

Instructional Leadership Practices and Their Influence on Teacher Innovation and Student Engagement in Digital Learning Environments

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ABSTRACT: This study investigates the influence of instructional leadership practices on teacher innovation and student engagement in digital learning environments at MAN 1 Tulungagung. The research addresses the need to understand how leadership supports pedagogical transformation in technology-mediated contexts. A qualitative case study design was applied involving school leaders, teachers, and students selected through purposive sampling. Data were collected through semi-structured interviews, classroom observations, and document analysis, then analyzed using thematic analysis. The findings reveal that instructional leadership fosters a supportive environment that strengthens teachers' capacity to innovate through mentoring, collaboration, and reflective supervision. Teachers integrate digital tools and student-centered approaches that enhance the quality of learning experiences. Student engagement increases when instructional practices incorporate interactive and meaningful activities supported by digital platforms. The study also identifies a dynamic relationship in which leadership drives innovation, innovation enhances engagement, and engagement informs continuous instructional improvement. These findings highlight the importance of adaptive leadership in sustaining effective digital learning environments and ensuring alignment between leadership vision, teaching practices, and student needs.

Key words: Instructional Leadership, Teacher Innovation, Student Engagement, Digital Learning

Introduction

The integration of digital technology in education has transformed instructional practices and reshaped how learning is experienced in schools. Classrooms are no longer confined to physical spaces, as digital platforms extend interaction beyond traditional boundaries. Teachers are expected to design learning experiences that combine content knowledge with technological competence, while students are required to navigate complex digital environments. This transformation places instructional leadership at the center of educational change, as school leaders are responsible for guiding teachers through pedagogical shifts and ensuring that digital tools are used in meaningful ways. Instructional leadership is understood as a set of practices focused on improving teaching and learning through vision building, supervision, and professional development. Effective leadership provides direction and

creates a climate where teachers are encouraged to refine their instructional approaches and respond to emerging educational demands (Hallinger, 2020).

The growing emphasis on digital learning requires leaders to move beyond administrative roles and engage directly with instructional improvement. Leadership that prioritizes pedagogical support contributes to teachers' ability to integrate technology into their teaching practices. Teachers who receive continuous mentoring and access to professional learning opportunities demonstrate greater confidence in experimenting with new instructional strategies. Innovation in teaching emerges when educators are supported in exploring alternative approaches, reflecting on their practices, and adapting to the needs of learners. Research indicates that instructional leadership fosters teacher innovation by promoting collaboration, providing feedback, and encouraging reflective practice within professional communities (Leithwood et al., 2020). The presence of a supportive leadership environment allows teachers to take risks in adopting digital tools, leading to the development of creative and flexible teaching methods.

Teacher innovation within digital learning environments involves more than the use of technology. It reflects the ability to design learning experiences that are interactive, student-centered, and aligned with learning objectives. Digital platforms offer opportunities for multimedia integration, collaborative learning, and personalized instruction. These opportunities require teachers to rethink traditional pedagogical models and adopt approaches that emphasize engagement and active participation. Leadership plays a significant role in shaping these practices by ensuring that teachers have access to resources, training, and institutional support. Studies highlight that leadership influences instructional quality by creating conditions that enable teachers to experiment and sustain innovative practices in the classroom (Gümüş et al., 2021).

Digital learning environments also introduce challenges related to student engagement. The absence of physical interaction can reduce students' motivation and participation if learning activities are not designed effectively. Engagement in digital contexts includes behavioral participation, emotional involvement, and cognitive investment in learning tasks. Students are more likely to engage when instructional activities are meaningful, interactive, and relevant to their experiences. The role of teachers becomes critical in facilitating these conditions through the use of digital tools that promote communication and collaboration. Instructional leadership contributes to this process by guiding teachers in designing engaging learning experiences and aligning instructional practices with student needs (Bond & Bedenlier, 2019).

Leadership decisions related to curriculum implementation and supervision influence how engagement is fostered in digital classrooms. School leaders who focus

on instructional quality ensure that teachers receive feedback and support in developing effective learning strategies. This support enables teachers to create learning environments where students feel connected and motivated. Engagement is strengthened when students are given opportunities to interact with content, peers, and teachers through digital platforms. Research shows that student engagement increases when instructional practices incorporate interactive elements such as discussion forums, collaborative projects, and real-time feedback mechanisms (Redmond et al., 2018). These findings emphasize the importance of leadership in shaping the conditions that support active learning.

The relationship between instructional leadership, teacher innovation, and student engagement reflects a dynamic and interconnected process. Leadership practices influence how teachers approach instruction, while innovative teaching strategies shape students' learning experiences. Student engagement then provides feedback that informs instructional improvement and leadership decisions. This cycle illustrates how educational processes are continuously shaped by interaction among these elements. Instructional leadership serves as a driving force that aligns teaching practices with institutional goals and student needs. The effectiveness of digital learning environments depends on how well these elements are integrated within a coherent framework.

Understanding this relationship requires attention to the contextual factors that influence educational practices. School culture, access to technology, and professional collaboration all contribute to how leadership is enacted and experienced. Leadership that fosters collaboration encourages teachers to share knowledge and develop collective expertise. Such environments support sustained innovation and continuous improvement. Studies suggest that collaborative leadership practices enhance both teacher capacity and student outcomes by creating shared responsibility for learning (Harris & Jones, 2020). This perspective highlights the importance of leadership as a relational process that connects individuals within the educational system.

The need for adaptive leadership becomes evident in the context of rapid technological change. School leaders are expected to respond to evolving demands while maintaining a focus on instructional quality. Adaptive leadership involves flexibility, responsiveness, and the ability to support teachers in navigating uncertainty. Leaders who demonstrate these qualities are better positioned to sustain innovation and engagement in digital learning environments. This approach emphasizes continuous learning and the willingness to adjust practices based on feedback and reflection. The alignment between leadership actions, teacher practices, and student experiences becomes a critical factor in achieving effective learning outcomes.

Based on this background, this study addresses the following research questions: how do instructional leadership practices shape teacher innovation in digital learning environments at MAN 1 Tulungagung; how do instructional leadership practices influence student engagement in digital learning contexts; and how are instructional leadership, teacher innovation, and student engagement interconnected within digital learning environments?

Method

This study employs a qualitative case study design to explore instructional leadership practices and their influence on teacher innovation and student engagement in digital learning environments at MAN 1 Tulungagung. A qualitative approach is appropriate for capturing in-depth perspectives and understanding complex social phenomena within their real-life context. The case study design allows the researcher to investigate interactions among leadership practices, teaching strategies, and student experiences in a bounded system. This approach facilitates a holistic understanding of how instructional leadership is enacted and experienced by different stakeholders within the school setting (Yin, 2018).

Participants in this study include the principal, vice principal for curriculum, teachers, and students who are actively involved in digital learning implementation. Purposive sampling was used to select participants based on their roles and experiences related to instructional leadership and digital learning practices. The principal and vice principal were selected due to their direct involvement in decision-making and instructional supervision. Teachers were chosen based on their engagement in implementing digital learning strategies, while students were included to provide insights into their learning experiences and levels of engagement. This selection ensures that the data reflect diverse perspectives and provide a comprehensive understanding of the research focus (Creswell & Poth, 2018).

Data collection was conducted using multiple techniques to enhance the depth and validity of the findings. Semi-structured interviews were used to explore participants' perceptions, experiences, and interpretations of instructional leadership and digital learning practices. The interview format allowed flexibility in probing deeper into relevant issues while maintaining consistency across participants. Classroom observations were carried out to examine how teaching practices were implemented in digital learning environments, including the use of technology, interaction patterns, and student participation. Document analysis was also conducted to review lesson plans, institutional policies, and digital learning guidelines. These documents provided contextual information about how leadership practices are translated into formal

structures and instructional planning. The use of multiple data sources enables triangulation, which strengthens the credibility and richness of the data (Patton, 2015).

Data analysis followed a thematic approach aimed at identifying patterns and relationships within the data. The process began with data reduction, where raw data from interviews, observations, and documents were organized and selected based on relevance to the research questions. Coding was then conducted to label significant segments of data, followed by categorization to group similar codes into broader themes. These themes were interpreted to explain how instructional leadership practices influence teacher innovation and student engagement. The analysis process was iterative, allowing continuous refinement of themes as new insights emerged. This approach supports a systematic and rigorous examination of qualitative data while maintaining sensitivity to context (Braun & Clarke, 2006).

To ensure trustworthiness, several strategies were applied throughout the research process. Triangulation of data sources was used to compare findings from interviews, observations, and documents. Member checking was conducted by sharing preliminary findings with participants to confirm the accuracy of interpretations. Prolonged engagement in the research setting allowed the researcher to develop a deeper understanding of the context and build trust with participants. These strategies enhance the credibility, dependability, and confirmability of the study. The methodological design provides a robust framework for examining the complex relationships between instructional leadership, teacher innovation, and student engagement in digital learning environments.

Results and Discussion

Instructional Leadership and Teacher Innovation

Instructional leadership at MAN 1 Tulungagung is characterized by a strong emphasis on continuous professional support and structured guidance aimed at improving instructional quality in digital learning environments. The principal plays an active role in mentoring teachers through regular academic supervision, reflective discussions, and targeted training programs focused on digital pedagogy. These leadership practices shape a professional climate where teachers are encouraged to refine their instructional approaches and explore new teaching strategies. Teachers report that consistent mentoring and access to professional development opportunities contribute to increased confidence in integrating digital technologies into classroom practice. This finding reflects the perspective that instructional leadership directly influences teaching quality by focusing on capacity building and pedagogical improvement (Robinson et al., 2008).

Teacher innovation becomes visible through the adoption of multimedia resources, interactive platforms, and student-centered instructional approaches. Teachers demonstrate the ability to design learning activities that combine digital tools with active learning strategies, such as project-based tasks, online discussions, and collaborative assignments. These practices indicate that innovation is not limited to the use of technology but extends to the transformation of pedagogical approaches that promote student participation and engagement. Leadership support plays a critical role in enabling this transformation by providing access to resources and fostering a culture of experimentation. Studies show that leadership that prioritizes instructional improvement contributes to teachers' willingness to innovate and adapt their teaching practices in response to changing learning environments (Hallinger & Wang, 2015).

The presence of a collaborative professional culture strengthens the development of teacher innovation within the school. Teachers engage in joint lesson planning, peer discussions, and informal knowledge sharing, which allow them to exchange ideas and refine instructional strategies. This collaborative environment supports continuous learning and encourages teachers to reflect on their practices. Reflection becomes an integral part of innovation, as teachers evaluate the effectiveness of their teaching methods and make adjustments based on student responses. Leadership facilitates this process by creating opportunities for collaboration and ensuring that teachers have time and space to engage in professional dialogue. Research highlights that collaborative leadership practices enhance teacher learning and contribute to sustained instructional improvement (Admiraal et al., 2021).

Access to digital tools and institutional support further strengthens teachers' capacity to innovate. The availability of learning management systems, interactive applications, and digital content resources enables teachers to design engaging and flexible learning experiences. Institutional policies that support the integration of technology provide a clear framework for instructional practices. Teachers are able to align their instructional goals with digital tools that enhance learning outcomes. This alignment reflects the importance of leadership in ensuring that technological resources are used effectively and purposefully. The integration of digital tools becomes meaningful when it is supported by pedagogical strategies that focus on student learning rather than technology use alone (Koehler et al., 2013).

Leadership practices at MAN 1 Tulungagung also emphasize the importance of creating a safe environment for experimentation. Teachers feel supported in trying new approaches without fear of failure, which encourages them to take risks in their instructional practices. This sense of psychological safety contributes to the development of innovative teaching methods and fosters a mindset oriented toward

continuous improvement. Innovation emerges as a response to leadership that values growth, flexibility, and creativity within the teaching profession. Teachers become more open to adopting new ideas and integrating them into their instructional practices. Evidence from previous studies suggests that supportive leadership environments play a significant role in promoting teacher agency and innovation in educational settings (Liu & Hallinger, 2018).

The relationship between instructional leadership and teacher innovation reflects a dynamic interaction between guidance, support, and professional autonomy. Leadership provides direction and resources, while teachers exercise creativity in designing and implementing instructional strategies. This interaction creates a balanced approach that supports both structure and flexibility in teaching practices. Teachers are able to align their innovations with institutional goals while maintaining the freedom to adapt their methods to student needs. This balance contributes to the sustainability of innovation within digital learning environments and supports long-term instructional improvement.

These findings demonstrate that instructional leadership serves as a key driver in shaping teacher innovation. Leadership practices that focus on mentoring, collaboration, and resource provision create conditions that enable teachers to develop creative and effective instructional strategies. The emphasis on professional growth and reflective practice supports continuous improvement in teaching quality. Teacher innovation emerges as a product of both individual initiative and collective support within the school environment. This relationship highlights the importance of leadership in fostering a culture that values learning, adaptability, and innovation in the context of digital education.

Instructional Leadership and Student Engagement

Student engagement in digital learning environments at MAN 1 Tulungagung is closely connected to how teachers design and implement instructional activities using technology. Classroom observations and interview data show that engagement increases when teachers employ interactive digital tools such as quizzes, discussion forums, and collaborative assignments. These tools enable students to participate actively and interact with both content and peers. Engagement is not limited to visible participation but also includes cognitive involvement and emotional connection to learning tasks. Instructional leadership contributes to this process by guiding teachers in selecting appropriate strategies and aligning instructional design with student needs. Leadership practices that focus on instructional quality create conditions where teachers are able to design learning experiences that promote active engagement (Fredricks et al., 2004).

The role of leadership is evident in the way teachers are supported to develop engaging learning environments. The principal provides direction through supervision and feedback, while also encouraging the use of digital tools that enhance interaction. Teachers report that leadership support helps them understand how to integrate technology in ways that go beyond content delivery. Learning activities are designed to include elements of collaboration, problem-solving, and real-world application, which contribute to increased student motivation. Students express greater interest when tasks are relevant to their experiences and allow them to explore ideas in interactive ways. These findings align with research that highlights the importance of instructional design in fostering student engagement, particularly in digital contexts where interaction must be intentionally structured (Henrie et al., 2015).

Student motivation is strengthened when learning activities are meaningful and provide opportunities for active involvement. Digital environments offer flexibility in presenting content through videos, simulations, and interactive platforms. Teachers who are supported by instructional leadership are able to utilize these tools to create varied and stimulating learning experiences. Engagement is reflected in students' willingness to participate in discussions, complete assignments on time, and contribute to collaborative tasks. This pattern indicates that engagement is influenced by both the design of learning activities and the support provided by leadership. Research shows that student engagement increases when learners perceive activities as relevant, challenging, and interactive (Kahu, 2013).

Leadership also plays a role in ensuring consistency in instructional practices across the school. Through monitoring and evaluation, school leaders ensure that teachers maintain a focus on student-centered learning. This consistency helps create a shared understanding of effective teaching practices and supports the development of a cohesive learning environment. Teachers are encouraged to reflect on their practices and adjust their strategies based on student responses. Reflection becomes an important mechanism for improving engagement, as teachers identify which approaches are effective and which require modification. Studies indicate that reflective teaching practices supported by leadership contribute to improved student engagement and learning outcomes (Tondeur et al., 2017).

Interaction is a key component of engagement in digital learning environments. Students are more likely to engage when they have opportunities to communicate with peers and teachers through structured activities. Discussion forums and collaborative assignments provide spaces for dialogue and knowledge exchange. These interactions support deeper understanding and encourage students to take an active role in their learning. Leadership contributes by promoting instructional approaches that emphasize

interaction and collaboration. Teachers who receive guidance and support are better equipped to facilitate these interactions and create inclusive learning environments. Research suggests that social interaction in digital learning environments enhances engagement and supports meaningful learning experiences (Martin & Bolliger, 2018).

The alignment between instructional goals and teaching strategies is another factor that influences student engagement. Leadership ensures that teachers design activities that are consistent with curriculum objectives and student needs. This alignment helps maintain focus and coherence in learning activities. Students are able to understand the purpose of tasks and see the relevance of their learning. Engagement becomes more sustained when students recognize the value of their participation. Leadership practices that emphasize alignment contribute to the effectiveness of instructional strategies and support the development of engaging learning environments (Biggs & Tang, 2011).

These findings demonstrate that instructional leadership plays a central role in shaping student engagement within digital learning environments. Leadership practices that focus on guidance, support, and alignment enable teachers to design learning activities that promote active participation and meaningful interaction. Student engagement emerges as a result of effective instructional design supported by leadership. The relationship between leadership and engagement reflects a continuous process in which teaching practices are shaped, implemented, and refined based on student responses. This process highlights the importance of leadership in creating learning environments that support both participation and deep learning.

Interconnection Between Leadership, Innovation, and Engagement

The relationship between instructional leadership, teacher innovation, and student engagement at MAN 1 Tulungagung reflects a continuous and dynamic cycle in which each element influences and strengthens the others. Instructional leadership provides direction, establishes expectations, and creates conditions that encourage teachers to adopt innovative instructional practices. These innovations, in turn, shape how students experience learning in digital environments, influencing their level of participation, motivation, and interaction. Student engagement then generates feedback that informs further refinement of teaching strategies and leadership decisions. This cycle illustrates that educational improvement is not a linear process but an ongoing interaction among leadership, teaching, and learning practices. Leadership acts as a catalyst that initiates and sustains this cycle by aligning institutional goals with classroom practices (Day et al., 2016).

The alignment between leadership vision, instructional practices, and student needs emerges as a key factor in sustaining effective digital learning environments.

School leaders articulate a vision that emphasizes innovation, collaboration, and responsiveness to change. This vision is translated into practice through policies, professional development programs, and instructional supervision. Teachers interpret and implement this vision by designing learning activities that integrate digital tools and promote active student participation. Students respond to these practices through their engagement, which reflects the relevance and effectiveness of the learning experience. Alignment among these elements ensures coherence in instructional processes and supports the achievement of educational goals. Research indicates that coherence between leadership vision and classroom practice enhances both teacher performance and student outcomes (Fullan, 2014).

Digital learning environments require leadership that is adaptive and responsive to emerging challenges. Rapid technological advancements and shifting educational demands require leaders to support continuous learning and flexibility among teachers. Adaptive leadership involves recognizing the complexity of educational change and responding with strategies that encourage experimentation and reflection. Teachers are supported in exploring new approaches without fear of failure, which fosters a culture of innovation. This culture enables teachers to adjust their practices based on student feedback and evolving learning needs. Evidence suggests that adaptive leadership plays a significant role in promoting innovation and improving instructional effectiveness in technology-rich environments (Heifetz et al., 2009).

Teacher innovation serves as a bridge between leadership practices and student engagement. Innovative teaching strategies transform abstract leadership goals into concrete learning experiences that students can engage with. Teachers design activities that incorporate interactive technologies, collaborative learning, and real-world applications. These strategies create opportunities for students to participate actively and develop deeper understanding of the subject matter. Engagement increases when students perceive learning activities as meaningful and relevant. The connection between innovation and engagement highlights the importance of teacher agency in interpreting and implementing leadership directives. Studies show that teacher innovation is influenced by both individual creativity and the organizational support provided by leadership (OECD, 2019).

Student engagement provides valuable insights that contribute to the continuous improvement of instructional practices. Patterns of participation, interaction, and performance offer feedback that teachers and leaders can use to evaluate the effectiveness of their strategies. Teachers reflect on student responses to identify areas for improvement, while leaders use this information to adjust policies and support mechanisms. This feedback loop strengthens the relationship between leadership and

teaching by ensuring that decisions are informed by actual learning experiences. Engagement becomes an indicator of instructional quality and a guide for future innovation. Research highlights that data-informed leadership enhances the ability of schools to respond to student needs and improve learning outcomes (Datnow & Park, 2018).

The interconnected process among leadership, innovation, and engagement also reflects the importance of organizational culture. A culture that values collaboration, trust, and continuous learning supports the sustainability of this cycle. Teachers are more likely to innovate when they feel supported and recognized, while students are more likely to engage when they experience a positive and inclusive learning environment. Leadership plays a central role in shaping this culture by modeling reflective practices and encouraging open communication. This cultural dimension reinforces the structural aspects of leadership and ensures that innovation and engagement are embedded in daily practices. Studies suggest that positive school culture enhances both teacher effectiveness and student engagement (Deal & Peterson, 2016).

The findings demonstrate that instructional leadership extends beyond supervision and administrative functions. Leadership becomes a process of influencing, supporting, and connecting various elements within the educational system. The interaction between leadership, teacher innovation, and student engagement creates a foundation for sustainable improvement in digital learning environments. Each element contributes to the development of a learning ecosystem that is responsive, adaptive, and focused on continuous growth. Sustained interaction among these elements strengthens instructional practices and enhances the overall quality of education.

Conclusion

Instructional leadership at MAN 1 Tulungagung demonstrates a significant contribution to the development of teacher innovation and student engagement within digital learning environments. Leadership practices that emphasize mentoring, collaborative planning, and reflective supervision create a professional climate that supports continuous learning and pedagogical improvement. Teachers respond to this support by adopting innovative instructional strategies that integrate digital tools with student-centered approaches. These innovations are reflected in the design of interactive learning activities that promote participation, collaboration, and deeper understanding. Student engagement emerges as an outcome of effective instructional design, where learners are actively involved in meaningful learning experiences. The

findings indicate that leadership not only influences instructional practices but also shapes the overall learning environment by fostering a culture of experimentation, reflection, and growth.

The relationship between instructional leadership, teacher innovation, and student engagement reflects an interconnected process that requires sustained alignment. Leadership provides direction and support, teachers translate this into innovative practices, and students respond through their engagement, which then informs further improvement. This cycle highlights the importance of maintaining coherence between leadership vision, instructional strategies, and student needs. Digital learning environments demand leadership that is adaptive and responsive to ongoing changes in technology and pedagogy. Schools benefit from leadership that encourages collaboration, supports professional development, and creates opportunities for teachers to explore new approaches. Sustained commitment to these practices strengthens the capacity of schools to maintain innovation and engagement over time. The study suggests that future efforts should focus on reinforcing collaborative leadership models and expanding the integration of emerging technologies to support continuous improvement in digital education.

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