

Reimagining Value-Based Special School Leadership in the Digital Era: An Exploratory Study

Rendy Wikrama Wardana*¹, Fitri April Yanti², Afrizal Mayub³, Noorzana Khamis⁴, M. Anas Thohir⁵, Elza Heryensi⁶, Rinda Fitri Handayani⁷

^{1,2,3,6,7} Universitas Bengkulu, Indonesia

⁴ Universiti Teknologi Malaysia, Malaysia

⁵ Universitas Negeri Malang, Indonesia

e-mail corresponding: rendywardana@unib.ac.id

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ABSTRACT. In the digital age, schools must rethink their leadership approaches to address student diversity, particularly for learners with Special Educational Needs (SEN), to build inclusive learning environments. This qualitative exploratory study examines how junior high school leaders in special schools interpret and implement inclusive digital leadership to support SEN students' learning experiences. Data were collected through semi-structured interviews with school leaders, including principals, vice principals (curriculum/academic affairs), ICT coordinators, special education teachers, and subject teachers involved in inclusive classrooms. Additional data were obtained through non-participant observations at three special junior high schools and through analysis of policy documents on digital inclusion. Trustworthiness was ensured through source triangulation, member checking, and Braun and Clarke's thematic analysis. Findings reveal that inclusive digital leadership is characterized by three main practices: values-based leadership emphasizing fairness and equity; strategic development of digital capacity for all stakeholders through continuous professional learning and collaboration; and adaptive governance supported by technology, data-informed decision-making, and personalized accommodations for SEN learners. Despite progress, leaders face challenges such as limited teacher digital competence, inadequate infrastructure, and inconsistent policy implementation. This study highlights the importance of strengthening inclusive digital leadership capacity to ensure equitable and meaningful learning for SEN students. Practical implications include designing targeted leadership development programs, fostering collaboration among stakeholders, and establishing flexible, sustainable governance models. Future research should focus on developing and testing structured frameworks for values-based digital leadership in special schools, emphasizing measurable improvements in ethical decision-making, inclusive data practices, and technology-supported professional learning systems.

Keywords: *Inclusive School Leadership, Special Educational Needs, Digital Era, Qualitative Exploratory Research.*



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INTRODUCTION

The rapid advancement of digital transformation has fundamentally reshaped contemporary education systems, creating opportunities to improve instructional quality while also generating new challenges for inclusive practice. (Kumar, 2025). Technologies such as learning management systems, artificial intelligence, and assistive tools have enabled more flexible, adaptive, and accessible learning environments. Within the global agenda for inclusive

education, these innovations are increasingly viewed as strategic instruments for supporting students with diverse learning needs, including those with SEN (Ainscow, 2020; UNESCO, 2023). Nevertheless, technology alone does not guarantee inclusion, as its impact depends on how it is pedagogically designed, strategically implemented, and ethically governed within schools. Consequently, educational leadership becomes essential in ensuring that digital transformation contributes meaningfully to equitable participation and learning outcomes for all students. (Zou et al., 2025).

Previous studies have shown that digital technologies can significantly enhance accessibility, participation, and learning opportunities for students with SEN, particularly when supported by appropriate leadership and inclusive pedagogical practices (Fernández-Batanero et al., 2022; Siyam & Abdallah, 2022; Stalmach et al., 2023). Recent scholarship further conceptualises inclusive digital leadership as the ability of school leaders to align technological innovation with inclusive and context-sensitive educational practices through strategic vision, collaboration, and responsive decision-making (Dexter & Barton, 2021; McCarthy et al., 2023; Mertens et al., 2024). Despite growing attention to digital leadership and inclusive education, few studies specifically examine how school leaders in special school contexts enact inclusive digital leadership to support students with complex special educational needs. (Connolly et al., 2026).

The Indonesian context illustrates many of these challenges in practice. National reforms such as *Merdeka Belajar* reflect a strong policy commitment to digital innovation and inclusive education (Kepmendikbudristek, 2022; OECD, 2024). However, implementation across schools remains uneven, with persistent disparities in infrastructure, leadership capacity, and expertise in adaptive technologies (Gama et al., 2025; Rahman et al., 2023). In many cases, digitalisation initiatives continue to prioritise administrative efficiency rather than inclusive pedagogical transformation that supports students with SEN. These conditions reveal a significant gap between policy aspirations and school-level realities, particularly in special schools, where the demands of inclusion are more complex, resource-intensive, and context-dependent. (Shernoff et al., 2017). Consequently, understanding how school leaders navigate these constraints becomes increasingly important for advancing equitable digital transformation. (Efendi & Sholeh, 2023).

At the junior high school level, this issue becomes even more significant because adolescence is a critical developmental stage characterised by identity formation, increasing autonomy, and heightened social awareness. (Hariadi et al., 2024). For students with SEN, educational experiences during this period strongly influence academic engagement, peer relationships, and sense of belonging within the school community (Branje, 2022; Yakubova et al., 2024). Leadership decisions regarding digital practices, therefore, have important implications for whether educational environments foster inclusion or reinforce marginalisation. However, there remains limited empirical understanding of how school leaders, particularly in Indonesian special junior high schools, construct and enact inclusive digital leadership in practice. (Sirojuddin et al., 2025). Existing studies have not sufficiently captured the processual, context-dependent, and interpretive nature of leadership, including how leaders navigate tensions among policy demands, technological constraints, and the diverse needs of students with SEN. (Afshari et al., 2012).

This study addresses these gaps through an exploratory qualitative investigation of inclusive digital leadership in Indonesian special junior high schools. First, it provides empirically grounded insights from an underrepresented context, thereby enriching global scholarship with evidence from special education settings in a developing country. (Alblooshi et al., 2020). Second, it advances a process-oriented understanding of leadership by examining how school leaders interpret digital transformation, negotiate institutional constraints, and develop contextually responsive strategies for inclusion. (Zou et al., 2025). Third, it contributes toward the development of a practical conceptual foundation for inclusive digital leadership, offering implications for policy and leadership development in contexts characterised by uneven digital readiness. (Allen et al., 1999). Given the evolving and context-bound nature of the phenomenon,

this study adopts an exploratory qualitative approach to capture the lived experiences, interpretations, and practices of school leaders. (Connolly et al., 2026).

By addressing this question, the study aims to generate theoretically informed, empirically grounded insights that advance understanding of inclusive digital leadership and support more equitable educational practices in the digital era. (Nuryana & Sirojuddin, 2025). This study offers a novel contribution by moving beyond normative models of digital leadership to provide an empirically grounded and process-oriented understanding of how inclusive digital leadership is constructed and enacted in special education contexts. (M. H. Anderson & Sun, 2017; Aziz & Hussain, 2025). Focusing on Indonesian special junior high schools, an underrepresented setting in global scholarship, it reveals how leaders navigate tensions among policy demands, technological constraints, and the complex needs of students with SEN. In doing so, the study advances a context-sensitive conceptualisation of inclusive digital leadership that integrates the strategic, ethical, and adaptive dimensions of practice. (Western, 2018).

METHOD

This study employed a qualitative exploratory design to investigate the emerging phenomenon of inclusive digital leadership in Indonesian special junior high schools. A qualitative approach was considered appropriate because the study aimed to explore lived experiences, contextual practices, and socially constructed meanings related to leadership in digitally mediated inclusive education settings. (Creswell & Poth, 2018). Data were collected from May to October 2024 through semi-structured interviews, non-participant observations, and document analysis to ensure methodological triangulation. (Miles & Huberman, 1994). Interviews were audio-recorded, transcribed verbatim, and supplemented with field notes that documented contextual and non-verbal information. Document analysis included Individualised Education Programs (IEPs), lesson plans, SEN service procedures, digital governance policies, assessment reports, meeting minutes, and LMS-generated records. (C. A. Anderson et al., 2014).

Data analysis employed reflexive thematic analysis, combined with data condensation, data display, and conclusion drawing. (Miles et al., 2019). The process began with repeated reading of interview transcripts, observation notes, and institutional documents to achieve data familiarisation. (Braun & Clarke, 2006). Coding was conducted iteratively using both inductive and deductive approaches. Inductive coding allowed themes to emerge directly from participants' experiences. In contrast, deductive coding was guided by theoretical concepts related to inclusive education, UDL, Technological Pedagogical Content Knowledge (TPACK), and data-informed decision-making. (Bogdan & Biklen, 1998; Braun & Clarke, 2006).

Table 1. Demographic Profile and Roles of Research Informants

Code	Informant Status	Function/Role
P1–P3	Principals	School leadership and policy decision-making
VP1–VP3	Vice Principals	Curriculum and academic coordination
ICT1–ICT3	ICT Coordinators	Digital platform management and technical support
SET1–SET3	Special Education Teachers	Classroom implementation of inclusive learning

Source: Data Collection, 2024

RESULT AND DISCUSSION

Result

Values-Based Leadership: Justice, Equality, and Morality–Strategic Orchestration

The findings indicate that school leaders interpret digital leadership in the context of inclusive education as a *non-negotiable ethical commitment*, not simply a technological adaptation. Based on in-depth interviews, principals and vice-principals consistently positioned inclusion as a moral responsibility rooted in respect for the diversity of students with SEN. This perspective

was reinforced through focus group discussions (FGDs), in which teachers emphasised that technology serves only as a tool, whereas learning equity is determined by the school's values.

Principals and vice-principals framed inclusion as a moral responsibility by ensuring that every digital policy, including the use of learning platforms, curriculum adjustments, and the provision of learning media, is truly accessible to all students according to their needs. Teachers in the FGDs also emphasised that technology is only a tool, while the success of inclusive learning depends heavily on the values and support of school leaders. When leaders demonstrate a strong commitment to inclusion, teachers are more motivated to innovate in learning and provide equitable services for students with SEN. These findings indicate that digital leadership in special schools is fundamentally an ethical and pedagogical practice. Technology becomes meaningful only when school leaders position inclusion and equity as the central values guiding digital transformation. As one principal explained:

"Technology is important, but our main responsibility is ensuring that no child is left behind. Some students cannot adapt quickly to digital systems, so the school must adapt the system to the students, not force the students to follow the system" (P1).

A teacher also stated, "When the principal supports us, we feel more confident to modify assignments, simplify digital instructions, or provide alternative assessments for students with SEN" (ST2).

To address these conditions, school leaders implemented a practice known as "*moral-strategic orchestration*," the ability to balance the values of equity and data-driven decision-making. Data from the Learning Management System (LMS), intervention reports, and Individual Education Program (IEP) documents were not used solely for decision-making but rather as a starting point for professional discussions between the principal, teachers, and special education assistants (SEAs) to determine the best services for students with SEN. Findings indicate varying levels of implementation of values-based digital leadership across the three schools studied. School A demonstrated the most mature practice, with the principal consistently integrating the values of equity and inclusion into decision-making through technology.

The success of digital transformation within inclusive education hinges not merely on technological availability but on how leaders meaningfully interpret these tools to foster equity. School principals serve as vital agents of change; their effectiveness requires a blend of digital fluency, pedagogical insight, and ethical leadership to drive cultural shift. When technology is restricted to administrative compliance, it stifles instructional innovation and prevents inclusive values from taking root in daily practice. Conversely, when digital systems like Learning Management Systems (LMS) and student evaluation data are dynamically integrated, they empower teachers to flexibly customise learning and support each student's unique journey.

The empirical evidence highlights a clear spectrum of technological adaptation across three distinct institutional archetypes. School A exemplifies the strategic orchestration stage, where data-driven systems seamlessly transition into deeply humanised, personalised student support services. School B represents the cultural consolidation and capacity-building phase; while leadership is committed to digital systems, usage remains confined to academic reporting rather than routine discussions of individual needs. Meanwhile, School C stagnates at a symbolic or technical adoption stage, treating digital platforms as a rhetorical tool for bureaucratic compliance without analysing the actual learning barriers faced by students with special educational needs.

Strategic Development of Digital Capacity through Continuous Professional Learning and Collaboration

The research findings show that developing teachers' digital capacity in schools is more effective when implemented sustainably in daily activities, rather than through short-term formal training. Interviews with teachers and *special education teachers* (SETs) revealed that previous training often focused solely on the use of applications such as LMSs or presentation media but did not adequately address the real-world challenges of inclusive classrooms. For example, teachers struggle to adapt digital materials for slow learners, students with attention-deficit

disorders, or students who require simpler, more repetitive instruction. One teacher explained that when using an LMS, all students receive the same assignments, even though each student's ability to understand instructions varies. This situation forces teachers to find their own ways to modify materials to make them more accessible to students with SEN.

To address this, schools have begun implementing *digital coaching* through regular discussions between the principal, vice principal, class teachers, subject teachers, and the Special Education Team (SET). These activities take the form of weekly clinics, internal communication groups, and post-learning reflection sessions. Teachers can directly discuss real-world issues, such as how to create simpler learning videos, use clearer images, or use alternative assessments more appropriate for students with SEN. In FGDs, teachers also reported that using shared documents and school communication groups is very helpful, as it allows them to share materials, provide feedback, and adjust learning strategies quickly without waiting for formal meetings. A special education teacher further explained:

"Sometimes the training only teaches us how to operate the platform, but not how to adapt it for children who cannot read instructions independently. In our classroom, some students need audio explanations, repeated instructions, or visual symbols before they understand the task." (SET1)

"When I upload the same worksheet for all students in the LMS, students with learning difficulties often become confused and stop working. Finally, I created another version manually with shorter sentences and more pictures." (SET3)

Participant observation and analysis of digital activities indicate that teachers' increased use of technology does not necessarily translate into improved inclusive learning. At School A, there is a strong alignment between digital training and classroom practice. Teachers are not only proficient in using the LMS, presentation applications, or digital learning media but also understand how these technologies are tailored to the needs of students with SEN. For example, teachers routinely modify assignments in the LMS to varying levels of difficulty, provide instructional videos with simpler explanations, and use alternative assessments such as image-based assignments or audio recordings for students who struggle with writing. The principal and the SET also actively conduct joint evaluations to ensure that technology use truly supports learning equity.

True professional development for teachers goes far beyond acquiring technical IT competencies; it must be deeply intertwined with inclusive values and classroom realities. Meaningful capacity building is not driven by the frequency of software training, but by how technology is leveraged as a pedagogical instrument to serve students with special educational needs (SEN). To shift teacher professional development from a rigid, procedural activity into a transformative experience, schools must foster job-embedded collaboration. This includes cultivating a culture of ongoing peer mentoring, shared accountability, and reflective case discussions that allow educators to move past conventional, one-size-fits-all teaching methods and successfully implement differentiated learning.

The empirical findings from School B and School C clearly represent how a focus on mere technical adoption fails to achieve genuine educational equity. In School B, while digital activity is high, training remains strictly technical, leading to a lack of differentiation and minimal collaboration between regular and special education teachers. Similarly, School C exposes a stark disconnect between formal policy and actual classroom execution, where digital platforms are used superficially to upload standard assignments and fulfil bureaucratic formalities. Together, these cases demonstrate that without integrating technology with inclusive practices, vulnerable students continue to face systemic learning barriers despite the presence of digital systems.

Adaptive Governance through Technology, Data, and Personalisation in SEN Services

This study found that inclusive digital leadership in schools is evident in adaptive governance, namely, schools' ability to use technology to make quick, accurate decisions while still addressing the individual needs of SEN students. Based on document analysis and system

observations, the use of an LMS, learning dashboard, and digital reporting system helps principals, vice principals, teachers, and *special education teachers* (SET) monitor student progress more quickly and in a structured manner. For example, attendance data, assignment completion, assessment results, and student behaviour records can be viewed in real time, making it easier for teachers to recognise changes in student learning conditions.

Data shows a fairly high level of student participation, but interviews and focus group discussions confirm that the school does not use this figure as the sole measure of success. The principal emphasised that digital data is used as an *early warning system*, namely as an early sign to detect students who are beginning to experience learning difficulties, decreased motivation, or social-emotional challenges. One principal explained:

"We do not only look at whether students log in or submit assignments. Sometimes, a student who suddenly stops accessing the LMS is also actually facing emotional difficulties or learning fatigue." (P1)

"For students with SEN, low activity in the LMS does not always mean they are lazy. Some students need repeated guidance, while others become anxious when they see too many instructions on the screen." (SET1)

Furthermore, field observations show that digital data in schools is not used in isolation but is discussed collaboratively in multidisciplinary forums involving the principal, vice principal, class teachers, subject teachers, guidance counsellors, and *"moral-strategic"* *special education teachers* (SET). In these forums, data from the LMS, such as attendance, late assignment submissions, assessment results, and student activity in the digital classroom, are not used as definitive conclusions but are instead linked to students' actual conditions at school.

For example, when a student with SEN is seen rarely accessing the LMS and their assignment grades are declining, teachers do not immediately assume the student is lazy or undisciplined, but instead investigate whether the student is experiencing difficulty understanding the material, emotional problems at home, concentration problems, or obstacles in using digital devices. This information is then matched with targets in *the Individual Education Program* (IEP) so that the school can determine more personalised interventions, such as simplifying assignments, providing additional time, using shorter learning videos, audio-visual assistance, or direct mentoring by a special education teacher. One teacher described:

"During evaluation meetings, we compare LMS data with classroom observations; they are actually trying hard and only need simpler instructions." (SET2)

"We adjust the intervention based on each student's condition. Some students need visual support, some need direct mentoring, and others only need extra time to complete assignments." (SET2)

The findings also highlight some real implementation challenges. Not all students have access to devices and a stable internet connection, so using an LMS can sometimes exacerbate learning gaps. Some teachers also observed that students, especially those with attention-deficit disorders, are easily distracted by digital devices, becoming more interested in games or social media than in learning materials. Furthermore, LMS analytics systems often display only quantitative data, such as login frequency or assignment completion, without capturing students' learning effort, emotional state, or adaptation processes. As a result, students who are working hard but facing learning challenges can appear "less active" in the system.

The findings confirm that adaptive governance in inclusive digital schools should be understood as a value-driven leadership practice rather than merely an administrative or technological process. Effective school leaders are not those who maximise digital efficiency, but those who can integrate technological systems with empathy, reflective judgment, and inclusive pedagogical values. In this sense, digital transformation is meaningful only when it advances educational justice and supports the diverse developmental needs of all learners, particularly students with SEN. This demonstrates that the success of digital transformation is not determined solely by technological sophistication but by governance that harmoniously integrates the values of equity, data use, and pedagogical practices. (Cardona, 2022; Mariyono & Sulistiono, 2025).

Table 2. Table of Research Result

Aspects	Fundings	Validation
Values-Based Leadership: Justice, Equality, and Moral Strategic Orchestration	<ol style="list-style-type: none"> 1. School leaders interpreted inclusive digital leadership as an ethical commitment centred on justice, equity, and accessibility for students with SEN rather than merely technological modernisation. 2. School A demonstrated strategic orchestration by integrating LMS data, IEPs, and collaborative discussions into inclusive decision-making. At the same time, School B remained in the cultural consolidation stage, and School C tended toward symbolic adoption. 	<p>Interview: Principals and teachers emphasised that technology should adapt to students' needs: <i>"The school must adapt the system to the students"</i>.</p> <p>Observation: Researchers observed regular collaborative meetings to discuss LMS data and SEN interventions in the school.</p> <p>Document Analysis: IEP records, LMS reports, and inclusive policy documents.</p>
Strategic Development of Digital Capacity through Continuous Professional Learning and Collaboration	<ol style="list-style-type: none"> 1. Teachers' digital competence developed more effectively through continuous collaboration, reflection, and practice-based coaching than through short-term technical training. 2. Professional learning became meaningful when directly connected to inclusive classroom realities, such as adapting digital materials, simplifying instructions, and modifying assessments for SEN students. 	<p>Interview: Teachers and SETs reported that formal training focused mainly on operating LMS platforms rather than adapting instruction for SEN students.</p> <p>FGD: Participants described the benefits of weekly clinics, shared documents, and collaborative reflection forums.</p> <p>Observation: Researchers observed differentiated assignments, modified learning videos, and collaborative mentoring practices in School A, while Schools B and C showed inconsistent implementation.</p>
Adaptive Governance through Technology, Data, and Personalisation in SEN Services	<ol style="list-style-type: none"> 1. Adaptive governance emerged through the use of LMS dashboards, digital reporting systems, and collaborative interpretation of student data to support personalised interventions for SEN students. 2. Leaders used data as an early warning system rather than as a sole indicator of achievement. 	<p>Interview: Principals and SETs explained that low LMS participation was interpreted contextually rather than as indiscipline.</p> <p>Observation: Multidisciplinary meetings linked LMS analytics, classroom observations, and IEP targets to determine interventions.</p> <p>Document Analysis: LMS logs, attendance records, intervention reports, and IEP documents</p>

Source: Data Collection, 2024

Discussion

This study offers a closer look at how inclusive digital leadership is understood and practised in Indonesian special junior high schools during the ongoing digital transformation. Rather than viewing digital leadership only as a technical or administrative matter, the findings show that school leaders interpret it as part of their broader responsibility to create fair and meaningful learning opportunities for students with SEN. (Óskarsdóttir et al., 2020). The findings demonstrate that digital leadership in special schools cannot be reduced to technological management or administrative modernisation alone. Instead, leadership emerges as a moral, pedagogical, and adaptive orchestration process through which school leaders continuously negotiate tensions between equity and efficiency, personalisation and standardisation, and technological innovation and human-centred educational values. (D. E. DeMatthews et al., 2021).

One of the most important findings of this study is that moral and educational values strongly shape digital leadership in inclusive schools. School leaders did not simply focus on

introducing technology into classrooms or administrative systems. Instead, they consistently connected digital initiatives with questions of fairness, accessibility, and equal learning opportunities for students with SEN. (Liasidou & Svensson, 2014). Unlike conventional perspectives that conceptualise digital leadership primarily as technological innovation or organisational efficiency (Karakose et al., 2023), this study found that school leaders consistently interpreted digital transformation through the lens of justice, accessibility, and educational equity. This finding aligns with (UNESCO, 2023). argument that technology in education should not be evaluated merely by access or infrastructure, but by the extent to which it supports equitable learning opportunities for all learners. (Fitzgerald & Radford, 2022).

Theoretically, these findings contribute to the understanding of inclusive digital leadership by proposing that leadership should be understood not as technological management alone, but as moral-strategic orchestration.(Cambron-McCabe & McCarthy, 2005). Existing digital leadership frameworks frequently emphasise innovation, efficiency, and organisational change (Karakose et al., 2023; Mertens et al., 2024). However, the present study demonstrates that in SEN contexts, leadership effectiveness depends on leaders' capacity to mediate tensions between institutional accountability systems and individualised educational needs. Leaders are required to interpret technology critically, recognising both its opportunities and limitations. This finding also resonates with Ainscow's argument that inclusion is not a fixed policy outcome but a continuous process of negotiating participation, equity, and responsiveness within schools. (Liasidou & Svensson, 2014).

Another important contribution of this study concerns the identification of tension between standardisation and personalisation in digital systems. Digital technologies such as LMS platforms and reporting dashboards are generally designed around standardised structures, efficiency, and measurable outcomes. However, students with SEN often require individualised pacing, differentiated instruction, emotional support, and flexible assessment approaches. (Carter & Abawi, 2018). As observed in this study, school leaders recognised that digital participation metrics, such as login frequency, assignment completion, and attendance, did not necessarily reflect meaningful learning engagement. Some students with SEN demonstrated limited online activity, not due to low motivation but to anxiety, concentration difficulties, sensory overload, or challenges in understanding instructions. Consequently, school leaders and teachers interpreted digital data cautiously and supplemented quantitative information with contextual observations, classroom interactions, and IEP documentation.(Fitzgerald & Radford, 2022).

Another important finding relates to how schools develop teachers' digital capacity through continuous collaboration and professional learning. The study shows that teachers were more likely to improve their inclusive digital practices when learning occurred through ongoing reflection, peer discussion, mentoring, and classroom-based problem solving rather than through one-time technical workshops. (Hoppey & McLeskey, 2013). This study found that teachers' digital competencies developed more effectively through ongoing, practice-based collaboration than through one-off technical workshops. Teachers repeatedly emphasised that formal training often focused narrowly on operating platforms or applications without addressing the realities of inclusive classrooms. As a result, many teachers initially struggled to adapt digital content for students with SEN who required simplified instructions, visual scaffolding, audio explanations, or differentiated assignments. (C. A. Anderson et al., 2014; Western, 2018).

These findings strongly support theories of situated professional learning and collaborative professional development. (Lave & Wenger, 1991), argued that meaningful learning occurs through participation in communities of practice where knowledge is constructed socially and contextually. Similarly, it is emphasised that job-embedded collaboration is more effective than isolated training because teachers learn directly from authentic classroom experiences. In this study, schools that implemented weekly reflection forums, digital coaching clinics, collaborative mentoring, and shared online discussion groups demonstrated stronger integration between

technology use and inclusive pedagogy. Teachers learned not only how to use digital tools but also how to modify them to support students' diverse learning needs. (Hunzicker, 2012).

Importantly, this study also demonstrates that professional learning in inclusive digital schools is not merely about increasing technological competence. Rather, it involves developing reflective and adaptive pedagogical judgment. (Larson & Murtadha, 2002). Teachers continuously evaluated whether technology actually enhanced participation and accessibility for students with SEN. This finding extends TPACK theory, which traditionally focuses on integrating technology, pedagogy, and content. The findings of this study suggest that inclusive contexts require an additional ethical dimension. Teachers and leaders must not only determine whether technology is pedagogically appropriate, but also whether it promotes accessibility, dignity, and equitable participation for students with diverse learning needs. (Mishra & Koehler, 2006).

Furthermore, the findings reveal that collaborative digital coaching contributes to the emergence of distributed leadership practices within schools. Leadership was not concentrated solely in principals but was distributed among SET teachers, ICT coordinators, vice principals, and classroom teachers, who collectively interpreted problems and developed solutions. This supports (Azorín et al., 2021) and (Harris et al., 2022)s argument that distributed leadership enables schools to respond more flexibly to complex educational challenges. However, the findings also suggest that distributed leadership alone is insufficient unless guided by a shared commitment to inclusive values. In schools where collaboration lacked a strong, inclusive orientation, technology use remained fragmented and procedural. (Wang, 2018).

Another important contribution of this study lies in its contextual focus on Indonesian special junior high schools. (Allen et al., 1999; Aziz & Hussain, 2025). Existing literature on digital leadership and inclusive education has predominantly emerged from Western or highly developed educational contexts. (Karakose et al., 2023; Mertens et al., 2024). Empirical evidence from developing countries, particularly within special education settings, remains limited. By examining leadership practices in Indonesian schools implementing Merdeka Belajar reforms, this study offers contextually grounded insights into how digital transformation is negotiated in environments characterised by uneven infrastructure, varying teacher capacities, and resource constraints. (Carter & Abawi, 2018; Wang, 2018).

Despite these contributions, this study has several limitations. First, the study involved only three special junior high schools, limiting the transferability of findings to broader educational contexts. (Theoharis, 2007). Although qualitative research does not aim for statistical generalisation, additional studies involving more diverse school settings could provide richer comparative insights. Second, observations were conducted within a limited time frame, making it difficult to capture long-term changes in leadership practices and digital transformation processes. (D. DeMatthews & Mawhinney, 2014). Third, while triangulation enhanced trustworthiness, the interpretive nature of qualitative analysis means that findings remain influenced by researchers' perspectives. (Hoppey & McLeskey, 2013; Larson & Murtadha, 2002).

Overall, the findings suggest that inclusive digital leadership in special schools is far more complex than simply adopting new technologies. Successful digital transformation depends on how school leaders connect technology with inclusive values, collaborative professional cultures, and responsive pedagogical practices. Technology can help schools expand participation and improve access to learning for students with SEN, but only when it is implemented thoughtfully and interpreted in light of students' diverse needs. Rather, it is a dynamic process of ethical negotiation, collaborative learning, and adaptive governance aimed at ensuring equitable participation for students with SEN. Technology alone does not create inclusion. Its impact depends fundamentally on how school leaders interpret, organise, and humanise digital systems within the everyday realities of schooling.

Table 3. Findings, Theoretical Analysis, and Research Contributions

Research Findings	Theoretical Analysis	Contribution
Inclusive digital leadership is interpreted as a moral commitment centred on justice, equity, and accessibility rather than technological modernisation alone.	Supports inclusive leadership theory (Ainscow, 2020; Tracy-Bronson, 2024) and extends digital leadership perspectives by emphasising ethical mediation and moral-strategic orchestration.	Introduces the concept of moral-strategic orchestration to explain how school leaders negotiate equity and digital transformation in SEN contexts
Digital systems such as LMS platforms and dashboards create tensions between standardisation and personalisation.	Reinforces theories of inclusive pedagogy and data literacy (Mandinach & Gummer, 2016) by showing that quantitative data require contextual interpretation	Demonstrates that digital-inclusive leadership is interpretive rather than purely managerial or technical
School A demonstrated strategic orchestration, School B reflected cultural consolidation, and School C remained at the stage of symbolic adoption.	Aligns with change and leadership theories emphasising contextual implementation and organisational culture (Fullan, 2020; Harris & Jones, 2018).	Proposes a developmental continuum of inclusive digital leadership: technical adoption, cultural consolidation, and strategic orchestration.
Teachers developed digital competence more effectively through collaborative, job-embedded professional learning than through one-off technical training.	Supports situated learning and professional learning community theories (Hunzicker, 2012; Lave & Wenger, 1991).	Extends Teacher Professional Development (TPD) discussions by emphasising inclusive digital coaching rooted in classroom realities
Effective technology integration depended on teachers' ability to adapt digital materials for SEN students.	Extends TPACK theory (Mishra & Koehler, 2006) by adding ethical and accessibility dimensions to technology integration.	Proposes that inclusive digital pedagogy requires ethical-pedagogical judgment rather than merely technological competence.
Digital governance was used as an early warning system rather than solely for accountability purposes.	Consistent with formative assessment and reflective data-use theories (Black & Wiliam, 2009; Schildkamp, 2019).	Demonstrates that adaptive governance in inclusive schools requires reflective interpretation of data rather than mechanistic accountability.

Source: Data Collection, 2024

CONCLUSION

This exploratory research demonstrates that inclusive leadership in special schools has undergone a crucial paradigm shift in the digital era, moving decisively from a traditional focus on routine administrative efficiency toward value-driven leadership practices centred on educational equity, human dignity, and justice. The success of school digitalisation is fundamentally not determined by technological sophistication or the sheer volume of software adoption, but rather by how school leaders act as active agents of change who integrate complex digital platforms with empathy, collaborative professional cultures, and responsive pedagogical judgments. Through the conceptual lens of "*moral-strategic orchestration*," this study successfully bridges the critical gap between digital capacity development and actual classroom realities, revealing that technology is not the centre of transformation itself. Instead, it serves as a critical pedagogical instrument whose true value depends entirely on how far it enables equitable participation, targeted differentiated learning, and meaningful instructional opportunities for students with special educational needs (SEN).

Practically and contextually, these findings provide a valuable, empirically grounded roadmap for policymakers, school principals, and educators to ensure that future digitalisation initiatives, particularly within the national *Merdeka Belajar* curriculum framework, prioritise adaptive support, cross-professional mentoring, and localised data interpretation over mechanistic, bureaucratic compliance. Cultivating a collaborative culture through job-embedded

professional development, such as regular multidisciplinary case discussions and peer-led coaching clinics, is essential to transform teachers' digital capacity from procedural compliance into a deeply reflective, transformative practice. Nevertheless, this study is subject to several methodological limitations, primarily its exploratory focus on three special junior high schools and six institutional leaders, which naturally restricts the immediate generalizability and transferability of the results to broader special education contexts. To address these boundaries, future research should incorporate comprehensive mixed-methods and longitudinal designs aimed at building and testing structured, measurable frameworks for values-based digital leadership that can meticulously track long-term advancements in ethical data utilisation, inclusive professional learning systems, and sustainable educational equity across diverse special education settings.

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REFERENCES

- Afshari, M., Bakar, K. A., Luan, W. S., & Siraj, S. (2012). Factors Affecting the Transformational Leadership Role of Principals in Implementing ICT in Schools. *Turkish Online Journal of Educational Technology - TOJET*, 11(4), 164–176.
- Alblooshi, M., Shamsuzzaman, M., & Haridy, S. (2020). The relationship between leadership styles and organisational innovation: A systematic literature review and narrative synthesis. *European Journal of Innovation Management*, 24(2), 338–370. <https://doi.org/10.1108/EJIM-11-2019-0339>
- Allen, K. E., Stelzner, S. P., & Wielkiewicz, R. M. (1999). The Ecology of Leadership: Adapting to the Challenges of a Changing World. *Journal of Leadership Studies*, 5(2), 62–82. <https://doi.org/10.1177/107179199900500207>
- Anderson, C. A., Leahy, M. J., DelValle, R., Sherman, S., & Tansey, T. N. (2014). Methodological application of multiple case study design using modified consensual qualitative research (CQR) analysis to identify best practices and organizational factors in the public rehabilitation program. *Journal of Vocational Rehabilitation*, 41(2), 87–98. <https://doi.org/10.3233/JVR-140709>
- Anderson, M. H., & Sun, P. Y. T. (2017). Reviewing Leadership Styles: Overlaps and the Need for a New 'Full-Range' Theory. *International Journal of Management Reviews*, 19(1), 76–96. <https://doi.org/10.1111/ijmr.12082>
- Aziz, A., & Hussain, S. (2025). Eco-leadership: Mediation of environmental corporate social responsibility policies in promoting pro-environmental behavior. *International Journal of Ethics and Systems*. <https://doi.org/10.1108/IJOES-12-2024-0388>
- Ainscow, M. (2020). Promoting inclusion and equity in education: lessons from international experiences. *Nordic Journal of Studies in Educational Policy*, 6(1), 7–16. <https://doi.org/10.1080/20020317.2020.1729587>
- Azorín, C., Harris, A., & Jones, M. (2021). Distributed leadership and networking. In *Future Alternatives for Educational Leadership* (pp. 63–75). Routledge. <https://doi.org/10.4324/9781003131496-7>
- Bogdan, R., & Biklen, S. K. (1998). *Qualitative research for education: An introduction to theory and methods* (3rd ed). Allyn and Bacon.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>

- Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability*, 21(1), 5–31. <https://doi.org/10.1007/s11092-008-9068-5>
- Branje, S. (2022). Adolescent identity development in context. *Current Opinion in Psychology*, 45, 101286. <https://doi.org/10.1016/j.copsyc.2021.11.006>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Cardona, M. A. (2022). *Advancing Digital Equity for All: Community-Based Recommendations for Developing Effective Digital Equity Plans to Close the Digital Divide and Enable Technology-Empowered Learning* (Number September).
- Creswell, J. W., & Poth, C. N.. (2018). *Qualitative inquiry and research design*. SAGE.
- Cambron-McCabe, N., & McCarthy, M. M. (2005). Educating School Leaders for Social Justice. *Educational Policy*, 19(1), 201–222. <https://doi.org/10.1177/0895904804271609>
- Carter, S., & Abawi, L.-A. (2018). Leadership, Inclusion, and Quality Education for All. *Australasian Journal of Special and Inclusive Education*, 42(1), 49–64. <https://doi.org/10.1017/jsi.2018.5>
- Connolly, C., O'Brien, E., & O'Ceallaigh, T. J. (2026). 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>
- Darling-Hammond, L., Hyler, M., & Gardner, M. (2017). *Effective Teacher Professional Development*. <https://doi.org/10.54300/122.311>
- Dexter, S., & Barton, E. A. (2021). The development and impact of team-based school technology leadership. *Journal of Educational Administration*, 59(3), 367–384. <https://doi.org/10.1108/JEA-12-2020-0260>
- DeMatthews, D. E., Serafini, A., & Watson, T. N. (2021). Leading Inclusive Schools: Principal Perceptions, Practices, and Challenges to Meaningful Change. *Educational Administration Quarterly*, 57(1), 3–48. <https://doi.org/10.1177/0013161X20913897>
- DeMatthews, D., & Mawhinney, H. (2014). Social Justice Leadership and Inclusion: Exploring Challenges in an Urban District Struggling to Address Inequities. *Educational Administration Quarterly*, 50(5), 844–881. <https://doi.org/10.1177/0013161X13514440>
- Efendi, N., & Sholeh, M. I. (2023). Manajemen Pendidikan Dalam Meningkatkan Mutu Pembelajaran. *Academicus: Journal of Teaching and Learning*, 2(2), 68–85. <https://doi.org/10.59373/academicus.v2i2.25>
- Fitzgerald, J., & Radford, J. (2022). Leadership for inclusive special education: A qualitative exploration of SENCOs' and principals' Experiences in secondary schools in Ireland. *International Journal of Inclusive Education*, 26(10), 992–1007. <https://doi.org/10.1080/13603116.2020.1760365>
- Fernández-Batanero, J. M., Montenegro-Rueda, M., Fernández-Cerero, J., & García-Martínez, I. (2022). Assistive technology for the inclusion of students with disabilities: a systematic review. *Educational Technology Research and Development*, 70(5), 1911–1930. <https://doi.org/10.1007/s11423-022-10127-7>
- Fullan, Michael. (2020). *Leading in a culture of change*. Jossey-Bass.
- Gama, C. B., Rahman, H., & Luhuringbudi, T. (2025). Lecturers ' Digital Readiness in the Context of Digital Scholarchy. *Munaddbomab: Jurnal Manajemen Pendidikan Islam*, 6(2), 208–222.
- Hargreaves, Andy., & Fullan, Michael. (2012). *Professional capital: transforming teaching in every school*. Teachers College Press.
- Harris, A., & Jones, M. (2018). Leading schools as learning organizations. *School Leadership & Management*, 38(4), 351–354. <https://doi.org/10.1080/13632434.2018.1483553>

- Harris, A., Jones, M., & Ismail, N. (2022). Distributed leadership: taking a retrospective and contemporary view of the evidence base. *School Leadership & Management*, 42(5), 438–456. <https://doi.org/10.1080/13632434.2022.2109620>
- Hunzicker, J. (2012). Professional development and job-embedded collaboration: how teachers learn to exercise leadership. *Professional Development in Education*, 38(2), 267–289. <https://doi.org/10.1080/19415257.2012.657870>
- Hariadi, N., Sumardjoko, B., & Maryadi. (2024). Charismatic Leadership in Improving The Quality of Resources in Islamic Boarding School. *Kharisma: Jurnal Administrasi Dan Manajemen Pendidikan*, 3(2), 83–96. <https://doi.org/10.59373/kharisma.v3i2.42>
- Hoppey, D., & McLeskey, J. (2013). A Case Study of Principal Leadership in an Effective Inclusive School. *The Journal of Special Education*, 46(4), 245–256. <https://doi.org/10.1177/0022466910390507>
- Karakose, T., Tülübaş, T., Papadakis, S., & Yirci, R. (2023). Evaluating the Intellectual Structure of the Knowledge Base on Transformational School Leadership: A Bibliometric and Science Mapping Analysis. *Education Sciences*, 13(7), 708. <https://doi.org/10.3390/educsci13070708>
- Kepmendikbudristek. (2022). *Keputusan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia Nomor 56/M/2022 tentang Pedoman Penerapan Kurikulum dalam Rangka Pemulihan Pembelajaran.*
- Kumar, S. (2025). Education 4.0: Transforming Learning for the Fourth Industrial Revolution. *Higher Education for the Future*, 12(2), 144–162. <https://doi.org/10.1177/23476311251326140>
- Lave, J., & Wenger, E. (1991). *Situated learning: legitimate peripheral participation.* Cambridge University Press. <https://doi.org/10.1017/CBO9780511815355>
- Liu, K., Tschinkel, R., & Miller, R. (2024). Digital Equity and School Leadership in a Post-Digital World. *ECNU Review of Education*, 7(3), 762–783. <https://doi.org/10.1177/20965311231224083>
- Larson, C. L., & Murtadha, K. (2002). Leadership for Social Justice. *Teachers College Record*, 104(9), 134–161. <https://doi.org/10.1177/016146810210400907>
- Liasidou, A., & Svensson, C. (2014). Educating leaders for social justice: The case of special educational needs co-ordinators. *International Journal of Inclusive Education*, 18(8), 783–797. <https://doi.org/10.1080/13603116.2013.835878>
- Mandinach, E. Beth., & Gummer, E. S. . (2016). *Data literacy for educators: making it count in teacher preparation and practice.* Teachers College Press.
- Mariyono, D., & Sulistiono, M. (2025). Educational leadership for equitable digital and artificial intelligence transformation in global education. *Research Square.*
- 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>
- Mertens, C., Schaper, F., & Kamin, A.-M. (2024). “ICT for Inclusion” for Educational Leaders: Inclusive and Digital Distributed Leadership (pp. 125–143). https://doi.org/10.1007/978-3-031-60884-1_9
- Miles, M. B., Huberman, A. M., & Saldaña, Johnny. (2019). *Qualitative data analysis: a methods sourcebook.* SAGE Publications, Inc.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook.* SAGE.
- Mintz, J., Connolly, C., O’Brien, E., Daniela, L., & Ceallaigh, T. J. Ó. (2024). Inclusive Digital Education: Contexts, Practices and Perspectives. *Computers in the Schools*, 41(2), 115–119. <https://doi.org/10.1080/07380569.2024.2340873>

- Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record: The Voice of Scholarship in Education*, 108(6), 1017–1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Nuryana, I., & Sirojuddin, A. (2025). Management of The Santri Executive Board in Human Resource Development at The Hidayatullah Islamic Boarding School. *Nidhomul Haq : Jurnal Manajemen Pendidikan Islam*, 10(3), 840–852. <https://doi.org/10.31538/ndhq.v10i3.238>
- OECD. (2020). *Digital education outlook 2020: Shaping Policy, Improving Practice*. OECD Publishing. <https://doi.org/10.1787/589b283f-en>
- OECD. (2024). *Transforming education in Indonesia*. <https://doi.org/10.1787/9ff8d407-en>
- Óskarsdóttir, E., Donnelly, V., Turner-Cmuchal, M., & Florian, L. (2020). Inclusive school leaders – their role in raising the achievement of all learners. *Journal of Educational Administration*, 58(5), 521–537. <https://doi.org/10.1108/JEA-10-2019-0190>
- Rahman, A., Putra, H., & Sari, D. (2023). School Leaders' Readiness for Digital Transformation in Inclusive Settings. *Indonesian Journal of Educational Research*, 12(2), 145–160.
- Reis-Andersson, J. (2024). 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>
- Schildkamp, K. (2019). Data-based decision-making for school improvement: Research insights and gaps. *Educational Research*, 61(3), 257–273. <https://doi.org/10.1080/00131881.2019.1625716>
- Schildkamp, K., Poortman, C. L., Ebbeler, J., & Pieters, J. M. (2019). How school leaders can build effective data teams: Five building blocks for a new wave of data-informed decision making. *Journal of Educational Change*, 20(3), 283–325. <https://doi.org/10.1007/s10833-019-09345-3>
- Sharratt, Lyn., & Fullan, Michael. (2012). *Putting FACES on the data : what great leaders do!* Corwin Press.
- Siyam, N., & Abdallah, S. (2022). A Pilot Study Investigating the Use of Mobile Technology for Coordinating Educational Plans in Inclusive Settings. *Journal of Special Education Technology*, 37(4), 455–468. <https://doi.org/10.1177/01626434211033581>
- Stalmach, A., D'Elia, P., Di Sano, S., & Casale, G. (2023). Digital Learning and Self-Regulation in Students with Special Educational Needs: A Systematic Review of Current Research and Future Directions. *Education Sciences*, 13(10), 1051. <https://doi.org/10.3390/educsci13101051>
- Shernoff, E. S., Lekwa, A. J., Reddy, L. A., & Coccaro, C. (2017). Examining Teachers' Attitudes and Experiences with Coaching to Inform Research-Based Practice: An Iterative Developmental Design Study. *Journal of Educational and Psychological Consultation*, 27(4), 459–485. <https://doi.org/10.1080/10474412.2016.1255850>
- Sirojuddin, A., Maskuri, M., & Ghoni, J. (2025). Integration of Higher Education Curriculum with Islamic Boarding Schools in the Perspective of Multicultural Islamic Education. *Nazhruna: Jurnal Pendidikan Islam*, 8(2), 265–281. <https://doi.org/10.31538/nzh.v8i2.163>
- Tracy-Bronson, C. P. (2024). Leaders' Social and Disability Justice Drive to Cultivate Inclusive Schooling. *Education Sciences*, 14(4), 424. <https://doi.org/10.3390/educsci14040424>
- Theoharis, G. (2007). Social Justice Educational Leaders and Resistance: Toward a Theory of Social Justice Leadership. *Educational Administration Quarterly*, 43(2), 221–258. <https://doi.org/10.1177/0013161X06293717>
- UNESCO. (2021). *Reimagining Our Futures Together: A New Social Contract For Education*. <https://unesdoc.unesco.org/ark:/48223/pf0000379707>
- UNESCO. (2023). *Global Education Monitoring Report 2023: Technology in education: A tool on whose terms?* <https://unesdoc.unesco.org/ark:/48223/pf0000385602>

- Wang, F. (2018). Social Justice Leadership—Theory and Practice: A Case of Ontario. *Educational Administration Quarterly*, 54(3), 470–498. <https://doi.org/10.1177/0013161X18761341>
- Western, S. (2018). The Eco-Leadership Paradox. In *Innovation in Environmental Leadership*. Routledge.
- Yakubova, G., Chen, B. B., Al-Dubayan, M. N., & Gupta, S. (2024). Virtual Instruction in Teaching Mathematics to Autistic Students: Effects of Video Modeling, Virtual Manipulatives, and Mathematical Games. *Journal of Special Education Technology*, 39(1), 51–66. <https://doi.org/10.1177/01626434231177875>
- Zou, Y., Kuek, F., Feng, W., & Cheng, X. (2025). Digital learning in the 21st century: Trends, challenges, and innovations in technology integration. *Frontiers in Education*, 10. <https://doi.org/10.3389/feduc.2025.1562391>