.

The various viewpoints suggest that Ki Hadjar Dewantara's leadership trilogy can support the development of technology-integrated instructional design. The role of teachers as role models, facilitators, and mentors reflects the stages of instructional design that include planning, implementation, and evaluation of technology-based learning (Nugroho et al., 2020; Aryani & Yuliarti, 2023). This suggests that the trilogy does not only function as a leadership philosophy but also as a pedagogical leadership framework that guides teachers in designing and implementing technology-integrated learning environments (Hermawan & Tan, 2021).

From an instructional design perspective, *Ing Ngarso Sung Tulodho* can be interpreted as the planning stage, where teachers design learning experiences and demonstrate appropriate learning strategies and technology use. *Ing Madya Mangun Karso* reflects the implementation stage, where teachers facilitate learning, encourage student participation, and manage interactive learning processes. Meanwhile, *Tut Wuri Handayani* reflects the evaluation and mentoring stage, where teachers provide feedback, guidance, and support to help students achieve learning independence. This interpretation indicates that Ki Hadjar Dewantara's leadership trilogy conceptually aligns with instructional design models that emphasize planning, facilitation, and evaluation as core components of effective teaching. This finding suggests that the trilogy can be reconstructed as a pedagogical framework that integrates leadership roles with instructional design processes, particularly in technology-integrated learning environments (Habiballah et al., 2021; Okunlola & Naicker, 2025).

In the context of educational technology, Ki Hadjar Dewantara's leadership trilogy can be interpreted as a framework for technology-integrated learning, particularly in digital learning environments that require teachers to act as facilitators, mentors, and learning designers (Rabiman et al., 2022). The principle of *Ing Ngarso Sung Tulodho* reflects the role of teachers and school leaders as role models in the use of educational technology, where teachers demonstrate effective, ethical, and responsible technology use in learning activities. The principle of *Ing Madya Mangun Karso* is closely related to the role of teachers as facilitators in digital learning environments, where teachers design interactive learning, encourage student participation, facilitate collaboration through digital platforms, and create student-centered learning environments. This principle is consistent with digital pedagogy and constructivist learning theory, where students actively construct knowledge through interaction, collaboration, and exploration using digital technology.

This suggests that Ki Hadjar Dewantara's leadership trilogy conceptually aligns with digital pedagogy principles that emphasize student-centered learning, collaborative learning, and active knowledge construction through digital environments. In digital learning contexts, leadership is not limited to administrative roles but extends to pedagogical leadership that supports technology integration, learning innovation, and student engagement (Karaköse et al., 2021; Alghamdi, 2023; Okunlola & Naicker, 2025). Therefore, the trilogy can be interpreted as a pedagogical leadership model that supports the implementation of digital pedagogy and technology-integrated learning.

Meanwhile, *Tut Wuri Handayani* reflects the role of teachers as mentors and learning facilitators who provide support, feedback, and autonomy to students in digital learning environments. In online and blended learning systems, students are required to be more independent in managing their learning; therefore, teachers act as guides who support self-regulated learning and learner autonomy (Darmawan & Sujoko, 2019). This indicates that Ki Hadjar Dewantara's leadership trilogy supports the

development of student-centered learning environments that emphasize independence, collaboration, and active learning in technology-integrated learning contexts.

Thus, Ki Hadjar Dewantara's leadership trilogy can be positioned not only as a philosophical foundation of education but also as a pedagogical leadership framework in technology-integrated learning, particularly in digital learning, online learning, and blended learning environments (Lamen & Sunarto, 2021; Kusmawati, 2021). This finding suggests that local wisdom-based educational philosophy can be integrated with modern educational technology to create humanistic, student-centered, and technology-integrated learning environments (Wibowo et al., 2022).

Based on this analysis, this study conceptually reconstructs Ki Hadjar Dewantara's leadership trilogy as a pedagogical leadership model consisting of three main roles: teachers as role models (*Ing Ngarso Sung Tulodho*), teachers as facilitators (*Ing Madya Mangun Karso*), and teachers as mentors (*Tut Wuri Handayani*), which correspond to instructional design processes, digital pedagogy practices, and technology-integrated learning environments. This conceptual reconstruction represents the theoretical contribution of this study, as it integrates local wisdom-based leadership philosophy with contemporary educational technology and instructional design theories. Therefore, this study extends previous research by positioning Ki Hadjar Dewantara's leadership trilogy not only as a cultural or philosophical concept but also as a conceptual framework for technology-integrated learning in modern educational contexts.

CONCLUSION

This study concludes that Ki Hadjar Dewantara's leadership trilogy remains highly relevant in contemporary education, particularly in the context of technology-integrated learning. Based on the systematic literature review of 15 journal articles, the findings indicate that the principles of *Ing Ngarso Sung Tulodho*, *Ing Madya Mangun Karso*, and *Tut Wuri Handayani* contribute significantly to teacher leadership, school culture, teacher performance, and student-centered learning practices. The review also shows that these leadership principles are not only philosophical values but also operational leadership practices implemented in planning, implementing, and evaluating learning processes.

This study conceptually reconstructs Ki Hadjar Dewantara's leadership trilogy as a pedagogical leadership framework in technology-integrated learning, where teachers function as role models in the planning stage, facilitators in the implementation stage, and mentors in the evaluation and feedback stage. This reconstruction indicates that Ki Hadjar Dewantara's leadership trilogy is conceptually aligned with instructional design processes, digital pedagogy, and student-centered learning approaches in digital learning environments.

Therefore, this study contributes theoretically by integrating local wisdom-based educational leadership with contemporary educational technology and instructional design, resulting in a conceptual model of pedagogical leadership for technology-integrated learning. This finding implies that educational leadership based on local wisdom can support innovative, humanistic, and technology-integrated learning in modern education.

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