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Strategic Planning by School Principals Based on "RAPOR PENDIDIKAN" Data in Enhancing the Educational Quality of Primary Education in the Coastal Area of Berau

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Abstract: This study examines the role of data-driven strategic planning in enhancing the quality of education in elementary schools in coastal Berau, Indonesia. Given the significant challenges faced by these schools—including inadequate infrastructure, socio-economic constraints, and environmental vulnerabilities—strategic planning based on educational report data is essential for informed decision-making and effective resource allocation. The research employs a qualitative case study approach, collecting data through in-depth interviews, focus group discussions, observations, and document analysis at SDN 001 Biatan Lempake. Findings indicate that educational report data play a crucial role in monitoring student progress, assessing instructional effectiveness, and setting measurable goals to improve educational outcomes. Principals integrate data into decision-making processes, enabling targeted curriculum adjustments, remedial programs, and teacher professional development. Furthermore, stakeholder engagement—ranging from parents and teachers to local education authorities—enhances the effectiveness of strategic initiatives. However, challenges such as incomplete data, limited technological infrastructure, inadequate analytical skills among staff, and resistance to digital tools hinder the optimal use of data-driven planning.To address these barriers, the study suggests improving data quality through regular training, upgrading technological infrastructure, and fostering a culture of data-driven decision-making. Strengthening collaboration among stakeholders and ensuring continuous monitoring and evaluation are also crucial for enhancing strategic planning practices. The study concludes that a well-structured, data-informed strategic planning process can significantly improve educational quality and resilience in coastal schools. These findings provide valuable insights for policymakers and educators, emphasizing the need for capacity-building, infrastructure investment, and policy reforms to support sustainable educational improvements.

Keywords: Data-driven strategic planning, educational report data, school management, educational quality, coastal elementary schools, Berau.

INTRODUCTION

Critical Challenges Facing Elementary Schools in Berau's Coastal Areas

Elementary schools in coastal areas, particularly in Berau, Indonesia, face a multitude of unique challenges that stem from limited infrastructure, socio-economic constraints, and environmental vulnerabilities. These challenges are compounded by the geographical and climatic conditions typical of coastal regions, which can significantly hinder educational outcomes and community resilience. One of the primary challenges is the limited infrastructure available for educational institutions. Coastal areas often suffer from inadequate facilities, which can be exacerbated by environmental factors such as flooding and erosion. For instance, the vulnerability of coastal schools to natural hazards like storms and rising sea levels can lead to frequent disruptions in education, as schools may be damaged or rendered inaccessible during adverse weather events (Tanim, *et al*., 2022).

Furthermore, the socio-economic conditions in these regions often limit the resources available for building and maintaining educational infrastructure. Many coastal communities rely heavily on tourism and small-scale fisheries, which can be unstable sources of income (Triyanti & Susilowati, 2018).

This economic instability can lead to insufficient funding for schools, resulting in poorly maintained facilities and a lack of educational materials.Socio-economic constraints further complicate the educational landscape in coastal areas. Families in Berau may prioritize immediate economic needs over educational investments, particularly when faced with the pressures of daily survival in a challenging economic environment (Imstiyaz, *et al*., 2023).

This can lead to lower enrollment rates and higher dropout rates among students, particularly in marginalized communities where access to education is already limited. The interplay between socio-economic status and educational attainment is well-documented, with studies indicating that children from economically disadvantaged backgrounds are less likely to succeed academically (Galisong & Kholifah, 2023)

Additionally, the lack of educational opportunities can perpetuate cycles of poverty, making it difficult for communities to break free from socio-economic constraints (Li, *et al*., 2023).

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Environmental vulnerabilities also pose significant challenges to education in coastal areas. The increasing frequency of natural disasters, such as tropical cyclones and flooding, directly impacts the ability of schools to operate effectively (Tanim, *et al*., 2022).

These environmental threats not only damage physical infrastructure but also disrupt the educational process, as students may be forced to evacuate or miss school during recovery periods. Moreover, the psychological impact of living in a disaster-prone area can affect students' mental health and academic performance (Imstiyaz, *et al*., 2023). The need for comprehensive disaster preparedness and resilience-building measures in schools is critical to mitigate these impacts (Sajjad, *et al*., 2018)

How These Challenges Impact Educational Quality

The challenges faced by elementary schools in coastal areas, particularly in Berau, Indonesia, significantly affect the overall quality of education. These challenges include limited infrastructure, socio-economic constraints, and environmental vulnerabilities, each of which contributes to a diminished educational experience for students. Limited infrastructure is a critical issue that directly impacts the quality of education. Many schools in coastal regions lack adequate facilities, such as classrooms, libraries, and sanitation systems, which are essential for a conducive learning environment. The financial burden associated with building and maintaining such infrastructure is substantial, and competition for funding often leads to prioritization of other community needs over educational facilities (Hill, 2015).

The absence of proper infrastructure can result in overcrowded classrooms and inadequate learning resources, which negatively affect student engagement and academic performance. Furthermore, when schools are damaged by environmental events such as flooding or storms, the disruption to education can lead to significant learning losses, particularly in vulnerable communities where recovery may take a long time (Sutton-Grier, *et al*., 2018).

Socio-economic constraints further exacerbate the challenges faced by schools in coastal areas. Families in Berau often prioritize immediate economic survival over educational attainment, leading to lower enrollment and higher dropout rates (Manasseh, *et al*., 2017).

This socio-economic instability can create a cycle of poverty where children from disadvantaged backgrounds have limited access to quality education, thereby perpetuating inequality (Land & Hummel, 2013).

The lack of educational opportunities not only affects individual students but also has broader implications for community development, as a less educated population may struggle to adapt to changing economic conditions and environmental challenges. Moreover, the interplay between education and socio-economic status is critical; children from low-income families are less likely to succeed academically, which can hinder their future employment prospects and economic mobility (Gogoberidze, 2017).

Environmental vulnerabilities, particularly those related to climate change, also play a significant role in shaping educational quality. Coastal schools are often at risk of being affected by natural disasters, which can lead to school closures and displacement of students (Samadi & Lestariningsih, 2018).

The psychological impact of living in a disaster-prone area can further affect students' mental health and academic performance, as anxiety and stress related to environmental threats can hinder concentration and learning (McCreless & Beck, 2017)

Additionally, the need for schools to implement disaster preparedness and resilience strategies can divert resources away from educational programs and initiatives, further compromising the quality of education (Fatimah & Dwiningrum, 2023).

The Concept of Strategic Planning in School Management and its Importances

Strategic planning in school management is a systematic process that enables educational institutions to define their direction, set priorities, allocate resources effectively, and improve educational practices. This concept is essential for fostering an environment conducive to learning and achieving educational goals. The importance of strategic planning can be understood through its roles in setting priorities, resource allocation, and enhancing educational practices. Setting priorities is a fundamental aspect of strategic planning. Schools operate within a complex environment that includes various stakeholders, such as

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students, parents, teachers, and community members, each with distinct needs and expectations. Through strategic planning, schools can identify and prioritize these needs, ensuring that the most critical areas receive attention and resources. For instance, strategic planning allows schools to align their goals with the educational standards and expectations set by governing bodies, thereby ensuring compliance and fostering accountability (Johnsen, 2015)

By establishing clear priorities, schools can focus their efforts on initiatives that will have the most significant impact on student learning and overall school performance (Murugi & Mugwe, 2023).

Resource allocation is another critical component of strategic planning. Effective management of resources—be it financial, human, or material—is essential for the successful implementation of educational programs. Strategic planning facilitates a comprehensive assessment of available resources and helps school leaders make informed decisions about where to allocate them (Cheng, 2020).

This process not only maximizes the use of existing resources but also identifies areas where additional resources may be necessary. For example, schools may need to invest in professional development for teachers to enhance instructional quality or upgrade technology to support innovative teaching methods.

By strategically allocating resources, schools can create a more effective learning environment that supports both teachers and students. Moreover, strategic planning plays a vital role in improving educational practices. It encourages schools to adopt a systematic approach to evaluating their current practices, identifying strengths and weaknesses, and implementing necessary changes (Deidhae, *et al*., 2021).

This continuous improvement cycle is essential for fostering a culture of excellence within the school. Research has shown that schools that engage in strategic planning tend to demonstrate higher levels of academic performance and student achievement (Jaafar, *et al*., 2022).

By focusing on evidence-based practices and involving stakeholders in the planning process, schools can ensure that their strategies are relevant and effective in meeting the educational needs of their students (Murugi & Mugwe, 2023).

"Rapor Pendidikan" data serves as a vital tool for monitoring student progress, evaluating teaching methods, and informing school decisions.

The "Rapor Pendidikan" (Education Report) is an essential instrument in the Indonesian educational landscape, serving multiple functions that are critical for monitoring student progress, evaluating teaching methods, and informing school decisions. This report provides a comprehensive overview of educational performance at various levels, allowing stakeholders to make data-driven decisions aimed at improving educational outcomes. The effective use of this tool can lead to a more responsive and accountable education system that meets the diverse needs of learners. One of the primary functions of the "Rapor Pendidikan" is to monitor student progress over time. By systematically collecting and analyzing data on student performance, schools can identify trends and patterns that may indicate areas of strength or weakness. This longitudinal data is crucial for understanding how students are progressing through the curriculum and whether they are meeting established learning objectives. For instance, the report can highlight disparities in performance among different student demographics, enabling educators to tailor interventions that address specific needs. Such monitoring is vital for ensuring that all students receive the support they require to succeed academically. The "Rapor Pendidikan" also plays a significant role in evaluating the effectiveness of teaching methods. By correlating student performance data with specific instructional strategies, schools can assess which teaching practices are most effective in promoting student learning. This evaluation process is essential for fostering a culture of continuous improvement within educational institutions. For example, if data indicates that students perform better in subjects where project-based learning is employed, educators may choose to adopt this approach more widely. Furthermore, the report can facilitate professional development by identifying areas where teachers may require additional training or support, thus enhancing the overall quality of instruction. In addition to monitoring student progress and evaluating teaching methods, the "Rapor Pendidikan" serves as a critical tool for informing school decisions. School leaders can utilize the data to make informed choices about resource allocation, curriculum development, and strategic planning. For instance, if the data reveals

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that a significant number of students are struggling in mathematics, school administrators may decide to allocate additional resources toward math tutoring programs or professional development for math teachers. Additionally, the report can guide policy decisions at the district or national level, as it provides a comprehensive overview of educational performance across various schools and regions. This data-driven approach ensures that decisions are grounded in evidence, ultimately leading to more effective educational strategies.

Problem Statement

Coastal elementary schools in Berau face significant challenges that directly impact the quality of education. These challenges include inadequate infrastructure, socio-economic constraints, and environmental vulnerabilities that contribute to disruptions in the learning process. For instance, frequent natural disasters such as flooding and storms not only damage school facilities but also interrupt academic activities. Additionally, limited funding and unstable income sources in coastal communities often result in poorly maintained facilities and insufficient learning resources. Amid these challenges, there is a critical gap in effective strategic planning. Specifically, the underutilization of "Rapor Pendidikan" data—which could provide essential insights into student performance, teaching effectiveness, and resource allocation—has hindered the ability of school leaders to implement targeted interventions that address these multifaceted issues.

Given these gaps, there is an urgent need for school principals to integrate educational report data into their strategic planning processes. By adopting a data-based approach, principals can make informed decisions that align with the unique challenges of coastal education. Integrating "Rapor Pendidikan" data allows for a systematic monitoring of student progress, identification of strengths and weaknesses, and the setting of realistic, evidence-based goals. Moreover, a data-informed strategy can facilitate better resource allocation and promote continuous improvement in teaching practices, thereby enhancing overall educational quality. Addressing these issues through a data-based approach not only improves academic outcomes but also contributes to building a more resilient and responsive educational system in the coastal areas of Berau.

Research Objectives and Research Questions

The main objective of this study is to analyze how school principals in coastal Berau utilize educational report data for strategic planning to enhance the quality of education in elementary schools. By exploring the integration of data-driven decision-making into the planning process, the research aims to uncover the mechanisms through which principals address local challenges, allocate resources effectively, and ultimately improve educational outcomes in environments marked by infrastructural and socio-economic constraints.

In order to achieve this objective, the study focuses on two key research questions. First, it asks: "How do school principals in coastal Berau incorporate educational report data into their strategic planning processes?" This question seeks to reveal the specific strategies, tools, and processes that principals employ to translate raw data into actionable plans for school improvement. Second, the study investigates: "What are the primary challenges encountered by these principals when implementing data-driven strategic planning to enhance educational quality?" This question aims to identify the obstacles—whether they be related to data quality, resource limitations, or organizational barriers—that hinder effective data utilization in the educational context.

Significance of the Study

This study holds significant value for enhancing educational quality in coastal areas. By analyzing how school principals utilize educational report data in strategic planning, the research contributes to developing more effective planning practices that are specifically tailored to the unique challenges faced by coastal elementary schools. The findings are expected to shed light on the relationship between data-driven decision-making and improvements in educational outcomes, thereby providing valuable insights into how systematic planning can address issues such as infrastructural limitations and socio-economic constraints. This, in turn, has the potential to positively influence policy-making, refine school leadership practices, and improve overall student performance.

Moreover, the practical implications of this research are far-reaching for school administrators, policymakers, and stakeholders. The study's insights can serve as a foundation for formulating targeted recommendations to optimize resource

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allocation, overcome local challenges, and foster a culture of continuous improvement in school management. By incorporating data-based strategies, school leaders can make informed decisions that directly enhance teaching practices and learning environments, leading to better academic achievements and more resilient educational institutions. Policymakers, on the other hand, can use the findings to design supportive policies that encourage the adoption of data-driven approaches in education, ultimately contributing to a more robust and equitable educational system in coastal regions.

METHODS

Research Approach and Methodology

This study employs a qualitative research approach to deeply explore how school principals in the coastal area of Berau implement strategic planning based on educational report data to enhance the quality of education in elementary schools. The qualitative approach allows for an in-depth exploration of the experiences and perceptions of the principals, as well as the various factors influencing their strategic planning processes. In this study, a case study method is adopted, enabling a comprehensive analysis of the local context and dynamics that affect the implementation of data-driven strategic planning. The case study focuses on examining how principals utilize educational report data to set priorities, allocate resources, and develop effective strategies for school improvement. Data are gathered through in-depth interviews, focus group discussions, observations, and document analysis, which together help identify both best practices and challenges in using data-based strategies.

Place and Time of Research

The research is conducted at SDN 001 Biatan Lempake, an elementary school located in the coastal area of Berau. This school was selected because it represents the typical characteristics of coastal schools that face socio-economic challenges and infrastructure limitations. SDN 001 Biatan Lempake serves as an ideal case to investigate how principals implement strategic planning based on educational report data in an environment with limited access to resources. The study takes place during October and November 2024, coinciding with the first semester of the 2024 academic year. This timing allows for the observation of ongoing educational activities and the application of strategic planning processes within the school.

Data and Data Sources

The study collects a variety of data to gain a comprehensive understanding of the strategic management of education in coastal elementary schools in Berau. Data are divided into two main categories: primary and secondary sources. Primary data are obtained through in-depth interviews with school principals, teachers, and other educational stakeholders, which provide insights into the strategies implemented, challenges encountered, and best practices adopted in using educational report data for strategic planning. Direct observations are also conducted in the school environment to see how strategic planning is integrated into daily activities, such as teaching and interactions between teachers and students. Additionally, focus group discussions (FGDs) are organized with parents, students, and community representatives to collect collective perspectives on the factors supporting and hindering the implementation of educational strategies. Secondary data include school policy documents, annual reports, evaluation reports on educational programs, and relevant academic literature, all of which help contextualize the primary data and offer a broader understanding of the issues at hand.

Research Instruments

To collect comprehensive and relevant data on the use of educational report data in strategic planning, several research instruments are employed. An interview guide is used to obtain in-depth information from school principals and teachers regarding how they use the report data in their strategic planning processes, along with the challenges and best practices they have encountered. A focus group discussion guide is also utilized to capture collective viewpoints from parents, students, and community members regarding the effectiveness of the data-driven strategies implemented at the school. Furthermore, an observation form is designed to document the actual practices of strategic planning within the school environment, particularly noting how school leaders and teachers incorporate educational report data into their decision-making processes. Finally, document collection is carried out to gather supplementary information from official documents such as annual reports, policy documents, and evaluation reports, which support and enrich the overall data analysis.

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Data Collection Techniques

Data collection is carried out systematically to ensure the accuracy and relevance of the information obtained. In-depth interviews are conducted with school principals, teachers, and other educational stakeholders using a structured interview guide that features open-ended questions aimed at exploring their experiences and practices in using educational report data for strategic planning. These interviews are scheduled and conducted either face-to-face or via online platforms, and are recorded and transcribed for subsequent analysis. Focus group discussions (FGDs) are organized to gather collective insights from parents, students, and community representatives, helping to identify both enabling factors and challenges in the implementation of data-based strategies. Direct observations are performed in the school during planning meetings and other relevant activities to observe the real-time application of strategic planning practices. Additionally, a document analysis technique is employed to collect and review relevant documents such as annual school reports, policy documents, and evaluation reports, which provide further context and support the findings derived from interviews, FGDs, and observations.

Data Analysis Techniques

Data analysis in this study follows a thematic approach, utilizing the methods developed by Miles, Huberman, and Saldana. The analysis consists of three main stages: data condensation, data display, and drawing and verifying conclusions. In the data condensation phase, raw data from interviews, observations, and document analysis are simplified and filtered to retain only the most relevant information, which is then coded and grouped into thematic categories. Next, the condensed data are presented in structured formats such as narratives, tables, or diagrams, allowing for a clear visualization of patterns, trends, and relationships within the data. Finally, conclusions are drawn by interpreting the analyzed data in light of the research objectives and existing theoretical frameworks. To ensure the validity of the conclusions, triangulation is employed by comparing findings from different data sources, and member-checking is used by verifying the results with participants, thereby confirming that the interpretations accurately reflect their experiences.

Data Validity Checks

Ensuring the validity and credibility of the collected data is a critical component of this research. Several techniques are employed to validate the findings and ensure the integrity of the data. Triangulation is a key method used to compare and corroborate information gathered from multiple sources and methods, such as interviews, observations, and document analysis, ensuring consistency in the findings. Transferability is addressed by providing a detailed description of the research context and methodology, which allows the findings to be applicable to similar settings. Dependability is enhanced through the use of an audit trail that systematically documents every step and decision made throughout the research process, ensuring that the study can be replicated by others. Additionally, confirmability is achieved through member-checking, where preliminary findings are shared with participants to ensure that the interpretations accurately represent their experiences. These validation techniques collectively help to establish that the research findings are reliable, credible, and truly reflective of the phenomena under investigation.

FINDINGS AND DISCUSSIONS

Findings

The study reveals that the strategic planning practices of school principals in coastal Berau, based on educational report data, play a crucial role in enhancing the overall quality of education in elementary schools. Principals highlighted that educational report data are indispensable for various aspects of planning and evaluation. Specifically, the data are used to monitor student progress, evaluate the effectiveness of teaching methods, and set realistic, measurable strategic goals. For instance, principals noted that the reports provide a clear picture of student achievements, which allows them to identify areas that require targeted improvements. This evidence-based approach supports objective decision-making regarding curriculum adjustments, resource allocation, and the design of intervention programs. Furthermore, educational reports also serve as an effective tool for communication, enabling schools to engage parents and the broader community in the educational process.

The findings indicate that principals view the quality of education holistically, encompassing not only academic performance but also the development of character, social skills, and life

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competencies. They emphasized that optimal educational quality is achieved through effective teaching, a curriculum that aligns with students' needs, and the availability of adequate facilities and support resources. The strategic planning process is systematic and involves several critical steps: data collection and analysis, goal setting using the SMART framework, planning of specific interventions (such as remedial programs, curriculum adjustments, and professional development for teachers), and continuous monitoring and evaluation. However, the study also identified several challenges that impede the effective use of report data. These include limited access to high-quality data, inadequate analytical skills among staff, time constraints, and a tendency for data to focus primarily on academic metrics while overlooking non-academic aspects. Additional challenges arise from difficulties in prioritizing among vast amounts of data, resistance from some stakeholders, ethical concerns, and issues related to data privacy.

The study further highlights best practices that have been successfully implemented in some schools. These include the use of integrated data management systems, regular training for teachers to enhance data analysis capabilities, clear and focused goal setting, and the design of targeted interventions based on comprehensive data analysis. Active stakeholder involvement—ranging from teachers and parents to school committees and local education authorities—along with the effective use of technology for collaboration, has been shown to enhance the overall effectiveness of these strategies. As a result, schools have experienced tangible improvements, such as higher academic scores, reduced absenteeism, and enhanced social and character development among students.

Challenges in Data-Driven Strategic Planning

Despite these supporting factors, the study identifies several barriers that hinder the effective implementation of data-driven strategic planning. One of the primary challenges is **incomplete and inconsistent data**, which arises due to reporting inaccuracies, outdated records, and inconsistent data entry across schools. This issue is exacerbated by **limited internet access and technological constraints**, particularly in remote areas where digital infrastructure remains underdeveloped.

A significant challenge is the **lack of analytical skills among educators and school staff**. Many teachers and administrators require further training in data interpretation, making it difficult to utilize educational data for strategic decision-making. Additionally, **the high workload of school operators** often limits their capacity to focus on data management and analysis effectively.

Another obstacle is **the lack of integration between different educational data systems**, such as Dapodik and National Assessments, leading to difficulties in synthesizing data for comprehensive analysis. Schools also struggle with **tight reporting deadlines**, which often result in prioritizing speed over accuracy, thereby compromising data quality.

Concerns over cybersecurity and data privacy further complicate data management, as schools must implement measures to protect sensitive student and institutional information. Additionally, **resistance to adopting digital tools and data-driven approaches** remains prevalent among educators who are more accustomed to traditional manual record-keeping. Some stakeholders also demonstrate **a lack of awareness of the strategic importance of data**, leading to underutilization of available resources.

STRATEGIES TO OVERCOME CHALLENGES

To address these barriers, several strategies can be implemented. **Improving data quality and management** is essential, which involves regular training for teachers and staff on accurate data collection and ensuring periodic data audits to maintain consistency. **Upgrading technological infrastructure** through increased funding and the adoption of digital data storage solutions can also significantly enhance efficiency.

Investing in **professional development programs** is crucial to equipping educators with the necessary analytical skills. Workshops, mentorship programs, and collaborative data analysis sessions can help strengthen teachers' ability to interpret and apply educational data effectively. **Optimizing time management** by allocating dedicated periods for data review and planning ensures that schools can balance administrative duties with strategic development.

Another key approach is **strengthening stakeholder collaboration** by organizing regular meetings with parents, community leaders, and policymakers to discuss data insights and strategic goals. Encouraging **flexibility and adaptability in planning** allows schools to continuously refine

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their strategies based on evolving challenges and educational trends.

Table 1: Thematic Analysis of the school principals' strategic planning in coastal Berau incorporate educational report data

No	Finding	Code	Description
Theme: Data Usage (PD)			
1	Student Progress Monitoring	PD1	Using educational reports to monitor student achievement and identify areas needing improvement.
2	Learning Quality Assessment	PD2	Evaluating learning method effectiveness through educational report results to design appropriate programs.
3	Strategic Goal Setting Support	PD3	Educational reports assist in establishing realistic and measurable strategic goals.
4	Decision-Making Support	PD4	Educational report data serves as a basis for decision-making regarding curriculum, resource allocation, and student interventions.
5	Communication with Parents and Community	PD5	Educational reports are used to communicate with parents and community about student development.
6	Educational Program Evaluation	PD6	Evaluating educational program effectiveness through report data to determine necessary improvements.
Theme: Understanding Educational Quality (MP)			
7	Definition of Educational Quality in Elementary Schools	MP1	Educational quality is defined holistically, encompassing teaching, student development, and achievement of educational standards.
8	Curriculum Relevance in Educational Quality	MP2	Curriculum relevant to children's needs and development forms the foundation for ensuring effective education.
9	Facility and Resource Availability	MP3	Adequate facilities and quality resources contribute to successful teaching and learning processes.
10	Student Learning Outcome Evaluation	MP4	Learning outcomes include academic grades, character development, social skills, and student life skills.
11	Conducive Educational Environment	MP5	A conducive educational environment supports students' physical, mental, and social development.
Theme: Strategic Planning Process (PS)			
13	Educational Report Data Collection and Analysis	PS1	Collecting and analyzing student report data to identify trends and areas needing improvement or strengthening.
14	Goal and Objective Setting	PS2	Setting data-based strategic goals using the SMART approach to improve student learning outcomes.
15	Action and Intervention Planning	PS3	Developing concrete data-based action plans, including student training, teaching method improvements, and teacher professional development.

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16	Strategic Plan Implementation	PS4	Implementing programs and interventions with appropriate resource allocation and parent and community involvement.
17	Regular Monitoring and Evaluation	PS5	Conducting regular monitoring and evaluation to ensure strategy effectiveness and provide improvement feedback.
18	Continuous Improvement	PS6	Conducting periodic strategic plan revisions and updates to continuously improve educational quality.
Theme: Data Analysis (DS)			
19	Year-to-Year Student Development Data	DS1	Comparing student performance year-over-year to assess achievement improvement or decline trends.
20	Teacher Performance Data	DS2	Evaluating teacher instruction through classroom observation and student feedback to improve learning effectiveness.
21	Curriculum and Learning Method Data	DS3	Analyzing curriculum and learning methods to maintain relevance and support student achievement improvement.
22	Resource and Facility Data	DS4	Identifying educational facility availability and needs, including technology access to support learning.
23	Student Demographics and Social Conditions Data	DS5	Understanding students' socio-economic background to design more targeted educational interventions.
23	School Program and Activity Evaluation Data	DS6	Assessing learning program and school activity effectiveness based on evaluation and feedback from students and parents.
Theme: Best Practices (PT)			
26	Systematic and Structured Data Collection	PT1	Using integrated data management systems to ensure report data is recorded uniformly and easily accessible.
27	Improving Data Analysis Skills	PT2	Regular training for teachers and staff to improve ability to read and interpret report data.
28	Setting Clear Goals and Priorities	PT3	Determining data-based strategic goals using the SMART approach to ensure clear improvement focus.
29	Planning Interventions Based on Data Findings	PT4	Designing remedial and enrichment programs based on data analysis results to meet individual student needs.
30	Developing Measurable Action Plans	PT5	Creating specific action plans with clear success indicators to facilitate strategy effectiveness evaluation.
31	Involving Stakeholders in Planning Process	PT6	Inviting parents, community, and education department to participate in strategic planning to increase support.
32	Conducting Regular Evaluation and Adjustment	PT7	Assessing strategy target achievement regularly based on report data and making necessary improvements.
33	Improving Transparency and Communication	PT8	Making data analysis results and strategic plans public to gain support and input from

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			parents and community.
34	Using Data to Form Responsive Educational Policies	PT9	Utilizing report data to formulate policies more responsive to student gaps and needs.
Theme: Stakeholder Participation (PS)			
35	Building Open and Transparent Communication	PS1	Holding initial meetings with stakeholders to develop shared vision and goals for aligned understanding.
36	Involving Teachers in Data Collection and Analysis	PS2	Teachers are given training and collaborative sessions to collect and analyze data for developing improvement strategies.
37	Involving Principal in Policy Development	PS3	Principal works with teachers and staff to ensure educational policies align with student needs.
38	Establishing Active Working Teams	PS4	Forming strategic planning teams with clear roles to focus on specific aspects like academics and character.
39	Holding Regular Meetings for Evaluation and Updates	PS5	Conducting evaluation meetings periodically to review strategy progress and identify constraints and solutions.
40	Increasing Parent and Community Involvement	PS6	Inviting parents and school committee to planning discussions to gain strategic support and input.
41	Providing Space for Innovation and Creativity	PS7	Encouraging teachers to create teaching method innovations and recognizing their contributions.
42	Enhancing Collaborative Leadership	PS8	Principal acts as facilitator giving teachers freedom in developing learning strategies.
43	Using Technology for More Effective Collaboration	PS9	Utilizing digital platforms to support communication and updates regarding educational strategies.
44	Providing Feedback and Recognition	PS10	Giving appreciation to parties contributing to strategic planning to increase their motivation.
Theme: Parent Participation (PO)			
45	Building Open and Transparent Communication	PO1	Using general meetings, school bulletins, and digital platforms to socialize strategic planning goals.
46	Holding Regular Meetings and Discussions	PO2	Regular discussion forums enable parents to provide input and understand school educational strategies.
47	Involving Parents in Policy Development	PO3	Parents are involved through consultations, surveys, and questionnaires so school policies reflect their needs.
48	Activating School Committee and Working Groups	PO4	School committee consisting of parent and teacher representatives helps develop and evaluate educational programs.
49	Using Technology to Improve Access and Collaboration	PO5	Digital platforms are used for virtual meetings and information sharing so parents can stay involved.
50	Providing Space for Community Contribution	PO6	Local community is invited to participate in extracurricular programs and educational facility provision.

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51	Giving Recognition and Acknowledgment for Involvement	PO7	Recognition is given to actively involved parents and community to increase their motivation.
52	Collaboration with Government and Social Institutions	PO8	Partnerships with government and educational institutions help schools obtain policy support and additional resources.
53	Creating Programs Relevant to Community Needs	PO9	Schools adapt educational programs to local context to be more effective and accepted by the community.

Table 1: Thematic Analysis of Challenges Encountered by School Principals

No	Finding	Code	Description
Theme: Supporting Factors (SF)			
1	Data Availability and Accuracy	SF1	Education report data must be complete, accurate, and relevant to ensure proper analysis in strategic planning.
2	School Team Competency	SF2	Principals, teachers, and educational staff must have data analysis skills through training and professional development.
3	Collaboration and Participation	SF3	Involvement of teachers, parents, school committees, and students in strategic planning ensures more relevant and applicable strategies.
4	Policy Support	SF4	Clear regulations and policies from the education department help schools implement data-based strategies consistently.
5	Technology and Infrastructure	SF5	Availability of technological devices and internet access facilitates education report data management and analysis.
6	Funding	SF6	Adequate budg*et al*location for training, technology development, and implementation of data-based strategies in schools.
7	Commitment and Leadership	SF7	Visionary leadership and commitment to using data as a basis for decision-making is crucial for strategy success.
8	Monitoring and Evaluation	SF8	Effective monitoring system and periodic evaluation ensure strategies remain relevant and can be adjusted as needed.
9	Understanding Local Context	SF9	Considering local social, cultural, and economic conditions in data analysis to make strategies more relevant and targeted.
Theme: Challenges			
10	Technical Challenge - Incomplete Data Availability	TD1	Reported data is often incomplete, not following standard formats, or not regularly updated.
11	Technical Challenge - Inconsistent Data Quality	TD2	Different understandings of requested indicators and input errors cause data inconsistencies.
12	Technical Challenge - Limited Technology Access	TD3	Limited internet access hinders data management and transmission to central systems.
13	HR Challenge - Lack of HR Capacity	HR1	Many school operators and education department staff are not trained in data management applications.
14	HR Challenge - High	HR2	School operators handle many administrative

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	Workload		tasks, leaving insufficient time for optimal data management.
15	Policy Challenge - Lack of Data Harmonization	PC1	Data from various systems like Dapodik and National Assessment often not integrated, making data analysis difficult.
16	Policy Challenge - Pressure for Quick Reporting	PC2	Short data collection deadlines make schools focus more on speed than accuracy.
17	Infrastructure Challenge - Digital Divide	IC1	Schools in remote areas experience limited internet network and inadequate hardware.
18	Infrastructure Challenge - Digital System Disruptions	IC2	Server downtime or technical disruptions in information systems like Dapodik hamper data management.
19	Data Security Challenge - Security and Privacy Risks	DS1	Risk of personal information leakage of students, teachers, and schools due to suboptimal data management.
20	Data Security Challenge - Lack of Security Awareness	DS2	Operators or data managers don't fully understand the importance of maintaining data confidentiality.
21	Data Analysis Challenge - Lack of Analysis Capability	DA1	Data often stored without being processed into useful information for decision-making.
22	Data Analysis Challenge - Limited Analysis Tools	DA2	Not all education departments have access to data analysis software that supports in-depth data processing.
23	Social and Cultural Challenge - Low Awareness of Data Importance	SC1	Principals, teachers, or stakeholders haven't prioritized data collection and use in educational planning.
24	Social and Cultural Challenge - Resistance to New Technology	SC2	Some schools or staff still reluctant to use new applications due to unfamiliarity with technology.
Theme: Obstacles and Their Solutions (OS)			
25	Limited Technology Devices	OS1	Many schools, especially in remote areas, lack necessary computers or laptops for data management.
26	Limited Internet Network	OS2	Schools in remote areas often lack stable internet access, hindering routine data transmission and updates.
27	Lack of Data Storage Systems	OS3	Many schools still rely on physical documents or manual spreadsheets, vulnerable to loss or recording errors.
28	Dependence on Manual Technology	OS4	Some schools still use manual recording methods, making data analysis process slow and inefficient.
29	Limited Tech-Savvy HR	OS5	Not all teachers or school operators have sufficient information technology skills to optimize available infrastructure.
30	Central System Disruptions	OS6	Disruptions to national systems like Dapodik server downtime become obstacles in timely data reporting and access.
31	Delayed Plan Development	OS7	Inaccessible or poorly managed data causes delays in education report-based plan development.
32	Non-Data-Based Decision	OS8	Without accurate data, schools often develop

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	Making		strategic plans based on assumptions rather than actual needs.
33	Monitoring and Evaluation Difficulties	OS9	Without adequate technological support, schools struggle to evaluate and monitor implemented programs.
34	Educational Quality Gap	OS10	Schools with good infrastructure and technology can plan more effectively compared to those with limitations.
35	Infrastructure Enhancement	OS11	Providing technological devices like computers and internet access for schools in remote areas.
36	HR Capacity Building	OS12	Conducting regular training for principals, teachers, and school operators on data management and analysis.
37	Integrated System Development	OS13	Building information systems that integrate data from various sources for easy access and analysis.
38	Private Sector Partnership	OS14	Collaborating with technology companies or donor institutions to provide devices, internet access, or training for schools.
39	Addressing Strategic Planning Obstacles	OS15	Conducting periodic data audits, organizing workshops, building data transparency culture, and involving school community in planning.

DISCUSSIONS

The study emphasizes the significance of data-driven strategic planning in enhancing the quality of education in elementary schools located in coastal Berau. Educational report data serve as a foundational tool for shaping school management strategies, enabling principals to monitor student progress, evaluate instructional effectiveness, and set strategic goals that align with the needs of the school and its stakeholders. By leveraging educational report data, schools can adopt a more objective and evidence-based approach to decision-making, particularly in areas such as curriculum refinement, resource allocation, and targeted intervention programs (Castillo, *et al*., 2024; Ghafar, 2021).

Furthermore, educational reports facilitate effective communication, allowing schools to engage parents, community members, and policymakers in the educational process. This engagement fosters greater transparency and accountability, ultimately contributing to improved learning outcomes and overall school performance (Ladera-Castañeda, *et al*., 2024). The findings reveal that principals perceive educational quality holistically, recognizing that it encompasses not only academic achievement but also character development, social skills, and life competencies. They emphasize that optimal education is achieved through effective teaching, a curriculum that aligns with students' needs, and the availability of adequate facilities and resources (Ada, 2018).

A well-structured strategic planning process ensures the systematic implementation of these elements by integrating key steps such as data collection and analysis, goal setting using the SMART framework, planning specific interventions—including remedial programs, curriculum adjustments, and professional development for teachers—and continuous monitoring and evaluation (Ghafar, 2021; Chaula & Mhando, 2023). However, despite these efforts, schools encounter multiple challenges that hinder the effective use of educational report data in strategic planning.

One of the primary challenges identified in the study is the issue of incomplete and inconsistent data, stemming from inaccuracies in reporting, outdated records, and discrepancies in data entry across different schools. This issue is exacerbated by limited access to technology and unreliable internet connectivity, particularly in remote areas where digital infrastructure is underdeveloped. These technological constraints not only affect data collection but also impede the integration of educational data systems, making it difficult for schools to synthesize and analyze comprehensive information (Azhar, *et al*., 2024). Additionally, tight reporting deadlines often lead to a focus on speed rather than accuracy, thereby compromising

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data quality and limiting its usefulness in strategic decision-making (Fitri, *et al*., 2020).

Another significant challenge is the lack of analytical skills among educators and school staff. Many teachers and administrators require further training in data interpretation, which limits their ability to utilize educational data effectively for planning and intervention. The high workload of school operators complicates the situation, as they are often responsible for multiple administrative duties, leaving little time for data management and analysis (Muliasari, *et al*., 2023). Moreover, there is a lack of awareness among some stakeholders regarding the strategic importance of data, resulting in its underutilization. Some educators and school leaders continue to rely on traditional, manual record-keeping methods, demonstrating resistance to adopting digital tools and data-driven approaches (Begum, *et al*., 2024).

Concerns over cybersecurity and data privacy also pose a major obstacle to the effective management of educational data. Schools must implement robust security measures to protect sensitive student and institutional information. Without proper safeguards, the risk of data breaches and unauthorized access remains high, leading to potential ethical and legal ramifications (Hardiansyah & Zainuddin, 2022). Additionally, the lack of awareness about data security among school personnel further complicates efforts to establish and enforce effective data protection policies. To address these challenges, several strategies can be implemented to optimize data-driven strategic planning in schools. Improving data quality and management is essential, requiring regular training for teachers and school staff on accurate data collection and analysis. Schools must also conduct periodic data audits to maintain consistency and reliability in reporting (Jasti, *et al*., 2019). Investing in professional development programs is crucial to equipping educators with the necessary analytical skills, enabling them to interpret and apply educational data effectively. Workshops, mentorship programs, and collaborative data analysis sessions can strengthen teachers' abilities to incorporate data into their instructional planning and intervention strategies (Dharyanti, *et al*., 2019). Technological advancements play a crucial role in overcoming these barriers. Upgrading technological infrastructure through increased funding and the adoption of digital data storage solutions can significantly enhance efficiency in data management. Schools, particularly those in remote areas, require greater access to computers, internet connectivity, and data management software to facilitate smooth and efficient strategic planning (Prasetia, 2023). Additionally, integrated data management systems should be developed to consolidate multiple sources of educational data, making it easier for schools to access, analyze, and utilize information effectively (Basel & Osman, 2020). Strengthening stakeholder collaboration is another key approach to ensuring the successful implementation of data-driven strategies. Regular meetings with parents, community leaders, and policymakers can help align school goals with the needs and expectations of stakeholders. Transparency in data utilization and decision-making processes fosters greater community engagement and support for school improvement initiatives. Encouraging flexibility and adaptability in planning allows schools to continuously refine their strategies based on evolving challenges and educational trends. By regularly reviewing and updating strategic plans, schools can ensure that their approaches remain relevant and effective in addressing the dynamic needs of students. The study highlights that a comprehensive and collaborative approach is necessary to maximize the benefits of data-driven strategic planning. A combination of professional development, infrastructure investment, stakeholder engagement, and policy reforms can help schools overcome existing barriers and fully leverage the potential of educational report data. By fostering a culture of data-driven decision-making, schools can create adaptive, evidence-based educational strategies that enhance student learning and overall school performance. Addressing these challenges and capitalizing on opportunities for improvement will enable schools in coastal Berau to strengthen their strategic planning capabilities, ultimately leading to sustained educational improvements and better outcomes for students.

CONCLUSIONS

This study underscores the pivotal role of data-driven strategic planning in enhancing the quality of education in elementary schools in coastal Berau. The findings reveal that school principals effectively utilize educational report data to monitor student progress, evaluate instructional practices, and set realistic strategic goals, ultimately improving school performance. By adopting an evidence-based approach, schools can make informed decisions regarding curriculum adjustments, resource allocation, and intervention programs tailored to students' needs. Additionally,

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the integration of educational report data fosters greater engagement among stakeholders, including parents, teachers, and local education authorities, reinforcing a collaborative effort toward school improvement.

Despite the advantages of data-driven strategic planning, several challenges hinder its optimal implementation. These challenges include incomplete and inconsistent data, limited technological infrastructure, inadequate analytical skills among school staff, and the high workload of school administrators, which restricts their ability to effectively analyze and apply data in decision-making. The lack of integration between different educational data systems further complicates efforts to synthesize and utilize information comprehensively. Moreover, issues related to cybersecurity, data privacy, and resistance to digital tools present additional obstacles that schools must overcome to fully leverage the benefits of data-driven planning.

To address these challenges, a multifaceted approach is required. Enhancing data quality and management through training, audits, and standardized reporting practices is essential for ensuring accuracy and consistency in educational report data. Investing in professional development programs can equip educators with the necessary skills to interpret and apply data effectively. Furthermore, upgrading technological infrastructure, particularly in remote areas, will facilitate more efficient data management and integration. Strengthening stakeholder collaboration by involving parents, teachers, and policymakers in the planning process can also enhance the implementation of data-driven strategies, fostering a culture of transparency and continuous improvement.

Ultimately, this study highlights that a comprehensive and well-structured strategic planning process, supported by accurate and well-utilized educational report data, can significantly contribute to improving educational quality in coastal Berau. By adopting a systematic, data-informed approach, schools can develop more responsive and sustainable strategies that address local challenges, enhance student learning outcomes, and create a more resilient education system. The findings of this research provide valuable insights for policymakers, school administrators, and educators, offering a framework for strengthening data-driven decision-making processes in education. Moving forward, continued efforts in capacity-building, infrastructure development, and policy support will be crucial in ensuring the long-term success of strategic planning initiatives in coastal schools.

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