

STRATEGIC MANAGEMENT OF SCHOOL PRINCIPALS IN IMPLEMENTING INNOVATIVE CURRICULUM BASED ON DEEP LEARNING TO STRENGTHEN 21ST CENTURY SKILLS

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Abstract

This study aims to describe the principal's strategic management in implementing an innovative deep learning-based curriculum to strengthen 21st-century skills at SMP Negeri 1 Biatan, Berau Regency, East Kalimantan. A qualitative case study approach was employed. Data were collected through in-depth interviews, participatory observation, and document analysis, then analyzed through data condensation, display, and conclusion drawing. Trustworthiness was ensured through source and method triangulation. Findings show the principal applies strategic management regularly and integratively. Strategic planning focuses on student-centered learning and 4C skills through school needs analysis and stakeholder collaboration. Strategic organizing is carried out through clear role distribution, curriculum team formation, regular coordination, teacher learning communities (Kombel SNESA), and flexible scheduling. Strategic implementation is realized through active discussion- and project-based learning, supported by academic supervision and continuous teacher development. Strategic supervision and evaluation are conducted through periodic instrument-based supervision with follow-up improvements and transparent communication to parents.

Keywords: Deep Learning; Curriculum Implementation; Principal; 21st-Century Skills; Strategic Management

INTRODUCTION

The changing times in the context of the Industrial Revolution 4.0, Society 5.0, and the digital era present new challenges and opportunities in education. The Industrial Revolution 4.0 is characterized by the integration of cyber-physical technology, the Internet of Things (IoT), and artificial intelligence (AI) into production and service processes. In this context, education plays a crucial role in preparing individuals to meet changing skills needs (Aini et al., 2020). Society 5.0 focuses on creating a more humane society by combining technological innovation with social welfare. The implementation of Society 5.0 requires education that can facilitate relevant knowledge and skills, including collaborative and critical thinking skills (Afandi, 2023). 21st-century education is expected to prepare students with critical thinking, collaboration, creativity, and communication (the 4Cs). Research shows that STEM-based approaches have proven effective in developing these skills (Aini et al., 2020; Purba et al., 2022; Muawiyah, 2024). Furthermore, technology integration in learning, such as the use of digital platforms and AI-based learning, is increasingly important to support 21st-century skills training (Trisnawati et al., 2023). The implementation of an innovative deep learning-based curriculum at SMP Negeri 1 Biatan, Berau Regency, East Kalimantan, faces several complex challenges. Not all schools are ready to adopt comprehensive curriculum changes. Key obstacles include limited human resources (HR), infrastructure supporting technology-based learning, and an organizational culture that does not fully support innovative and collaborative learning. Furthermore, teacher readiness in digital literacy and higher-order thinking skills (HOTS)-based learning approaches is also a significant challenge (Sinaga et al., 2024). The role of school principals has evolved significantly beyond traditional administrative duties, requiring them to assume transformational and innovative leadership roles. Principals no longer act solely as administrative managers but rather as visionary leaders who apply strategic management practices to ensure the effective planning,

implementation, and evaluation of curriculum initiatives (Megayanti & Asri, 2022; Susanti et al., 2023; Panjaitan et al., 2026). Transformational leadership in the educational context encompasses the ability to inspire and motivate staff, encourage collaboration among teachers, and create an environment conducive to innovation (Khotimah & Noor, 2024; Purba et al., 2026). The application of strategic management in schools, particularly in the context of innovative deep learning-based curricula, remains relatively underexplored in the academic literature. Many studies only discuss curriculum innovation in general or the role of principals broadly, without specifically examining the principal's methodology for integrating deep learning into the school curriculum (Fiangga et al., 2023). Therefore, this study has novelty by focusing the study on the principal's strategic management in implementing an innovative curriculum based on deep learning as an integrated institutional strategy to strengthen students' 4C skills, thus providing conceptual and empirical contributions to the development of educational management practices at the junior high school level. Based on this description, this study aims to describe: (1) strategic planning, (2) strategic organizing, (3) strategic implementation, and (4) strategic monitoring and evaluation carried out by the principal in implementing an innovative curriculum based on deep learning to strengthen 21st century skills at SMP Negeri 1 Biatan.

LITERATURE REVIEW

Strategic Management in Education

Strategic management in education is a crucial foundation for educational units to respond to the increasingly complex dynamics of internal and external environmental change, including quality demands, digital transformation, and the strengthening of 21st-century skills. In the context of schools, strategic management is understood not only as the development of long-term plans, but as a comprehensive process that guides educational organizations in establishing a vision, analyzing needs and challenges, managing resources effectively, and ensuring consistent policy implementation through ongoing evaluation.

Understanding Strategic Management

Strategic management is a crucial process in managing an organization, encompassing the formulation, implementation, and evaluation of decisions involving various functions within the organization to achieve desired goals. According to David and David (2014), strategic management can be defined as the art and science of formulating, implementing, and evaluating cross-functional decisions that enable an organization to achieve its goals. This definition implies that strategic management focuses on the integration of management, marketing, finance, and operations to achieve the effectiveness of established strategies (Boediman, 2020).

Alharbi (2024) emphasized the importance of understanding various definitions and approaches in selecting the most appropriate strategy for an organization, pointing out that it is not only important to have a strategic plan but also to continuously adapt it to existing conditions and challenges. Strategic management also requires ongoing performance evaluation and feedback. By applying a situational analysis approach such as SWOT, an organization can better understand its position and identify existing opportunities and threats (Uddin et al., 2024). Overall, strategic management encompasses thorough planning, efficient implementation, and ongoing monitoring to ensure the organization remains relevant and competitive in an ever-changing environment.

Characteristics and Principles of Strategic Management

Key characteristics of strategic management include the ability to plan long-term, adapt to changes in the external environment, and make comprehensive decisions based on in-depth analysis of the organization's internal and external conditions (Budiman & Suparjo, 2021). Strategic management requires the involvement of all elements of the organization, from stakeholders to the executive team, thus prioritizing synergy and collaboration to achieve established strategic goals.

Strategic management principles such as stakeholder engagement, transparency, and the application of ethical values are also crucial (Riski, 2023). Management control and good governance are two crucial aspects of implementing effective strategic management. The application of analytical tools such as the Balanced Scorecard can be an effective method for assessing performance results across multiple dimensions, not just financial but also non-financial aspects that influence organizational success (Afni et al., 2022). Strategic management is a dynamic process involving integrated planning, implementation, monitoring, and evaluation to achieve long-term success.

Strategic Management Functions in Educational Institutions

The strategic management function in educational institutions is crucial for improving the quality of teaching and learning and achieving long-term educational goals. Strategic management plays a role in formulating the vision and mission of the educational institution and planning the steps to achieve these goals. As stated by Castillo et al. (2024), the implementation of sound strategic planning can improve various aspects of educational management, including academic performance and student satisfaction.

One of the significant functions of strategic management is developing an organizational culture that supports collaboration and commitment (Neyiřci & Erdođan, 2022). Strategic management also serves to improve performance through market analysis and SWOT analysis, allowing educational institutions to identify existing strengths, weaknesses, opportunities, and threats (Gürel, 2017). The application of strategic leadership principles is crucial to driving necessary change, where every member of the educational institution must be actively involved in educational change to achieve sustainability and success (Neyiřci & Erdođan, 2022). Overall, the successful implementation of strategic management in educational institutions depends heavily on the involvement of all stakeholders and the use of appropriate analytical tools.

Strategic Management Process: Planning, Organizing, Implementing, and Evaluating

The strategic management process is divided into four main interrelated stages. First, the planning phase is an essential initial step, where the educational institution formulates its vision, mission, and objectives through environmental analysis, strategy formulation, and the development of a clear action plan (Alharbi, 2024). Second, the organizing phase involves establishing the organizational structure and allocating the resources needed to implement the strategic plan, ensuring all elements within the educational institution function synergistically (Sutomo, 2007). Third, the implementation phase requires good communication and a flexible strategy to address potential challenges (Kurniadi et al., 2024). Fourth, evaluation is crucial for assessing the effectiveness of the implemented strategy, measuring success, and identifying areas for improvement so the organization can adapt quickly to change (Uddin et al., 2024).

Strategic Management Models

Various strategic management models have been developed and widely adapted in the management of public and educational organizations. Bryson's strategic planning model emphasizes the importance of environmental analysis, stakeholder engagement, the formulation of a clear vision and mission, and the development of strategies based on organizational values and needs. In the school context, this model positions the principal as a strategic actor who must be able to accommodate the interests of various parties—teachers, students, parents, and the community—in the planning and decision-making process.

Kaplan and Norton's Balanced Scorecard model views organizations from four primary perspectives: financial, customer, internal processes, and learning and growth. In the school context, this model can be interpreted as an effort to balance student academic performance, school community satisfaction, learning process effectiveness, and teacher professional development. Furthermore, the School-Based Management (SBM) model emphasizes granting schools autonomy to manage resources, curriculum, and learning according to local characteristics and needs, encouraging the active participation of teachers, the Deputy Curriculum Director, and the community in program planning and evaluation. In practice, these models are often combined and adapted to the school's context and capacity, with the principal playing a role in integrating strategic management principles into the planning, organizing, implementing, and evaluating of school programs.

Principal Leadership

Principal leadership is a key determinant of the quality of education delivery, as it serves as a visionary, driving force for change, and ensuring the quality of the learning process. Leadership encompasses not only administrative skills but also the ability to build a conducive organizational culture, empower teachers, collaborate with stakeholders, and make strategic decisions based on the school's needs. Principals must delegate authority to vice principals, teachers, and school staff to develop their leadership potential (Saengsawang, 2024). This distributed leadership supports efficiency and collaboration in schools (Bush, 2023). Transformational leadership is characterized by the principal's ability to create a clear vision and motivate staff to innovate, encompassing four indicators: idealized influence, individual attention, inspirational motivation, and intellectual stimulation (Sania et al., 2024). In the context of implementing the Merdeka Belajar policy, principals are expected to act like CEOs, focusing not only on academic achievement but also on developing students' character and skills (Megayanti & Asri,

2022). A principal's managerial competence in managing change is a crucial aspect in improving the quality of education. The ability to formulate a clear vision and mission, effective communication, regular supervision and evaluation, and efficient resource management are key pillars of transformational leadership (Fahma et al., 2024; Kadarsih et al., 2020). In the digital era, principals are also required to implement technology-based school management and ensure teachers possess the necessary digital competencies (Johanes et al., 2022; Muslim, 2021). Leadership challenges in the digital era require principals to continuously improve their managerial competence to effectively manage change through a progressive and adaptive attitude (Simatupang et al., 2023).

Implementation of Innovative Curriculum

The implementation of an innovative curriculum is a crucial part of efforts to improve the quality of education because the curriculum serves not only as a planning document but also as an operational guideline that determines the direction, process, and quality of classroom learning. An innovative curriculum refers to the development of a curriculum that is adaptive and responsive to the needs and dynamics of current educational challenges, with an emphasis on active and participatory learning approaches. The Independent Curriculum, for example, is designed to provide freedom for teachers and students in the teaching and learning process, encourage deeper engagement, and facilitate creativity and innovation in teaching (Hapsan & ME, 2023; Indriani et al., 2023).

The main characteristics of an innovative curriculum include flexibility in responding to student needs, a project-based approach, technology integration in learning, and the development of critical, creative, and collaborative thinking skills (Rusandi et al., 2024; Faisal et al., 2024). The principles underlying an innovative curriculum include: active student participation, relevance of the material to real life, flexibility, collaboration and interaction, and continuous development that is able to adapt to developments in science and technology (Angga et al., 2022; Dewi et al., 2019).

Implementing an innovative curriculum requires systematic planning, ongoing training for educators, and synergy among stakeholders. The initial stage begins with an analysis of the conditions and needs of the educational unit through the development of a contextual KOSP (Husain et al., 2023; Kurniawan et al., 2024). The role of the principal is crucial in this implementation, encompassing roles as a driver and innovator driving curriculum transformation, a facilitator for teachers in professional development, a mediator between various stakeholders, and a supervisor conducting regular monitoring and evaluation (Megayanti & Asri, 2022; Khotimah & Noor, 2024; Isa et al., 2022). Transformational leadership is key to driving the success of the new curriculum program because the principal acts not only as an administrator but also as a learning leader and facilitator of change.

Strengthening 21st Century Skills

Strengthening 21st-century skills has become a strategic agenda in education because social, economic, and technological changes require students not only to master knowledge but also to possess higher-order thinking skills and adaptive life skills. 21st-century skills can be defined as an individual's ability to succeed in the workplace, actively participate in society, and adapt to rapid change. One widely adopted framework is the "4Cs": critical thinking, communication, collaboration, and creativity (Angga et al., 2022; Aliftika et al., 2019).

Critical thinking skills include analyzing information, evaluating arguments, and making decisions based on valid data (Angga et al., 2022). Communication skills involve conveying ideas effectively through various media (Mulyono & Ampo, 2021). Collaboration is highly relevant in today's workplace and education, which emphasize project work (Aliftika et al., 2019). Creativity means the ability to generate new ideas or innovative solutions, which are essential for problem-solving (Muttaqiin, 2023). 21st-century skills also encompass basic literacy, digital literacy, soft skills such as empathy and emotional intelligence, and life skills including self-management and adaptability (Zulkarnain et al., 2022; Junedi et al., 2020).

Various pedagogical strategies can be adopted to support the integration of 4C skills into learning. A learning-by-doing approach through project-based learning has been shown to be effective in fostering creativity and collaboration (Volta & Nahdiyah, 2024). The use of Socratic questioning techniques encourages critical thinking by stimulating students to ask reflective questions (Oktariani et al., 2020). Technology integration is a crucial aspect in supporting digital skills, while learning evaluation must consider the achievement of 4C skills through assessment instruments capable of measuring critical thinking, communication, creativity, and collaboration (Angga et al., 2022; Noptario et al., 2024). In the context of implementing the Independent Curriculum, strengthening these skills positions students as the center of active, reflective, and contextual learning (Rayhana, 2024; Lubis et al., 2023).

METHOD

This research uses a qualitative approach with a case study method chosen because it allows researchers to gain a contextual and comprehensive understanding of the principal's experiences, strategies, and perspectives in managing a learning process oriented towards critical thinking, collaboration, creativity, and communication at SMP Negeri 1 Biatan, Berau Regency, East Kalimantan. Through this qualitative approach, researchers can directly observe how the principal formulates learning policies, provides facilitation and support to teachers, and builds a school climate conducive to student competency development in accordance with the demands of the Independent Curriculum. The research was conducted over approximately five months, from November 2025 to April 2026, encompassing preparation, data collection, data analysis, and report preparation. The primary data sources (informants) consisted of the principal as the strategic decision-maker, the vice principal for curriculum (Waka Kurikulum), and subject teachers who directly implemented the learning process in the classroom.

Data were collected through three main techniques: (1) in-depth semi-structured interviews with the principal, the Deputy Curriculum Officer, and teachers; (2) participatory observation of classroom learning processes, coordination meetings, and school managerial activities; and (3) documentation studies covering the KOSP, RPP, teaching materials, supervision reports, and visual documentation of school activities. Data analysis used the Miles, Huberman, and Saldana (2014) model, which includes data condensation stages with thematic coding based on aspects of planning, organizing, implementing, and supervising; data presentation in descriptive narratives and thematic matrices; and drawing and verifying conclusions. Data validity was ensured through source triangulation and technical triangulation by comparing the results of interviews, observations, and documentation.

RESULTS AND DISCUSSION

This discussion section aims to interpret the research findings more deeply by linking them to educational management theory and concepts, so that the research results are understood not only as field facts but also as a description of managerial processes with meaning and implications. Through the discussion, the researcher outlines how these findings demonstrate the strategic management patterns of school principals in implementing an innovative, deep learning-based curriculum, including school context factors, stakeholder support, and mechanisms for strengthening 21st-century skills.

The Principal's Strategic Planning in Implementing an Innovative Curriculum Based on Deep Learning to Strengthen 21st Century Skills at SMP Negeri 1 Biatan

The planning strategy at SMP Negeri 1 Biatan demonstrates a managerial construct that shifts from the logic of "document compliance" to the logic of "coherent learning change." From a strategic management perspective, establishing a student-centered learning vision directed at strengthening the 4Cs represents a form of strategic intent that provides a clear orientation for all curriculum decisions, from objectives and programs to success indicators. This pattern aligns with the findings of contemporary curriculum management studies that emphasize that effective curriculum reform requires leadership capable of unifying governance, competency design, and the school's professional culture so that the curriculum does not cease to be an administrative document (Kusmawan, 2025). Furthermore, the literature on deep learning within the Independent Curriculum also demonstrates a gap between ideal conceptions and classroom practices when the vision fails to translate into shared meaning; the clarity of the 4Cs orientation in planning at SMP Negeri 1 Biatan can be read as a strategy to reduce implementation fragmentation from the outset (Syaifulloh, 2026).

Planning, which begins with an analysis of school conditions, student characteristics, and teacher potential, demonstrates the application of needs-based planning as well as contextual planning. Theoretically, this practice confirms that KOSP functions as an instrument of strategic adaptation—not simply a uniform standard—so that the curriculum can "land" in diverse classroom realities. This argument is strengthened by a systematic study of deep learning pedagogy, which emphasizes the importance of teacher readiness, school policy support, and contextual adaptation as prerequisites for ensuring deep learning does not become an approach disconnected from field conditions (Nurhasanah et al., 2025). Given the context of SMP Negeri 1 Biatan, which is located in a rural and relatively remote area, the choice of needs-based planning is a rational strategy to ensure curriculum innovation remains implementable within limited resources, while maintaining the relevance of learning to students' life experiences (Pada & Jumadi, 2025). The involvement of the curriculum development team, teachers, the Deputy Curriculum Director, and supervisory input can be interpreted as collaborative planning that builds legitimacy and improves decision quality. Within a school-based management framework, the broader the involvement of stakeholders, the greater the opportunity for shared ownership and reduced implementation resistance. This aligns

with research findings on principals' strategies in overseeing changes to the Independent Curriculum, which emphasizes the importance of vision dissemination, a participatory approach, training, and academic supervision from the early stages of change (Mar'atusholihah & Yahya, 2025). In the Biatan context, the support of the Deputy Curriculum Director serves not only an administrative function but also crucial social capital: rural schools tend to rely heavily on public trust to ensure sustained support from parents and the community for curriculum innovations (Widodo et al., 2024).

The consistent understanding among the principal, teachers, and the Deputy Curriculum Director regarding deep learning as active learning and conceptual deepening can be interpreted as a sign of organizational sensemaking success. Literature shows that deep learning reforms often fail at the "translation" stage because teachers view it as a mere methodological label, while schools do not prepare adequate support systems; as a result, implementation becomes inconsistent and leads to change fatigue. When SMP Negeri 1 Biatan was able to build a common understanding among stakeholders, it meant the school had created a strong conceptual foundation for implementation coherence, especially since deep learning requires a shift in pedagogical paradigms, not just changes in teaching materials (Sudirman et al., 2025). Thus, strategic planning at this school can be understood as an effort to build a "pedagogical working agreement" that binds all school components to the goal of strengthening 21st-century skills (Syaifulloh, 2026).

Strategic Organization of the Principal in Implementing an Innovative Curriculum Based on Deep Learning to Strengthen 21st Century Skills at SMP Negeri 1 Biatan

The organization at SMP Negeri 1 Biatan demonstrates a systematic division of labor as a prerequisite for implementing innovative curriculum strategies. In educational management theory, strategies will not be implemented without organizational capability built through structure, role clarity, and cross-unit coordination. The division of roles between the principal as the direction-maker, the vice principal for curriculum as the technical manager, and the teachers as classroom implementers signifies vertical alignment, minimizing the risk of policy stalling at the leadership level. This direction aligns with future curriculum management studies that place "leadership-driven curriculum governance" as a key pillar for the consistent execution of curriculum innovation (Kusmawan, 2025).

The formation of a curriculum development team through a decree can be interpreted as an institutionalization strategy for change. Organizationally, the decree and team structure transform innovation from a "personal initiative" to an "official program," thereby reducing dependence on specific individuals and enhancing sustainability. This is relevant to research findings on the implementation of deep learning pedagogy, which show that change often stalls when there is no organizational mechanism binding coordination, decision-making, and implementation responsibility (Sudirman et al., 2025). Thus, the curriculum team at SMP Negeri 1 Biatan functions as a change engine that facilitates consistent implementation and provides a collective workspace to align learning strategies with the school's vision (Mar'atusholihah & Yahya, 2025).

Coordination mechanisms implemented through regular meetings, curriculum team discussions, and communication between teachers mark the development of a learning organization at the school level. In the context of learning change, coordination is not merely an administrative routine, but rather a medium for knowledge exchange, problem solving, and standardization of practices. Empirical evidence on professional learning communities (PLCs) shows that the effectiveness of teacher professional development is largely determined by a clear vision, supportive leadership, and a structured culture of collaboration and reflection (Dinasti Review, 2025). Therefore, the organization that emphasizes horizontal and vertical communication at SMP Negeri 1 Biatan can be seen as a strategy to strengthen teachers' capacity to face the demands of deep learning that require changes in instructional design (Syaifulloh, 2026).

Organizing flexible schedules and managing teacher workloads has strategic significance because deep learning requires more "elastic" learning time, especially for collaborative and project-based activities. From a school operational management perspective, scheduling is a strategic decision because it determines the scope for learning innovation; rigid schedules tend to encourage superficial learning, while adaptive schedules open up opportunities for exploration, discussion, and creative production. Research findings on deep learning-based PjBL indicate that project-based models are more effective when schools provide adequate organizational support—including time allocation, coordination between teachers, and reinforcement of learning tools—so that implementation does not simply "add tasks" but rather restructures the learning process (Nurtamam et al., 2025). In the context of Biatan, which faces resource constraints, schedule and workload flexibility become optimization strategies to ensure pedagogical innovation remains feasible and does not overburden teachers (Widodo et al., 2024).

The Principal's Strategic Implementation in Implementing an Innovative Curriculum Based on Deep Learning to Strengthen 21st Century Skills at SMP Negeri 1 Biatan

The implementation of the strategy at SMP Negeri 1 Biatan can be understood as a pedagogical transformation process that shifts the center of learning activities from the teacher to students through discussions, problem-solving, group work, presentations, and projects. From the perspective of deep learning pedagogy theory, these activities are indicators of a shift from rote-oriented learning to learning that demands conceptual elaboration, reasoning, and active knowledge construction. A systematic study of deep learning confirms that the success of this approach is largely determined by the school's courage to change classroom practices to provide space for exploration and collaboration, rather than simply changing the terminology or format of teaching tools (Nurhasanah et al., 2025). Thus, the implementation at SMP Negeri 1 Biatan demonstrates implementation that moves at the "core" level of learning, namely the design of learning interactions that foster the 4Cs (Syaifulloh, 2026).

The principal's role in ensuring the implementation of deep learning principles through academic supervision demonstrates substantive instructional leadership practices. In modern educational management, the principal acts not only as an administrator but also as a leader of learning, maintaining the quality of learning through classroom monitoring, feedback, and reinforcement of teaching practices. This aligns with research confirming that the principal's academic supervision directly contributes to improving the quality of teacher learning, particularly when supervision is positioned as professional development, rather than merely administrative inspection (Maulana & Suryana, 2023). In the context of deep learning, which demands changes in practice, supervision serves as a guidance and reinforcement mechanism to ensure that active learning strategies truly become professional habits in schools (Sudirman et al., 2025).

Supporting teachers through training, workshops, discussions, and sharing of good practices demonstrates a sustainability-oriented capacity-building strategy. SLR literature on deep learning emphasizes that one of the main barriers to implementation is limited in-depth and consistent professional development; teachers may have positive perceptions, but remain weak in operational-instructional aspects, thus hampering innovation stability (Syaifulloh, 2026). Strengthening teacher competency through learning communities and practice-sharing forums also aligns with PLC findings, which emphasize that collaboration, reflection, and collaborative problem-solving enhance teacher competency and support changes in classroom practice (Dinasti Review, 2025). In the Biatan context, this strategy is crucial because access to external training can be more limited than in urban schools, necessitating the development of an "internal learning engine" to ensure the sustainability of innovation.

The involvement of the school's Deputy Curriculum Principal and intensive communication with parents demonstrate that the implementation of learning strategies is also supported by social accountability. In educational governance, the legitimacy of innovation is strengthened when schools maintain program transparency and view the community as partners, not simply recipients of information. This dimension is even more distinctive at SMP Negeri 1 Biatan because rural contexts tend to have dense social networks; moral support and community participation can be crucial resources for sustaining innovative programs. Research on the strategic leadership of school principals in 21st-century learning emphasizes the importance of transparent communication and community engagement to strengthen support for learning changes (Widodo et al., 2024). At the same time, studies of the implementation of contextualized deep learning strategies emphasize that successful reforms require an ecosystem that adapts to local conditions—including stakeholder synergy—for the strategy to be sustainable in the long term (Pada & Jumadi, 2025).

Strategic Supervision and Evaluation of the Principal in the Implementation of an Innovative Curriculum Based on Deep Learning to Strengthen 21st Century Skills at SMP Negeri 1 Biatan

Supervision and evaluation at SMP Negeri 1 Biatan demonstrates a control mechanism that transcends formal administrative boundaries by emphasizing the quality of the learning process. In management theory, an effective controlling function not only checks compliance but also ensures processes run according to quality standards and generates continuous improvement. The research findings align with academic supervision studies that emphasize that principal supervision can be instrumental in improving learning quality when conducted in a targeted manner through observation, monitoring of teaching materials, and program evaluation (Maulana & Suryana, 2023). In the context of deep learning, the pedagogical orientation of supervision is crucial because the quality of implementation is largely determined by the consistency of classroom practices, not simply the existence of curriculum documents (Sudirman et al., 2025). The use of evaluation instruments such as observation sheets, supervision forms, reflection notes, and learning documentation can be interpreted as evidence-informed management. Conceptually, instruments make evaluations measurable and actionable; schools rely not on intuitive

judgments but on documented evidence. This aligns with the notion that instrument-based academic supervision provides more objective feedback and increases opportunities for change in teaching practices (Maulana & Suryana, 2023). Within the framework of deep learning, teacher reflection notes are also relevant because they position reflection as part of the professional culture, so that supervision does not foster a blaming culture but a learning culture (Syaifulloh, 2026).

The link between supervision results and follow-up improvements to learning strategies indicates a continuous improvement cycle. Theoretically, evaluation becomes strategically valuable when it results in corrective action and capacity building, rather than simply reporting. The literature on deep learning implementation shows that without systematic follow-up, reforms can easily generate resistance and revert to old practices; therefore, reflective discussions, coaching, and evaluation forums are crucial mechanisms for maintaining the sustainability of change (Sudirman et al., 2025). Furthermore, the principal's strategy for overseeing curriculum change emphasizes reinforcement through feedback and learning communities to foster teacher readiness and commitment (Mar'atusholihah & Yahya, 2025).

Transparency of evaluation results to parents through meetings, progress reports, and direct communication demonstrates that evaluation is not only internal but also strengthens public accountability. In the context of educational leadership in the era of digital transformation, this kind of accountability can be read as part of digital leadership in the broadest sense: the principal's ability to orchestrate communication, build trust, and maintain information governance so that change programs gain social support. Research on digital leadership confirms that educational transformation requires leadership capable of building an adaptive work culture and supervision system—no longer dependent on conventional administrative patterns—and strengthening strategic communication with stakeholders (Bendriyanti et al., 2025). Because SMP Negeri 1 Biatan is located in a rural area that relies on community social capital, evaluation transparency is a crucial strategy for maintaining the legitimacy of the deep learning program and ensuring continued community support (Nursi, 2024).

CONCLUSION

Based on the results of research and discussion regarding the strategic management of school principals in implementing an innovative curriculum based on deep learning to strengthen 21st century skills at SMP Negeri 1 Biatan, the following conclusions can be drawn:

1. Strategic planning is geared toward student-centered learning, with the strengthening of 21st-century skills (4Cs) as the primary focus. The planning is contextually structured, based on an analysis of school conditions, student characteristics, and teacher potential. It is conducted collaboratively, involving the curriculum team, teachers, the school's Deputy Curriculum Director, and input from supervisors. A shared understanding among stakeholders is a crucial foundation for understanding deep learning as a real pedagogical change.
2. Strategic organization is achieved through a clear division of roles between the principal, vice principal for curriculum, and teachers, enabling curriculum policies to be translated into classroom operations. Schools establish curriculum development teams through formal assignments, strengthen coordination through regular meetings and communication between teachers, and develop teacher learning communities as a platform for capacity building. Flexible scheduling and a balanced workload support collaborative and project-based learning.
3. Strategic implementation is evident in the transformation of learning practices from teacher-centered to student-centered through discussions, problem-solving, group work, presentations, and projects. The principal assumes a leadership role in learning through direction, mentoring, and academic supervision. Support for teachers is provided through training, workshops, discussions, and the sharing of good practices. This is reinforced by the involvement of the school's Vice Principal for Curriculum and communication with parents to maintain support for the innovative program.
4. Strategic monitoring and evaluation are implemented through learning monitoring, classroom supervision, and regular program evaluations, with an emphasis on the quality of the learning process. The use of structured evaluation instruments allows for objective feedback and continuous follow-up for improvement. Transparency of evaluation results to parents through meetings, progress reports, and direct communication strengthens school accountability and maintains community trust in the implementation of the innovative curriculum.

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