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Strategic management practices for enhancing learning quality and numeracy in elementary schools

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Keywords:	Abstract
strategic management; learning quality numeracy skills	<i>This study examines the application of a comprehensive strategic management model in an elementary school participating in Indonesia's Sekolah Penggerak program, with a particular focus on its conceptual contribution to understanding school-based strategic management in primary education. Drawing on Fred R. David's strategic management framework, the research explores how the stages of strategy formulation, implementation, and evaluation are adapted and operationalised within the context of an elementary school to address challenges in learning quality and students' numeracy skills identified in the school's Education Report. Using a qualitative descriptive approach, data were collected through interviews, observations, and document analysis involving school leaders and key stakeholders. The findings demonstrate that the strategic management model functions not only as an administrative planning tool but also as a conceptual framework that integrates instructional improvement, data-informed decision-making, and stakeholder engagement at the elementary school level. Despite initial constraints related to vision alignment, participation, and data literacy, the structured and reflective application of the model contributed to improvements in instructional quality and numeracy-oriented practices. Conceptually, this study extends the application of strategic management theory into the domain of elementary education by illustrating how a business-derived framework can be contextualised to support school transformation and learner-centred improvement. These findings enrich the discourse on strategic management in education and offer a transferable conceptual reference for elementary schools operating in similar reform-oriented and socio-educational contexts.</i>

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INTRODUCTION

Background of the Study

Learning quality and students' numeracy competence are widely recognised as core indicators of educational effectiveness in the twenty-first century, particularly within education systems that emphasise evidence-based improvement and accountability. From the perspective of contemporary learning theories, numeracy development is closely linked to constructivist and socio-cognitive frameworks, which emphasise meaningful learning, problem-solving, and the active construction of knowledge through guided instructional practices (OECD, [2022](#)). Within this framework, instructional quality and school-level strategic alignment play a critical role in shaping learning environments that support students' cognitive growth, including numeracy competence (Putri et al., [2025](#)).

Globally, strategic management has been increasingly adopted in education as a mechanism to enhance organisational coherence, instructional leadership, and learning outcomes. International studies demonstrate that schools implementing systematic strategic management encompassing goal formulation, coordinated implementation, and continuous evaluation are more likely to achieve sustained improvements in teaching quality and student performance (Bush & Glover, [2023](#); Hallinger & Lee, [2024](#)). Strategic management in education is therefore no longer viewed merely as an administrative function, but as an integrative framework that connects leadership practices, instructional processes, and learning outcomes within a coherent system (Baharuddin et al., [2024](#)).

In response to similar global challenges, the Indonesian Ministry of Education introduced the *Sekolah Penggerak* program as a national reform initiative aimed at accelerating school transformation through data-driven planning, leadership development, curriculum innovation, and reflective practices (Robinson et al., [2021](#)). Despite this policy support, evidence from participating schools indicates that improvements in learning quality and numeracy outcomes remain uneven. Sekolah Penggerak in Kandangan District, a second-cohort participant in the program, exemplifies this challenge (Desianti & Rahayuningsih, [2022](#)). Based on its 2023 Education Report (*Rapor Pendidikan*), several key indicators, including classroom management, teacher reflective practices, and student numeracy proficiency, were assessed at a moderate level, signalling a gap between reform expectations and actual school performance (Setiawan & Sasongko, [2023](#)).

From a strategic management perspective, such gaps often reflect weaknesses not in policy intent but in school-level implementation processes. Previous research suggests that the absence of coherent vision formulation, limited stakeholder engagement, and insufficient use of data for decision-making frequently undermine school improvement efforts (Pradana & Arijanto, [2024](#); Yusuf et al., [2024](#)). Furthermore, learning theory-based instructional improvement requires alignment between strategic planning and classroom practice; without this alignment, initiatives aimed at enhancing numeracy tend to remain fragmented and unsustainable (Vale et al., [2023](#); Yamin et al., [2024](#)).

The Problem of The Study

Despite the growing adoption of strategic management concepts in educational discourse, there remains a significant gap in understanding how comprehensive strategic management models are operationalised at the elementary school level, particularly within reform-oriented programs such as *Sekolah Penggerak*. Specifically, there is limited empirical evidence explaining how the stages of strategy formulation, implementation, and evaluation function as an integrated process to improve both learning quality and students' numeracy competence in real school settings.

In the case of Sekolah Penggerak in Kandangan District, strategic challenges persist in the form of misaligned vision and mission statements, limited stakeholder participation in planning processes, weak data literacy among educators, and inconsistencies between strategic plans and instructional practices. These conditions raise a critical research problem: to what extent and in what ways can a comprehensive strategic management model be effectively adapted to the context of elementary education to support sustainable improvements in learning quality and numeracy outcomes?

Research's State of the Art

Recent international literature conceptualises strategic management in education as a dynamic and iterative process that integrates strategic formulation, execution, and evaluation to align organisational goals with instructional performance (David et al., [2022](#); Bush & Glover, [2023](#)). Empirical studies in various educational systems demonstrate that strategic management frameworks contribute to improved instructional coherence, teacher professionalism, and student achievement when implemented reflectively and inclusively (Hallinger & Lee, [2024](#); Prastiwi & Tukiran, [2024](#)).

Nevertheless, existing research predominantly emphasises strategic management at the level of higher education or policy design, with limited attention to its practical application in elementary schools, particularly in developing country contexts (Duong et al., 2021; Scoular & Teo, 2021). Moreover, few studies explicitly link strategic management processes with learning theory-informed outcomes such as numeracy competence. This limitation underscores the need for context-specific empirical research that bridges strategic management theory, learning theory, and school-level instructional improvement.

Novelty, Research Gap, & Objective

Addressing these gaps, this study offers a novel contribution by examining the real-case application of Fred R. David's Comprehensive Strategic Management Model within an elementary school participating in the *Sekolah Penggerak* program. The novelty of this research lies in its conceptual and empirical integration of a business-origin strategic framework with learning quality and numeracy outcomes in primary education (Romero & Ventura, 2024). By documenting how strategic formulation, implementation, and evaluation are enacted at the school level, this study extends the application of strategic management theory into the domain of elementary education (Fauzi et al., 2021; Sari et al., 2023).

Accordingly, the objective of this study is to analyse how strategic management is implemented at Sekolah Penggerak in Kandangan District to improve learning quality and students' numeracy performance, with particular attention to how strategic planning processes align with instructional practices and data-based decision-making within the national school reform framework.

METHOD

Research Design

This study employed a qualitative descriptive research design to examine the implementation of strategic management within the *Sekolah Penggerak* program at an elementary school in Kandangan District, Indonesia. A qualitative approach was selected to capture in-depth insights into how strategic formulation, implementation, and evaluation processes were enacted in real school settings and how these processes influenced learning quality and students' numeracy competence (Santhanalakshmi & Madhumita, 2024). This design is appropriate for exploring organisational practices, decision-making processes, and contextual dynamics that cannot be adequately quantified through survey-based methods.

The instruments used included interview guides, observation checklists, and document analysis forms. To ensure instrument validity and reliability, expert judgment and internal consistency testing were conducted. The instrument reliability was analysed using Cronbach's Alpha and KR-20, especially for documents and quantitative rubrics extracted from Rapor Pendidikan.

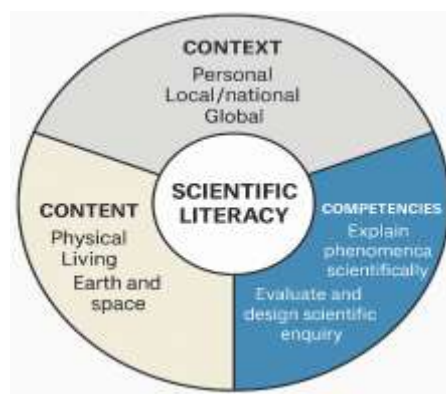
Table 1 presents the internal consistency of the numeracy-based evaluation tool used during strategic implementation.

Indicator	Value
Number of Items	45
Kuder Richardson (KR-20)	0.641
Cronbach's Alpha Based on Standardised Items	0.658
Mean Item Difficulty	0.54
Mean Discrimination Index	0.42

Source: Processed from Rapor Pendidikan in Kandungan District, 2023

In addition, the school applied a literacy-based learning framework adapted from scientific literacy indicators. These indicators guided the alignment of strategic objectives with curriculum implementation.

Figure 1. Indicators guided the alignment of strategic objectives with curriculum implementation



(Source: OECD PISA Framework, 2022)

The figure illustrates the relationship between context, content, and competencies in designing numeracy-centred learning activities, which were adopted in the school's strategy implementation.

Data and Data Sources

Data were collected from multiple sources to ensure analytical rigour and triangulation. Primary data consisted of semi-structured interviews with the school

principal, vice principal, and selected teachers who were directly involved in strategic planning and instructional implementation under the *Sekolah Penggerak* program. These interviews focused on strategic formulation processes, implementation challenges, data-based decision-making practices, and evaluation mechanisms related to learning quality and numeracy outcomes (Yusuf et al., 2024). Secondary data included classroom observations and document analysis, such as the School Strategic Plan, annual work plans, meeting minutes, and the 2023 Education Report (*Rapor Pendidikan*). Observations were conducted to examine instructional practices and classroom management related to numeracy learning, while document analysis was used to trace the alignment between planned strategies and actual implementation (Dasan, 2025; Materu et al., 2025). The integration of these data sources enabled a comprehensive understanding of strategic management practices at both organisational and instructional levels.

Ethical Considerations

This study adhered to established ethical research standards. Institutional permission was obtained from the school authority prior to data collection. All participants were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any stage without consequences. Informed consent was obtained from each informant before interviews and observations were conducted. To ensure confidentiality and anonymity, participants' identities were coded, and all data were used solely for research purposes (Dahal, 2024; Parmar, 2021).

Data Collection Technique

The school implemented a structured strategic plan encompassing formulation, implementation, and evaluation. In evaluating performance, the school relied on key indicators from the Education Report Card (*Rapor Pendidikan*) in 2023.

Table 2. Summary of Performance Indicators from Education Report Card

Indicator	Score	Description
Teaching Quality	62.78	Moderate – teaching methods and class management.
Numeracy Achievement	66.67%	Moderate minimum competency achievement
Numeracy (Algebra Domain)	66.67%	Moderate
Numeracy (Number Domain)	66.67%	Moderate
Teacher Reflection Support	62.78	Moderate lack of structured reflective work

This performance motivated the school to apply a Strategic Planning Equation:

$$Y = \beta_0 + \beta_1 F + \beta_2 I + \beta_3 E + \varepsilon$$

Where:

Y = Numeracy Achievement Level,

F = Strategy Formulation Quality,

I = Implementation Effectiveness,

E = Strategy Evaluation Rigor,

β_0 = Constant,

$\beta_1, \beta_2, \beta_3$ = Regression coefficients,

ε = Error term.

The strategy formulation process within the Comprehensive Strategic Management Model at Sekolah Penggerak in Kandungan District was carried out systematically and collaboratively. It involved three essential components: the revision of the school's vision and mission, a thorough analysis of both internal and external conditions, and the establishment of measurable long-term goals.

The process began with a critical review and adjustment of the school's vision and mission statements to ensure alignment with current educational priorities, particularly the improvement of learning quality and student numeracy outcomes. This revision was undertaken through collaborative discussions involving the principal, vice principals, and teaching staff to strengthen collective commitment and direction.

Subsequently, a SWOT analysis was conducted to identify strengths, weaknesses, opportunities, and threats. Internally, the school recognised areas needing improvement, such as classroom management and reflective teaching practices, as highlighted in the 2023 Education Report Card. Externally, the implementation of the School Driving Program (Sekolah Penggerak) by the Ministry of Education was identified as a significant opportunity to enhance institutional capacity and performance.

Based on the findings of this analysis, the school formulated specific strategic goals, including increasing the numeracy competency rate from 66.67% to at least 75% within the next academic cycle. These goals were accompanied by the development of alternative strategies, such as incorporating differentiated instruction, strengthening formative assessment practices, and utilising digital learning tools. The final stage of formulation involved selecting the most relevant and

feasible strategies to implement, ensuring they aligned with available resources, stakeholder support, and the school's broader development plan.

This strategic formulation phase laid a solid foundation for the subsequent implementation and evaluation stages, marking a significant shift toward data-driven, goal-oriented school management.

Data Analysis

Data were analysed thematically using an iterative process of data reduction, data display, and conclusion drawing. Interview transcripts, observation notes, and documents were coded based on the stages of Fred R. David's strategic management model: strategy formulation, implementation, and evaluation. Emerging themes were then interpreted to identify patterns, challenges, and enabling factors related to learning quality improvement and numeracy development.

RESULTS

The evaluation phase at *Sekolah Penggerak* in Kandungan District functioned as a systematic and continuous feedback mechanism aligned with the school's strategic management cycle. Evaluation activities were designed to monitor the extent to which strategic implementation influenced instructional quality and students' numeracy outcomes. Teacher performance was assessed not only through administrative supervision but also through evidence of student learning progress, particularly in numeracy-related competencies. This approach enabled the school to identify gaps between planned strategies and actual classroom practices.

Reflective evaluation was institutionalised through post-instructional reflection sessions, supervisory feedback meetings, and collaborative discussions among teachers. These reflective practices encouraged educators to critically examine the effectiveness of their instructional strategies, classroom management, and assessment techniques. Findings from the evaluation process revealed recurring challenges related to differentiated instruction and the integration of numeracy-focused learning activities, which required targeted pedagogical support.

In response to evaluation outcomes, the school implemented adaptive corrective measures, including focused professional development workshops, revisions of lesson plans based on student performance data, and the establishment of peer learning forums to promote shared professional learning. These adjustments demonstrate that evaluation was not treated as a terminal assessment stage but as an integral component of strategic management that informed continuous improvement.

Overall, the evaluation phase ensured strategic coherence by enabling timely adjustments, sustaining alignment with strategic objectives, and reinforcing a culture of data-informed and reflective practice within the school.

Table 3. Evaluation Results and Adjustments Summary

Component	Evaluation Method	Corrective Action
Teacher Delivery	Observations & Reflection	Pedagogical Training
Student Outcomes	Formative & Summative Tests	Remedial Projects
Strategy Effectiveness	SWOT Re-analysis	Learning Style Differentiation

DISCUSSIONS

The findings of this study indicate that the application of Fred R. David's Comprehensive Strategic-Management Model contributes meaningfully to improvements in teaching quality and students' numeracy skills at *Sekolah Penggerak* in Kandangan District. From a theoretical perspective, these findings can be interpreted through the lens of constructivist learning theory and instructional leadership theory, both of which emphasise the central role of planning, reflective practice, and learner-centred instruction in improving educational outcomes. Strategic formulation in this study manifested through vision revision, SWOT analysis, and goal setting functioned as a cognitive and organisational scaffold that guided teachers and leaders in aligning instructional practices with learning objectives, a principle consistent with constructivist views of purposeful learning design.

The formulation phase aligns with prior research suggesting that coherent strategic vision and contextual analysis are prerequisites for sustainable school improvement. Unlike earlier studies that primarily conceptualise planning at a policy or managerial level, the present study demonstrates how strategic formulation directly informed numeracy-focused instructional decisions at the classroom level, thereby extending the practical relevance of strategic management theory in elementary education settings.

The implementation phase further reinforces sociocultural learning theory, which emphasises collaboration, shared meaning-making, and professional learning communities as drivers of instructional change. The reorganisation of leadership roles, budget realignment, and increased participation in professional development activities observed in this study fostered collective teacher efficacy and peer learning. Emphasized that instructional transformation within the *Sekolah Penggerak* framework depends on strong leadership coaching and collaborative school cultures.

However, this study adds nuance by revealing that structural changes alone are insufficient; limited data literacy among teachers constrained the effective use of student performance data.

From an instructional standpoint, the observed emphasis on numeracy-focused lesson planning and differentiated instruction reflects principles of mastery learning and learner-centered pedagogy. By adapting instruction based on evaluation data, teachers were able to address varying levels of student readiness, which is a key mechanism for improving numeracy competence. This finding supports international evidence that data-informed instructional adaptation is strongly associated with gains in foundational mathematics skills, particularly in primary education contexts.

The evaluation phase illustrates the role of reflective practice theory in sustaining instructional improvement. The integration of teacher reflection, supervisory feedback, and student performance indicators positioned evaluation as an iterative learning process rather than a summative control mechanism. This approach resonates with Schön's concept of reflective practitioners, where continuous reflection enables educators to refine pedagogical strategies in response to classroom realities. Compared with previous studies that report evaluation as an administrative requirement, this study demonstrates how evaluation can operate as a learning-oriented mechanism that strengthens instructional coherence and strategic responsiveness.

Collectively, these findings suggest that strategic management, when grounded in learning theory and implemented holistically, functions as a transformative rather than bureaucratic tool. The adaptation of a business-derived strategic management framework into an elementary school context contributes conceptually by illustrating how organizational strategy can be integrated with instructional theory to support cognitive outcomes such as numeracy. This integration extends existing literature by positioning strategic management as an enabling framework for learner-centered reform rather than a purely managerial instrument.

Nevertheless, the study also highlights limitations related to stakeholder capacity and contextual constraints. While positive trends in instructional quality and numeracy practices were observed, the sustainability of these improvements depends on continued investment in data literacy, teacher professional learning, and community engagement. Future research should therefore explore comparative and longitudinal designs across multiple *Sekolah Penggerak* institutions to examine scalability and long-term impact. Investigating how contextual variables such as

school size, geographic location, and socio-economic conditions mediate strategic management outcomes would further enrich the field.

In conclusion, this study advances the discourse on school-based strategic management by demonstrating that the comprehensive strategic management model can be theoretically grounded in learning theories and practically operationalized to improve teaching quality and numeracy skills in elementary schools. Leadership vision, collaborative culture, reflective evaluation, and data-informed practice emerge as interdependent elements that collectively drive educational transformation within the Indonesian *Sekolah Penggerak* initiative.

CONCLUSION

This study concludes that the implementation of Fred R. David's Comprehensive Strategic-Management Model effectively addresses the research objective of improving learning quality and students' numeracy competence at *Sekolah Penggerak* in Kandangan District. The findings demonstrate that the integration of strategy formulation, systematic implementation, and continuous evaluation enables the school to align strategic objectives with instructional practices, strengthen teacher reflection, and support data-informed decision-making. Through this structured approach, previously identified weaknesses in instructional quality and numeracy performance were systematically addressed, confirming that comprehensive strategic management functions as an effective mechanism for school improvement within the *Sekolah Penggerak* framework.

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