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School leadership in facilitating deep learning-oriented instruction: a case study within the indonesian independent curriculum

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Abstract

Background: The shift toward 21st-century learning emphasizes the development of critical thinking, creativity, collaboration, and communication skills. However, observations at SMA Negeri 1 Anjongan indicate that students' literacy and conceptual understanding remain at a moderate level, as reflected in difficulties with analytical and reasoning tasks. This condition suggests the persistence of surface learning rather than deep learning, alongside limited optimization of school leadership in supporting the implementation of the Indonesian Independent Curriculum.
Aims: This study aims to analyze the managerial leadership of the school principal, identify strategies employed to support deep learning-oriented instruction, and develop a conceptual model for transforming 21st-century learning practices.
Method: A qualitative case study approach was employed involving one principal, one vice principal, five teachers, and three students selected through purposive sampling. Data were collected through interviews, observations, and document analysis, and analyzed using the Miles, Huberman, and Saldaña model. Data validity was ensured through source, technique, and time triangulation.
Results: The findings reveal that deep learning implementation is strongly influenced by systematic leadership practices. Three key strategies were identified: integration of deep learning into instructional planning, application of active learning approaches such as discussion, project-based learning, and problem-solving, and continuous reflective academic supervision. These strategies contributed to increased student engagement and participation.
Conclusion: The study proposes a three-stage leadership model consisting of strategic planning, innovative implementation, and continuous evaluation, serving as a framework for integrating the Independent Curriculum with deep learning-oriented instruction.

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INTRODUCTION

The development of education in the 21st century requires a fundamental shift in learning paradigms from memorization-based approaches to those emphasizing higher-order thinking skills. Modern learning is designed to equip students with critical thinking, creativity, collaboration, and communication skills that are relevant to global demands (AlAli & Wardat, 2024; Thornhill-Miller et al., 2023). This transformation is driven not only by the advancement of knowledge but also by rapid technological and social changes. In this context, students are expected to demonstrate adaptive and innovative abilities when facing complex problems (Beghetto & Madison, 2022; Mirata et al., 2020). However, the reality in educational settings indicates that the quality of learning has not fully met these expectations. Initial observations at SMA Negeri 1 Anjongan reveal that students' literacy and conceptual understanding remain at a moderate level. This condition is reflected in students'

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difficulties in solving tasks that require analytical reasoning and problem-solving skills. These findings suggest that the learning process has not yet fully promoted meaningful understanding. Instructional practices are still largely dominated by surface learning, which focuses on memorization and routine task completion. Therefore, a transformation toward more meaningful and sustainable learning is urgently needed.

In response to these challenges, the Indonesian government introduced the Independent Curriculum as a policy initiative to promote more flexible and student-centered learning. This curriculum is designed to provide teachers with greater autonomy in adapting instructional strategies to students' needs and characteristics. Differentiated instruction is emphasized as a key approach to accommodate diverse learning abilities (Goyibova et al., 2025). In addition, the curriculum integrates the Pancasila Student Profile as a foundation for developing students' character and competencies (Hakim et al., 2024). Project-based learning is also implemented to encourage active student engagement in the learning process (Almulla, 2020; Chua & Islam, 2021; Morais et al., 2021; Nurfajriah Basri, 2024). Through this approach, students are expected to develop deeper conceptual understanding. However, the implementation of the Independent Curriculum still faces several challenges in practice. One major issue is the limited understanding of deep learning concepts among teachers. Furthermore, inadequate infrastructure and learning resources also affect the effectiveness of implementation. These challenges indicate that successful curriculum reform depends not only on policy design but also on supporting factors at the school level.

In this context, school leadership plays a crucial role in driving instructional transformation. School principals are not only responsible for administrative management but also for leading changes in teaching and learning practices (Acton, 2021; DeMatthews et al., 2021; Dwangu & Mahlangu, 2021; Paletta et al., 2020). Effective leadership can create a supportive and innovative learning environment (Ariyani et al., 2021; Frelin & Grannäs, 2021; Riddel & Zulfikar, 2024). It also enables the development of a shared vision that promotes deep learning implementation. Through strong leadership, teachers can be encouraged to adopt more creative and student-centered instructional strategies. Leadership also contributes to building a collaborative culture among teachers (Çoban & Atasoy, 2020; Fisher, 2021; Poom-Valickis et al., 2022). This is essential to ensure that learning transformation occurs in a consistent and sustainable manner. However, existing studies on leadership and learning tend to be conducted separately. Some studies focus on leadership in improving instructional quality, while others emphasize deep learning approaches. This separation indicates a lack of integration between leadership and instructional transformation. Therefore, there is a need for research that connects these aspects within a unified framework.

Although a substantial body of research has examined the role of school leadership in shaping instructional practices, teacher effectiveness, and student outcomes, most studies primarily focus on the relationship between instructional leadership and variables such as teacher practices, student engagement, and instructional quality (Bellibaş et al., 2021; Sanchez & Watson, 2021; Zhang et al., 2025). Several studies further extend this perspective by incorporating mediating and moderating variables, including teacher agency, collective efficacy, and academic optimism, to explain how leadership indirectly influences learning effectiveness (Kwan, 2020; Özdemir et al., 2025; Wang et al., 2026). However, these studies largely remain confined to examining leadership within the framework of instructional quality and organizational performance, without explicitly addressing its role in facilitating deep learning as a distinct pedagogical paradigm. Conversely, research on deep learning has predominantly focused on curriculum design, technology integration, and pedagogical innovations, often neglecting the structural role of leadership in enabling its implementation (McPhail, 2021; Perrotta & Selwyn, 2020; Weng et al., 2023). This indicates a conceptual fragmentation between leadership studies and deep learning research. Furthermore, the dominance of quantitative approaches in prior studies limits the understanding of how leadership practices

operate contextually in real classroom settings to support deep learning transformation. This gap becomes more evident in the context of educational reform, particularly within the Indonesian Independent Curriculum, where empirical studies integrating school leadership and deep learning implementation remain scarce.

Based on the issues identified, this study aims to analyze the role of managerial school leadership in supporting the implementation of deep learning within the Independent Curriculum. The study also seeks to identify leadership strategies that facilitate 21st-century learning transformation. In addition, it aims to examine how leadership influences classroom instructional practices. Another objective is to explore the dynamics of deep learning implementation at the school level. This study employs a qualitative approach to gain an in-depth understanding of the phenomenon. The findings are expected to provide a comprehensive explanation of the relationship between leadership and instructional practices. Furthermore, this study aims to develop a conceptual model that can guide the implementation of deep learning. The model is intended to bridge the gap between educational policy and classroom practice. This research is also expected to offer practical insights for school leaders in improving instructional quality. Ultimately, the study aims to contribute to the advancement of sustainable educational transformation.

LITERATURE REVIEW

The evolution of education in the 21st century has led to a significant transformation in how learning is conceptualized and implemented. Traditional approaches that emphasize memorization and content delivery are increasingly being replaced by models that prioritize deeper understanding (Bhardwaj et al., 2025; Martin-Alguacil et al., 2024). In this context, deep learning emerges as a key pedagogical approach that focuses on meaning-making and knowledge construction. Deep learning encourages students to connect new information with prior knowledge and apply it in authentic situations (Liu et al., 2022; Sliwka et al., 2023; Weng et al., 2023). This approach also promotes higher-order thinking skills such as analysis, synthesis, and evaluation. Furthermore, deep learning supports the development of lifelong learning competencies that are essential in a dynamic global environment (AlAli & Wardat, 2024; Poquet & de Laat, 2021). Unlike surface learning, which is often limited to recall and repetition, deep learning fosters critical reflection and problem-solving abilities. It also emphasizes student engagement as an active participant in the learning process. The shift toward deep learning requires a reorientation of both teaching strategies and learning environments. Therefore, understanding the principles of deep learning is fundamental for improving educational quality.

Instructional transformation is a central component in achieving meaningful learning outcomes in modern education. This transformation involves shifting from teacher-centered approaches to student-centered learning environments. Active learning strategies play a crucial role in facilitating this transition (Ang et al., 2021; Basdogan & Birdwell, 2023; Rezai et al., 2025). These strategies include collaborative learning, problem-based learning, and project-based learning. Through these approaches, students are encouraged to actively engage in the learning process and take responsibility for their own understanding (Khatter et al., 2024; Sormunen et al., 2020). Active learning also enhances motivation and promotes deeper cognitive processing (Costa & Reis, 2025; Doolittle et al., 2023; Owens et al., 2020). In addition, it provides opportunities for students to develop communication and teamwork skills. Effective instructional transformation requires teachers to adopt flexible and innovative teaching practices (French et al., 2020; Sliwka et al., 2023). However, such transformation is not always easy to implement in real classroom settings. It requires both pedagogical competence and institutional support to be successfully realized.

School leadership has been widely recognized as a critical factor in improving the quality of education. Principals play a vital role in shaping the direction of teaching and learning within a school (Abbaspour et al., 2024; Mthanti & Msiza, 2023; Pan & Chen, 2021). Effective leadership goes beyond administrative tasks and includes guiding instructional practices (Bellibaş et al., 2021; Brauckmann et al., 2023; Nadeem, 2024). School leaders influence how teachers design and deliver learning experiences (Chabalala & Naidoo, 2021; Friesen & Brown, 2022; Sliwka et al., 2023). They also play a role in setting expectations and providing support for professional development. Leadership can create a culture that encourages innovation and continuous improvement. Furthermore, effective leaders foster collaboration among teachers to enhance instructional quality [need citation]. Leadership practices also contribute to the alignment between curriculum goals and classroom implementation (Harris et al., 2020; Pak et al., 2020; Ralebese et al., 2025). However, the impact of leadership is often indirect and mediated through teacher practices. Therefore, understanding the relationship between leadership and instruction is essential for educational improvement.

Curriculum reform is an important strategy for improving educational systems and aligning them with contemporary demands. The Independent Curriculum in Indonesia represents a significant effort to enhance the quality of education through flexibility and innovation. This curriculum emphasizes student-centered learning and the development of holistic competencies (Bhardwaj et al., 2025; Martin-Alguacil et al., 2024). It also promotes differentiated instruction to accommodate diverse learning needs. The integration of character education is another important component of this reform. Project-based learning is widely used as a strategy to support meaningful learning experiences (Almulla, 2020; Hsbollah & Hassan, 2022). Despite its potential benefits, the implementation of the Independent Curriculum faces several challenges. These include limited teacher readiness and insufficient resources. In many cases, the intended outcomes of the curriculum are not fully achieved. Therefore, successful implementation requires strong support from school leadership and stakeholders.

The integration of school leadership and deep learning represents a critical area in contemporary educational research. While both concepts have been widely studied, they are often examined separately. This separation creates a gap in understanding how leadership can facilitate deep learning in practice. Leadership plays a strategic role in connecting policy, curriculum, and classroom instruction. Through effective leadership, schools can create conditions that support deep learning implementation. This includes providing guidance, resources, and continuous evaluation of teaching practices. Leadership also helps in aligning instructional strategies with educational goals. However, there is still limited research that explores this integration in a comprehensive manner. In particular, studies that develop conceptual models linking leadership and deep learning are still scarce. Therefore, further research is needed to bridge this gap and provide a more holistic understanding of educational transformation.

METHOD

Research Design

This study employed a qualitative research approach using a case study design. This approach was selected because the study not only aimed to gain an in-depth understanding of the managerial leadership of the school principal but also to develop a model for transforming deep learning-based instruction in support of 21st-century competencies within the implementation of the Independent Curriculum at SMA Negeri 1 Anjongan. The case study design was considered appropriate as it allows the researcher to investigate complex phenomena within real-life contexts, particularly when the boundaries between the phenomenon and its context are not clearly defined. Furthermore, case study research enables a comprehensive exploration of a bounded system through

multiple sources of evidence. This approach provides a holistic and contextualized understanding of the research problem. The qualitative design also allows for flexibility in capturing participants' perspectives and experiences. It supports the exploration of interactions between leadership practices and instructional transformation. The study focuses on a single case to obtain detailed and in-depth insights. The findings are expected to generate analytical rather than statistical generalizations. Therefore, this design is suitable for exploring under-researched phenomena in educational settings.

Participant

The participants of this study consisted of key stakeholders involved in the implementation of the Independent Curriculum at SMA Negeri 1 Anjongan. A purposive sampling technique was employed to select participants based on specific criteria relevant to the research objectives. The participants included one school principal, one vice principal in charge of curriculum, and five teachers actively involved in implementing the Independent Curriculum. In addition, three students were included as supporting informants to strengthen the findings through data triangulation. The selection of participants was based on their direct involvement in school management and instructional practices. Participants were also chosen based on their understanding of deep learning-based instruction. This approach ensured that the data collected were rich in information and relevant to the research focus. The inclusion of different participant groups allowed for multiple perspectives. This diversity contributed to a more comprehensive understanding of the phenomenon. The sample size was considered sufficient to achieve data saturation in qualitative research.

Instrument

Data collection techniques included in-depth interviews, observations, and document analysis. To ensure systematic data collection, the researcher developed structured research instruments in the form of interview guidelines and observation checklists. The interviews focused on several key aspects, including the principal's vision and policies regarding instructional transformation, leadership strategies in implementing deep learning, support provided to teachers in 21st-century learning, challenges and solutions in implementing the Independent Curriculum, and the impact of leadership on instructional practices. Observations were conducted to examine classroom activities that reflect deep learning, including the teacher's role as a facilitator, student engagement, and the use of innovative teaching strategies. Document analysis involved reviewing school curriculum documents, teaching modules, lesson plans, and reports related to instructional activities. These documents provided additional evidence to support the findings. Data were collected over a period of time to capture consistent patterns. Multiple data sources were used to enhance the credibility of the findings. Field notes were also recorded to document contextual information and researcher reflections.

Data Analysis

Data analysis was conducted using an interactive model involving data collection, data condensation, data display, and conclusion drawing. The analysis process began simultaneously with data collection and continued throughout the study. Data condensation involved selecting, focusing, simplifying, and transforming raw data into meaningful units. Coding techniques were applied to categorize the data into themes and sub-themes. These themes were then analyzed to identify patterns, relationships, and underlying meanings. Data were presented in narrative and tabular forms to facilitate interpretation. The analysis process was iterative and involved continuous refinement of findings. Triangulation was applied to validate the data by comparing

information obtained from different sources and methods. The researcher also engaged in reflective analysis to ensure the consistency of interpretations. Conclusions were drawn based on recurring patterns and thematic connections. This analytical approach ensured a systematic and rigorous examination of the data.

Procedure

The research procedure was conducted through several systematic stages. The first stage involved preparation, including identifying the research problem, reviewing relevant literature, and designing the study. The second stage involved selecting participants using purposive sampling. The third stage consisted of data collection through interviews, observations, and document analysis. Each data collection activity was conducted in a structured and ethical manner. The fourth stage involved organizing and analyzing the collected data using thematic analysis techniques. During this stage, the researcher conducted coding and interpretation of the data. The fifth stage involved validating the findings through triangulation of sources, techniques, and time. The final stage involved drawing conclusions and developing a conceptual model based on the findings. Ethical considerations were maintained throughout the research process, including informed consent and confidentiality. The entire procedure was carried out systematically to ensure the credibility and reliability of the results. This process ensured that the findings accurately reflect the research context.

Figure 1. Research Method Flow

RESULTS AND DISCUSSION

Results

The role of school leadership in deep learning transformation

The findings of this study demonstrate that managerial school leadership at SMA Negeri 1 Anjongan plays a significant role in facilitating the transformation toward deep learning-oriented instruction within the implementation of the Independent Curriculum. The principal's role extends beyond administrative responsibilities and encompasses strategic efforts to guide instructional change. Leadership practices were found to contribute to the alignment between curriculum objectives and classroom implementation. The data indicate that the principal actively promotes learning approaches that emphasize critical thinking, collaboration, creativity, and communication. This suggests that leadership functions as a key structural component in supporting instructional transformation. Furthermore, the findings reveal that leadership influences both teacher practices and student engagement. The principal encourages the adoption of student-centered learning approaches, which contributes to a more interactive classroom environment. As a result, instructional practices begin to reflect the principles of deep learning. These findings highlight the importance of leadership in shaping meaningful learning experiences. Therefore, school leadership can be considered a critical factor in achieving instructional transformation.

Leadership practices across managerial functions

The study identified four main leadership functions that support deep learning implementation, namely planning, implementation, organizing, and supervision. In the planning stage, the principal directs teachers to design learning activities that are contextual and aligned with deep learning principles. Teachers reported that they were encouraged to move beyond content delivery and focus on ensuring students' conceptual understanding. During the implementation stage, the principal promotes the use of active learning strategies such as group discussions, project-based learning, and contextual problem-solving. Observational data indicate that students actively participate in learning activities, including collaborative work and classroom discussions. In terms of organizing, regular coordination meetings and teacher collaboration forums are conducted to ensure consistency in curriculum implementation. These activities support the development of shared understanding among teachers. In the supervision stage, the principal conducts ongoing academic monitoring and provides reflective feedback. This supervision is not limited to evaluation but also serves as professional support for teachers. Overall, leadership practices are implemented systematically across all managerial dimensions.

Impact on instructional practices and student engagement

The findings also indicate that leadership practices have a positive impact on instructional quality and student engagement. Teachers reported increased confidence in applying active learning approaches following leadership guidance. Classroom observations show that students demonstrate higher levels of participation in learning activities. Students are actively involved in discussions, presentations, and group work. This reflects a shift from passive learning to more active engagement. In addition, students exhibit improved critical thinking skills when engaging in problem-solving activities. The learning environment becomes more dynamic and interactive. These findings suggest that leadership indirectly influences student learning outcomes through changes in teacher practices. Furthermore, the results indicate that deep learning practices are gradually being integrated into classroom instruction. This highlights the role of leadership in sustaining instructional innovation. Therefore, leadership contributes significantly to improving both teaching practices and student learning experiences.

Table 1. Summary of leadership practices and their impact on deep learning implementation

Leadership Aspect	Findings	Empirical Evidence
Planning	Integration of deep learning principles into instructional design	Interviews with principal and teachers
Implementation	Use of active learning strategies (discussion, project-based learning, problem-solving)	Classroom observations
Organizing	Coordination through meetings and teacher collaboration forums	Documents and interviews
Supervision	Continuous academic supervision with reflective feedback	Interviews and documentation
Impact	Increased student engagement and development of critical thinking skills	Observations and triangulated data

Data validity and consistency

The credibility of the findings was ensured through triangulation techniques. Source triangulation demonstrated consistency among data obtained from the principal, teachers, and students. Technique triangulation showed that findings from interviews, observations, and document analysis were mutually reinforcing. Time triangulation indicated that the data remained stable across different periods of collection. This consistency suggests that leadership practices are sustained rather than incidental. The use of multiple data sources enhances the reliability of the findings. It also supports the validity of the interpretations. The triangulation process minimizes potential bias in data analysis. As a result, the findings can be considered trustworthy and well-supported. This strengthens the overall rigor of the study. Therefore, the results provide credible evidence of the role of leadership in deep learning transformation.

Emerging conceptual model

Based on the findings, a three-stage conceptual model of school leadership in deep learning transformation is identified. The model consists of strategic planning, innovative instructional implementation, and continuous evaluation through supervision. These stages are interconnected and form a systematic process. Leadership initiates change through planning, facilitates implementation through instructional practices, and sustains improvement through evaluation. This model reflects the dynamic relationship between leadership and classroom practices. It also illustrates how leadership bridges curriculum policy and instructional implementation. The model emphasizes the importance of continuous improvement. Furthermore, it highlights the role of leadership in maintaining instructional quality. The conceptual model provides a practical framework for schools seeking to implement deep learning. It also contributes to the theoretical understanding of educational leadership.

Discussion

The findings of this study confirm that school leadership plays a fundamental role in driving instructional transformation toward deep learning-oriented practices. This result aligns with previous studies emphasizing that leadership is one of the most influential factors in improving educational outcomes, second only to classroom instruction. The present study extends this understanding by demonstrating that leadership is not only influential but also acts as a structural mechanism that directly shapes instructional practices. While earlier research suggests that leadership effects are often indirect and mediated through teacher behavior, this study provides evidence that leadership can also exert a more explicit and strategic influence. The principal in this study actively guided teachers to redesign instructional approaches, indicating a more direct involvement in pedagogical transformation. This finding contrasts with the traditional view that principals primarily influence learning through organizational climate (Lin & Chen, 2023). Instead,

the results highlight leadership as an integrated function that combines managerial and instructional roles (Grant & Drew, 2024; Kwan, 2020; Munna, 2023; Shava & Heystek, 2021). Furthermore, the study demonstrates that leadership is closely linked to the implementation of deep learning principles. This supports the argument that effective leadership must go beyond administrative tasks. Therefore, the findings contribute to a more holistic understanding of leadership in educational transformation.

The analysis of leadership practices across managerial functions reveals a systematic pattern consistent with established instructional leadership models. Previous research identifies key leadership dimensions such as defining school goals, managing instructional programs, and fostering a positive learning climate (Alinsunurin, 2020; Wang'ombe, 2023). The present study confirms these dimensions while providing contextual evidence of how they are enacted in practice. In the planning stage, leadership was found to influence instructional design by embedding deep learning principles into lesson planning. This aligns with the notion that setting clear goals and expectations is a core leadership function. During implementation, the promotion of active learning strategies reflects leadership's role in shaping teaching practices (Daly-Smith et al., 2020; Dexter et al., 2020). This is consistent with studies highlighting the importance of leadership in supporting instructional innovation. In terms of organization, collaborative structures such as teacher forums reinforce the concept of distributed leadership (Buyukgoze et al., 2024; Çoban & Atasoy, 2020; Liu & Watson, 2023; Nadeem, 2024). This finding supports the argument that leadership effectiveness is enhanced through collaboration among educators. Moreover, supervision practices in this study emphasize reflection and professional growth rather than control, suggesting a shift toward more developmental leadership approaches.

The impact of leadership on instructional practices and student engagement further strengthens the argument that leadership is a critical driver of educational change. Previous studies have shown that leadership influences student outcomes indirectly through teacher effectiveness and instructional quality. The present study supports this perspective by demonstrating that changes in teaching practices lead to increased student participation. However, this study also reveals that leadership contributes to creating a learning environment that directly supports student engagement. Students were observed to actively participate in discussions, collaborative work, and problem-solving activities. This indicates that leadership influences not only teacher behavior but also the overall learning atmosphere. The findings suggest that deep learning practices are facilitated through a combination of instructional strategies and supportive leadership. This extends existing research by highlighting the contextual dynamics of leadership in classroom settings. Furthermore, the study shows that student engagement is closely linked to the implementation of active learning approaches. Therefore, leadership plays a significant role in enhancing both instructional quality and student learning experiences.

Another important finding of this study is the integration of leadership with deep learning as a unified framework. Previous research on leadership and deep learning has often been conducted separately, leading to fragmented understanding. Leadership studies tend to focus on organizational effectiveness, while deep learning research emphasizes pedagogical innovation. This study bridges that gap by demonstrating how leadership facilitates the implementation of deep learning in practice. The results indicate that leadership acts as a connecting mechanism between curriculum policy and classroom instruction. This aligns with recent perspectives that conceptualize leadership as a dynamic process influencing learning practices. However, the present study goes further by proposing a structured model that integrates leadership and instructional transformation. This model highlights the importance of alignment between strategic planning, instructional implementation, and evaluation. It also emphasizes the role of leadership in sustaining continuous

improvement. Therefore, the study contributes to a more integrated perspective on educational leadership.

Finally, the conceptual model developed in this study provides both theoretical and practical contributions. The three-stage model consisting of planning, implementation, and evaluation reflects a systematic approach to leadership in deep learning transformation. This model aligns with existing theories of instructional and transformational leadership, which emphasize goal setting, instructional support, and organizational development. However, the present study extends these theories by explicitly incorporating deep learning as a central component. The model demonstrates how leadership can be operationalized to support instructional innovation. It also provides a practical framework for school leaders seeking to improve learning outcomes. Furthermore, the model highlights the importance of continuous evaluation in sustaining educational change. This finding supports the argument that leadership must be adaptive and responsive to changing contexts. The study also underscores the need for further research to explore the applicability of this model in different educational settings. Overall, the study contributes to advancing the understanding of leadership in 21st-century education.

Implications

The findings of this study have important implications for both educational practice and policy, particularly in the context of implementing deep learning within the Independent Curriculum. First, the study highlights the need for school leaders to adopt a more active and strategic role in guiding instructional transformation rather than focusing solely on administrative responsibilities. This suggests that leadership development programs should emphasize instructional and transformational leadership competencies. Second, the results indicate that effective leadership can significantly influence teachers' ability to implement deep learning-oriented instruction, implying that continuous professional development should be aligned with leadership initiatives. Third, the study underscores the importance of creating a collaborative school culture that supports innovation and reflective practice among teachers. Fourth, the integration of planning, implementation, and evaluation in leadership practices provides a practical framework that can be adopted by other schools seeking to improve instructional quality. Fifth, the findings suggest that policy implementation, such as the Independent Curriculum, requires strong alignment between leadership practices and classroom instruction. Sixth, educational stakeholders should consider strengthening support systems, including training and mentoring, to enhance leadership effectiveness. Seventh, the study also implies that student engagement and higher-order thinking skills can be improved through leadership-driven instructional strategies. Eighth, the conceptual model developed in this study can serve as a reference for designing leadership interventions in similar educational contexts. Ninth, the findings contribute to bridging the gap between educational policy and practice by emphasizing the role of leadership as a connecting mechanism. Tenth, the study suggests that sustainable educational transformation requires continuous monitoring and reflective evaluation. Finally, these implications provide a foundation for future research and practice aimed at improving the quality of teaching and learning through effective school leadership.

Limitations and Suggestions for Future Research

This study has several limitations that should be acknowledged when interpreting the findings. First, the research was conducted in a single school context, which may limit the generalizability of the results to other educational settings. Second, the use of a qualitative case study design focuses on depth rather than breadth, which may not capture broader patterns across different schools. Third, the number of participants was relatively limited, although it was sufficient for achieving data saturation within the scope of the study. Fourth, the findings rely heavily on participants' perspectives, which may be influenced by subjective interpretations and potential bias. Fifth, the

study primarily examined leadership practices within a specific implementation phase of the Independent Curriculum, which may not fully represent long-term dynamics. Sixth, external factors such as institutional policies, socio-cultural context, and resource availability were not explored in detail. Seventh, the study focused on managerial leadership without extensively examining other leadership styles that may also influence deep learning. Eighth, the measurement of student outcomes was based on observational indicators rather than quantitative assessment data. Ninth, future research is recommended to involve multiple schools to enhance the generalizability of findings. Tenth, subsequent studies could employ mixed-method approaches to integrate qualitative insights with quantitative validation. Eleventh, further research is also needed to explore the long-term impact of leadership on deep learning outcomes. Finally, future studies may develop and test the proposed conceptual model in different educational contexts to strengthen its applicability and theoretical contribution.

CONCLUSION

This study concludes that managerial school leadership plays a pivotal role in facilitating the transformation toward deep learning-oriented instruction within the implementation of the Independent Curriculum. The findings demonstrate that effective leadership extends beyond administrative functions and actively shapes instructional practices in the classroom. School leadership was found to influence how teachers design, implement, and evaluate learning activities aligned with deep learning principles. The study also reveals that leadership practices contribute to creating a learning environment that promotes student engagement and higher-order thinking skills. Through systematic planning, innovative implementation, and continuous evaluation, leadership supports the integration of deep learning into everyday teaching practices. The results further indicate that leadership functions as a connecting mechanism between curriculum policy and instructional implementation. This highlights the importance of aligning leadership strategies with educational goals to achieve meaningful learning outcomes. In addition, the study shows that collaboration, reflective practice, and ongoing supervision are essential components of effective leadership. The conceptual model developed in this study provides a structured framework for understanding the role of leadership in instructional transformation. This model emphasizes the interdependence between leadership actions and classroom practices. The findings also contribute to expanding the theoretical understanding of leadership by integrating it with deep learning concepts. Overall, this study underscores the critical importance of leadership in driving sustainable educational transformation in the 21st century.

AUTHOR CONTRIBUTIONS STATEMENT

Erlina Cahyana designed the study, conceptualized the research on school leadership in facilitating deep learning-oriented instruction, and led the data collection and qualitative analysis using interviews, observations, and document analysis. Agung Hartoyo contributed to the development of the theoretical framework on instructional transformation and deep learning, refined the literature review, and supported the interpretation of leadership practices within the Independent Curriculum context. Imran provided expertise in educational leadership and qualitative research methodology, contributed to data validation through triangulation, and supported the development of the conceptual leadership model. All authors contributed to writing, reviewed the manuscript critically for important intellectual content, and approved the final version.

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