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Implementation of Data-Driven Planning in Supporting Learning Quality

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ABSTRACT

This study explores the data-driven planning cycle to improve learning quality at a public senior high school in Pemalang Regency, Indonesia. Using a qualitative case study design, data were collected from six informants (the principal, vice-principals, and teachers) through interviews, observations, and document analysis. The findings reveal that the school systematically executes four integrated stages, starting with identifying problems using the Education Report Card, followed by collaborative reflection to determine root causes, proceeding to the formulation of improvement plans focused on literacy strengthening and differentiated instruction, and concluding with the adaptive implementation and evaluation of programs in the classroom. This study concludes that this mechanism transcends administrative compliance, serving as a continuous improvement engine essential for enhancing the accuracy of pedagogical decision-making. These findings imply that this structured cycle can serve as a practical framework for other educational institutions to translate school data into targeted learning improvements effectively.

Keywords*: *continuous improvement, education report card, educational management, evidence-based decision

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INTRODUCTION

Improving the quality of learning is a strategic issue in the development of 21st-century education. To address competency demands, including critical thinking, communication, collaboration, and creativity, schools need to make evidence-based decisions, not solely based on intuition or experience. Within this framework, data-driven planning bases educational planning and decision-making on data rather than merely on supplementary information (Mandinach & Schildkamp, 2021; Poortman & Schildkamp, 2016). Data-driven planning is understood as a systematic process that includes collecting, analyzing, interpreting, and utilizing data to develop more targeted improvement programs (Schildkamp, 2019). Hebbecker et al. (2022) emphasize that data use can positively impact learning outcomes when supported by feedback and clear goal-setting.

In Indonesia, the urgency of data-driven planning is reinforced by the Education Report (*Rapor Pendidikan*), a national instrument for mapping the condition of educational units. This instrument helps schools identify problems, determine priorities, and formulate measurable follow-up programs through systematic evaluation and monitoring processes (Jusar et al., 2023). Therefore, data-driven planning is not merely an administrative procedure but a reflective mechanism to ensure that data are used effectively in the planning, implementation, and evaluation of school programs. The key challenge is ensuring that data does not stop at the reporting stage but continues through consistent reflection and follow-up (Mandinach & Abrams, 2022).

This need was evident in the 2025 Education Report of a public high school in Pemalang Regency, Indonesia, which showed a decline in learning quality compared to the previous year, although it remained

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in the good category. The decline was observed across three main aspects: learning methods, psychological support, and classroom management. Learning methods relate to teaching practices that help students build new understanding (Kiriana, 2023; Van der Kleij et al., 2015). Psychological support emphasizes helping students feel competent and valued in the classroom (Korpershoek et al., 2020; Shen et al., 2024;Wang, 2023). Meanwhile, classroom management involves managing student behavior and directing attention to relevant learning activities (Korpershoek et al., 2020; Ødegård & Solberg, 2024; Wilkins et al., 2023).

Several previous studies have shown that utilizing data in planning can strengthen learning quality, but implementation still faces challenges. Van der Kleij et al. (2015) demonstrated that data utilization can drive learning innovation and strengthen school accountability. However, Gelderblom et al. (2016) found a gap between data availability and teachers' ability to translate it into learning actions. This finding aligns with studies on teacher collaboration, which confirm that collective discussions during data interpretation can strengthen the quality of instructional decisions (Lai et al., 2025; O'Connor & Park, 2023). Furthermore, studies on the Education Report Card (*Rapor Pendidikan*) indicate that this tool is strategic for mapping school quality priorities. However, its effectiveness depends on the school's ability to analyze the data and translate it into measurable interventions (Herfiyanti et al., 2024). Another case study in secondary schools also showed that data-driven planning cycles can help improve several indicators, such as literacy, numeracy, and school climate, but aspects of learning methods and psychological support still require ongoing strengthening (Hidayah et al., 2025).

Despite these findings, previous studies have largely highlighted the general benefits of data-driven planning or the technical functions of the Education Report Card without detailing the granular execution of each stage within a complete cycle. The unresolved problem in the current literature is the lack of a comprehensive analysis showing how schools transition through a structured cycle to practically address specific declines in learning quality. This study has advantages over prior research by offering a specific, in-depth analysis of the four interconnected stages of the data-driven planning cycle and by describing the implementation of data-driven planning in response to declines in several learning quality indicators at a public high school. This study uses a qualitative case study design to examine in depth the implementation of data-driven planning. The results are expected to provide empirical and practical contributions to strengthening data-driven planning as a basis for improving learning quality.

To sum up, this study addressed the question of how to implement the four stages of data-driven planning, which comprise identification, reflection, improvement, as well as implementation and evaluation, to support learning quality in the public senior high school. The purpose of this study is to describe and analyze each of these four stages in supporting learning quality, thereby enriching the study of data-driven planning and serving as a practical reference for schools. Ultimately, the novelty of this research lies explicitly in the in-depth analysis of this four-stage data-driven planning cycle, detailing how the synergistic transition from identification, reflection, improvement, to the combined stage of implementation and evaluation is executed to overcome learning quality issues, thereby providing new empirical knowledge on the mechanics of continuous school improvement.

LITERATURE REVIEW

This research adopts a conceptual framework rooted in the Data-Based Decision Making (DBDM) paradigm, which serves as a continuous quality improvement cycle. From this perspective, the use of data in educational settings goes beyond mere administrative information gathering; it is a complex cognitive process involving interpretation, critical discussion, and concrete action within the context of school interventions (Lee et al., 2024). Aligning with this view, Mandinach and Schildkamp (2021) assert that the effectiveness of data-driven decisions relies heavily on integrating multiple data sources, deeply understanding local contexts, and maintaining a consistent orientation toward holistic quality improvement.

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Operationally, the conceptual flow of this study is articulated into four interconnected and transformative stages. It begins with identification, a diagnostic process analyzing macro-level school data to map actual conditions. This is followed by reflection, which entails collaborative discussions to uncover the root causes of the identified issues. The process then moves to improvement, focusing on the formulation of targeted and measurable intervention programs. Finally, it culminates in the combined implementation and evaluation stage, where the execution of these programs is systematically assessed to provide empirical feedback for the next cycle. Within this framework, data is no longer positioned as a static entity for formal reporting but functions as a dynamic instrument for strategic instructional decision-making.

The successful transition between these cyclical stages is significantly influenced by educators' capacity to process and interpret data. According to Datnow and Hubbard (2016), this capacity is largely determined by the support of professional learning communities, relevant training programs, and the principal's instructional leadership. In other words, the efficacy of the reflection and improvement stages depends heavily on the school's level of data literacy and the depth of its collaborative culture. This premise is reinforced by the findings of Poortman and Schildkamp (2016), which demonstrate that data interventions are substantially more effective when schools work structurally and collaboratively to solve student achievement issues.

As a synthesis, this conceptual framework forms an iterative pattern: Data → Interpretation → Decision → Action → Evaluation → Improvement. This logic strongly parallels the Plan-Do-Check-Act (PDCA) principle in total quality management, where the evaluation results at the final stage serve as a new evidence baseline to initiate the subsequent improvement cycle (Vordenberg et al., 2018). By integrating teacher data literacy, supportive leadership, and a collaborative culture as reinforcing factors, this cycle aims to create a precise and sustainable mechanism for continuous school improvement.

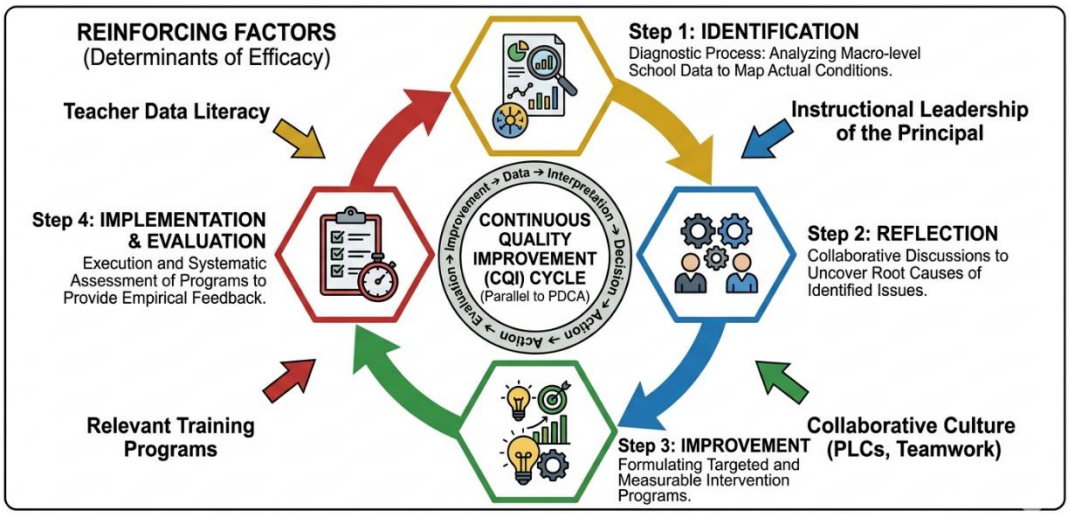


Figure 1. Conceptual Framework of DBDM as a Continuous Quality Improvement Cycle

METHOD

This study uses a qualitative case study design to examine the implementation of data-driven planning through a cycle of identification, reflection, improvement planning, implementation improvement, and evaluation in one public high school in Pemalang Regency. This design was chosen because the researcher wanted to comprehensively understand the practice of program implementation in the real context of educational units without experimental intervention, thereby allowing for in-depth exploration of the process, actors, and dynamics of its implementation contextually (Creswell, 2013). The study was conducted from

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June–September 2025, with the preparation phase in June, data collection in August, and data analysis and report preparation in September.

The research subjects were determined through purposive sampling by selecting six informants directly involved in the planning and implementation of data-driven planning: one principal, one vice principal for curriculum, one vice principal for student affairs, and three subject teachers. The informants were selected for their active involvement in the data-driven planning cycle and their ability to provide relevant, in-depth information. Prior to data collection, the researcher obtained official permission from the school and informed consent from the informants, guaranteeing anonymity and confidentiality of the data.

Table 1. Research Informant Criteria

Code	Informant	Selection Criteria	Relevant Experience
KS	Principal	School policy makers	Engage in data-driven planning, implementation, and evaluation
WKS-1	Vice principal for curriculum	Academic program coordinator	Involved in the development and implementation of data-driven programs
WKS-2	Vice principal for student affairs	Student program coordinator	Involved in implementing programs that impact students
G-1	Subject teacher for class X	Learning implementer	Using assessment data in learning
G-2	Subject teacher for grade XI	Learning implementer	Experienced in following up on data reflection results
G-3	Grade XII subject teacher	Learning implementer	Conduct data-driven strategy evaluations and adjustments

The primary research instrument was the researcher as the human instrument, supported by semi-structured interview guidelines, observation sheets, field notes, and a digital voice recorder. Data collection procedures were carried out systematically to ensure in-depth findings. First, the observations were conducted in a non-participatory manner over four weeks in August 2025, with three sessions per week, each lasting approximately 90 to 120 minutes. The specific activities observed included school strategic planning meetings, collaborative teacher reflection forums, and classroom learning processes implementing the improvement plans. The observation indicators focused on the intensity of data utilization during discussions, interactions among school actors in interpreting the Education Report Card, and the practical translation of data-driven strategies into classroom activities.

Second, the primary data collection relied on in-depth, semi-structured interviews. Each interview lasted 45-60 minutes, tailored to the informant's role and availability. With the informants' informed consent, all interview sessions were audio-recorded using a digital voice recorder to capture the nuances of the conversations accurately. Following each session, the recordings were manually transcribed verbatim into written transcripts. The interview guidelines were compiled based on indicators from the data-based planning cycle, including data use, reflection mechanisms, follow-up formulation, program implementation, monitoring, and evaluation. Furthermore, the interview data were validated through member checking, in which the transcripts were returned to the informants to confirm the accuracy of their statements before formal coding. Third, documentation studies were used to review educational reports, assessment results, meeting minutes, school work plans, school budget work plans, teaching modules, activity reports, and program evaluation documents.

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Table 2. Research Interview Guidelines

Subfocus	Aspects Explored	Indicator	Informant
Identification	Use of data in planning	Data sources, analysis methods, and problem prioritization	Principal, Vice Principal, Teachers
Reflection	Data analysis and interpretation	Reflection mechanisms, actor involvement, initial evaluation, constraint	Principal, Vice Principal, Teachers
Improvement Planning	Formulation of an improvement program	Program formulation, budget alignment, resource integration	Principal, Vice Principal, Teachers
Implementation and Evaluation Improvement	Program implementation, evaluation of program results	Strategy execution, program monitoring, evaluation, and utilization	Principal, Vice Principal, Teachers

Research data were collected through in-depth interviews, observations, and documentation, supported by verbatim transcripts and field notes as audit-trail instruments. Data analysis was conducted systematically using the interactive model proposed by Miles et al. (2014), which includes data condensation, data display, and conclusion drawing. The analytical procedure began with a rigorous coding stage applied to the verbatim transcripts and field notes using deductive and inductive coding techniques. Deductive codes were derived from the predefined stages of the data-driven planning cycle, while inductive codes emerged directly from the participants' contextual responses. This coding stage was followed by a categorization process, in which related codes were grouped into broader programmatic categories. The theme development process involved identifying recurring patterns across these categories, which were then systematically structured into a thematic matrix during the data display stage to facilitate a cross-case comparison. Finally, the conclusion-drawing stage involved synthesizing these themes to answer the research questions. The validity of the findings was ensured through source triangulation (comparing interview claims with observational evidence and documents) and reflexivity to minimize interpretation bias. While the results of this study remain contextual and should not be generalized widely due to its single-case design and limited number of informants.

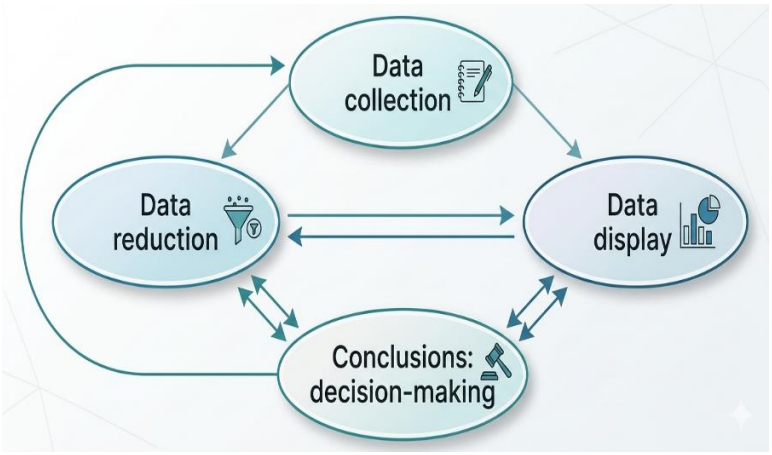


Figure 2. Miles and Huberman's interactive analysis model

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RESULTS AND DISCUSSION

To provide a comprehensive overview of the research focus, a conceptual model of the data-driven planning cycle is presented in Figure 3. This model illustrates the systematic flow of continuous school improvement implemented at the studied institution.



Figure 3. Data-Driven Planning Cycle

As depicted in Figure 3, the conceptual model of the data-driven planning cycle comprises four integrated stages that reflect the school's empirical practices. During the Identification stage, the school systematically maps its conditions utilizing the Education Report Card and internal assessment data. This evidence directly informs the Reflection stage, where stakeholders conduct collaborative root-cause analyses to evaluate current pedagogical practices. Based on these reflections, the Improvement stage is defined by the design of highly targeted action plans focused on differentiated instruction, literacy strengthening, and active student engagement. Ultimately, the Implementation and Evaluation stage ensures that these planned interventions are actively executed in classroom practices and continuously monitored, creating a perpetual feedback loop that drives sustainable school improvement.

Identification

The identification phase serves as the fundamental diagnostic step in data-driven planning. Rather than relying on intuition, the school uses the Education Report Card (Rapor Pendidikan), assessment results, and supporting documents to map its actual conditions systematically. Table 3 summarizes the analytical process observed during this stage.

Table 3. Analytical Process in the Identification Stage

Indicator	Key Findings	Data Source
Data source	Integration of Education Reports and internal assessment data.	Interviews, documentation
Analysis Method	Examining specific indicator achievements to identify suboptimal areas.	Interviews, observations
Prioritization	Targeting weak indicators to set strategic goals at both managerial and classroom levels.	Interviews, documentation

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Based on the synthesized interview data, school stakeholders demonstrated a cohesive understanding of data utilization. The principal and curriculum vice-principal consistently emphasized that all program planning, such as adopting project-based learning, begins by diagnosing weak indicators from student report cards. At the micro-level, teachers reported using this data not merely to evaluate student achievement, but proactively as a reflective tool to identify their own professional development needs, including utilizing the national 'Education House' platform for independent training.

Rather than merely summarizing data, the integration of the Education Report Card functions as a critical reflection tool. At the micro-level, teachers synthesized assessment data to proactively identify professional development needs rather than merely evaluating student outcomes. This transition aligns with literature emphasizing multi-source evidence in decision-making (Lai et al., 2025; Mandinach & Schildkamp, 2021). The strategic advantage observed is the contextualization of improvement programs (Amiruddin & Chardo, 2023; Bolhuis, 2019).

However, the efficacy of this stage is fundamentally constrained by teachers' capacity for data interpretation, or sense-making (Schildkamp, 2019a). The findings indicate a gap between identifying weak indicators and translating them into pedagogical innovations, underscoring the urgent need to elevate teachers' data literacy (Lee et al., 2024). Furthermore, as identification expands to evaluate human resource capacity, including technological competence and academic supervision (Kamsi, 2019; Pramusti et al., 2024; Rambe, 2019) it becomes evident that targeted interventions, such as continuous mentoring, are imperative to transition from data diagnosis to actionable practice (Witte et al., 2025).

Reflection

Following identification, the reflection phase involves collaborative evaluation between school leaders and teachers to assess program implementation and determine necessary adjustments. Table 4 outlines the mechanisms and challenges of this phase.

Table 4. Mechanisms and Constraints in the Reflection Stage

Indicator	Key Findings	Data Source
Mechanism	Joint reviews using assessment results, attendance, and activity reports.	Interviews, documentation
Involvement	Collaborative forums involving principals, vice-principals, and teachers.	Interviews, observations
Initial evaluation	Assessing program delivery and identifying effective pedagogical practices.	Interviews, documentation
Constraint	Persistent limitations in teachers' data literacy and analytical interpretation.	Interview

Participant narratives revealed that collaborative reflection is used to assess program effectiveness and to confirm strategies perceived as enhancing student engagement. On the one hand, teachers acknowledged that reflection helped them identify successful strategies, such as techniques that could increase student engagement. On the other hand, multiple teachers admitted significant hurdles in translating raw assessment data into concrete pedagogical interventions. Managerially, the principal and vice-principal orchestrate regular review forums to evaluate curriculum programs against evidence, striving to create a continuous feedback loop. However, observational data suggest that these reflection practices are occasionally reactive rather than systematically scheduled.

Participant narratives revealed that collaborative reflection is used to assess program effectiveness and to confirm strategies perceived as enhancing student engagement. For instance, school leadership and teachers engage in periodic forums to triangulate assessment outcomes with instructional experiences, shifting the school culture towards evidence-based adjustments. This collective interaction supports the premise that

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reflection is an integral, ongoing evaluative mechanism (Lai et al., 2025; Mandinach & Schildkamp, 2021), reflecting a maturing data culture (Doğan & Demirbolat, 2021).

Despite this structural progress, critical analysis reveals that the reflection process is often hindered by low data literacy. Teachers reported difficulty moving beyond surface-level data reading to formulate concrete developmental strategies. This aligns with Lee et al. (2024), who argue that interpretation skills are critical for data-driven success. Without it, reflection risks becoming purely administrative, failing to foster profound instructional transformation (Gelderblom et al., 2016; Van der Kleij et al., 2015). Addressing this requires robust professional support, such as structured coaching (Shanahan et al., 2025; Witte et al., 2025), and the use of integrated platforms to build responsive learning approaches (Musakirawati et al., 2023; Muhajang et al., 2025; Rigianti, 2023; Villeneuve & Bouchamma, 2023). Institutionally framing this within a structured cycle (e.g., PDCA) is recommended to prevent reactive evaluations (Nurzali, 2019; Shintia et al., 2024; Sulistyo et al., 2024; Vordenberg et al., 2018).

Improvement Planning

During the improvement phase of data-driven planning, the school seeks to translate reflection findings into operational, targeted improvement programs. Table 5 summarizes the findings related to how these action plans are formulated and integrated.

Table 5. Mechanisms and Integration in the Improvement Stage

Indicator	Key Findings	Data Source
Program Formulation	Translating reflections into concrete action plans (e.g., literacy strengthening, differentiated instruction).	Interviews, documentation
Budget Alignment	Synchronizing recommended interventions with the formal School Work Plan and Budget.	Interviews, documentation
Resource Integration	Enhancing learning facilities (library) and promoting digital learning platforms.	Interviews, observations

During the improvement phase, teachers reported shifting towards more active, student-centered learning strategies, suggesting a potential increase in student engagement. However, at the managerial level, synchronizing data-driven recommendations with the formal School Work Budget Plan remains a significant administrative challenge. Furthermore, participants acknowledged that teachers' limited data interpretation skills constrain the translation of data into concrete developmental steps. To address this, the school has initiated systemic improvements, including optimizing physical library facilities and digital learning platforms, though the latter's use remains inconsistent among staff.

The improvement stage serves as a crucial bridge connecting analytical reflection with concrete pedagogical adjustments in school practices (Mandinach & Schildkamp, 2021; Lai et al., 2025). The observed shift toward contextualized, student-centered strategies suggests that data utilization can meaningfully enhance the quality of instructional decision-making (Gelderblom et al., 2016; Van der Kleij et al., 2015). Despite the emergence of a data-driven culture, the administrative friction in aligning these plans with budget documents underscores that intervention effectiveness relies heavily on management system flexibility and robust budgetary support (Doğan & Demirbolat, 2021; Mahendra et al., 2021). Consistent with the literature, low teacher data literacy constitutes a major barrier to the formulation of precise interventions, underscore urgent need for capacity building through coaching and professional learning communities (Lee et al., 2024; Shanahan et al., 2025; Witte et al., 2025).

In navigating these constraints, proactive school leadership is vital to prioritize realistic and sustainable programs (Amiruddin & Chardo, 2023; Bolhuis, 2019). Additionally, establishing a robust digital ecosystem and physical infrastructure is an absolute prerequisite for consistent pedagogical transformation (Guo et al.,

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2024; Schildkamp, 2019). The integration of diagnostic instruments, such as the Education Report Card, facilitates the translation of reflective insights into actionable steps (Asyifa et al., 2025; Musakirawati et al., 2023; Rahayu, 2019). Ultimately, this phase yields optimal results only when supported by a systematized reflection mechanism and tight synchronization between data-driven recommendations and institutional budget planning, ensuring that changes contribute directly to sustainable educational enhancements (Medland et al., 2025; Sulistyo et al., 2024)

Implementation and Evaluation Improvement

The final combined stage focuses on ensuring that the targeted improvement plans are executed actively in the classroom and rigorously assessed for future adjustments. Table 6 outlines the execution and review mechanisms.

Table 6. Execution and Review Mechanisms in the Implementation and Evaluation Stage

Indicator	Key Findings	Data Source
Strategy Execution	Adapting designed programs to accommodate diverse classroom contexts and student characteristics.	Interviews, observation
Program Monitoring	Conducting ongoing supervision, though reporting formats remain unstandardized among teachers.	Interview, observation
Evaluation Utilization	Utilizing empirical evaluation outcomes to inform program revisions and future planning.	Interview, documentation

During the combined implementation and evaluation stage, the school adopts a dynamic approach to execute targeted follow-up programs. Managerially, school leaders coordinate closely with teaching staff to align activities with established objectives and schedules. At the classroom level, teachers reported a necessary degree of flexibility, adapting instructional strategies to accommodate diverse student characteristics and resource availability. While observational data confirmed this adaptive instruction, monitoring mechanisms remain unstandardized, leading to inconsistent reporting practices among staff. Concurrently, the evaluation process serves as a strategic compass; school leaders use evaluation outcomes to determine whether to continue, revise, or discontinue specific programs, while teachers rely on formative student responses to refine their subsequent lesson plans.

The implementation and evaluation phase operates as an interconnected cycle that directly links empirical evidence with responsive instructional actions (Gelderblom et al., 2016; Lai et al., 2025; Mandinach & Schildkamp, 2021). The observed progress in transitioning from strategic planning to classroom implementation depends heavily on the prevailing data culture and educators' capacity to make sense of field data and translate it into viable pedagogical strategies (Doğan & Demirbolat, 2021; Schildkamp, 2019). The adaptive flexibility exhibited by teachers illustrates an effort to synchronize specific student needs with broader strategic goals, though the lack of procedural consistency indicates an area requiring structural reinforcement. Consistent with previous literature, teachers' comprehensive data literacy encompassing both theoretical knowledge and practical application is a critical success factor for instructional transformation (Lee et al., 2024).

The persisting challenges regarding inconsistent reporting highlight a compelling need for targeted technical assistance and collaborative coaching, ensuring that strategic pedagogical adjustments are grounded in solid evidence rather than spontaneous reactions (Lee et al., 2024; Mahendra et al., 2021). From a managerial perspective, leadership evaluations function as a crucial organizational learning mechanism that strengthens evidence-based accountability across the institution (Bolhuis, 2019; Van der Kleij et al., 2015). Through reflective classroom evaluations, the school can accurately diagnose systemic obstacles and utilize these

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insights to iterate program revisions. Ultimately, fostering synergy among adaptive implementation, standardized monitoring, and continuous evaluation can ensure that data-driven planning sustainably contributes to improving quality (Amiruddin & Chardo, 2023; Lindawati, 2023; Setianingsih et al., 2025).

CONCLUSIONS AND RECOMMENDATION

This study concludes that the implementation of data-driven planning in schools has progressed through the stages of identification, reflection, improvement, implementation, and evaluation as a continuous cycle. Each stage demonstrates that data is used not only to identify problems but also to inform the formulation, implementation, and evaluation of learning improvement programs. The use of data, particularly through Education Reports and assessments, has been proven to help schools develop more contextually relevant programs, improve decision-making accuracy, and encourage continuous improvement in learning quality. However, challenges remain, including inconsistent implementation among teachers, limited data literacy, and incomplete integration of planning results with program documents and school budgets.

Based on these findings, it is recommended that schools strengthen their coordination, monitoring, and evaluation systems to ensure consistent, targeted implementation of data-driven planning. Teachers need to improve data literacy and optimize reflection and formative assessment practices as a basis for learning decision-making. Furthermore, further research is recommended to broaden the study's context to various levels and school characteristics, enriching the understanding of the implementation of data-driven planning to improve educational quality.

Limitation

The limitations of this research include the use of a single-case study design in one public high school in Pemalang Regency and a limited number of informants. Consequently, the findings are highly contextual, and their transferability to other educational institutions with different characteristics or resource capacities is limited. Furthermore, the research data were obtained over a relatively short period, meaning the long-term dynamics of data-driven planning implementation are not fully captured. Finally, to mitigate potential researcher bias inherent in qualitative data interpretation, source triangulation and member-checking were systematically employed; however, it is acknowledged that subjective interpretation may still partially influence the findings.

Credit Authorship Contribution Statement

Rizki Fauzan: Conceptualization, Funding acquisition, Formal analysis, Data curation, Writing - original draft. Harjito: Resources, Project Administration, Methodology, Supervision. Nurkolis: Methodology, Formal analysis, Validation. Prasetyo Listiaji: Data curation, Conceptualization, Writing review and editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

Ethical Declaration

Prior to data collection, formal institutional approval was obtained from the principal of the participating school and the relevant education authority. Furthermore, all participants provided written informed consent prior to their involvement in the study. They were thoroughly informed about the study's purpose, data collection procedures, confidentiality guarantees, and their right to withdraw at any time without consequence.

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