Data-Driven Learning Community Planning: The Principal's Strategy in Teacher Professional Development

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Keywords	Abstract
learning leadership; professional learning community; data-driven planning; professional development of teachers; the quality of learning	Improving the quality of basic education requires school leadership that can drive teacher professional development through a planned and data-driven learning community. This study aims to describe the principal's strategy in planning the Professional Learning Community (PLC) at SD Negeri Temperak, analyze data-based strategic steps in preparing teacher learning community programs, and identify supporting factors and obstacles that affect its implementation. The approach employed is qualitative, utilizing a case study design through data collection techniques that include in-depth interviews, observations, and document analysis. These data are then analyzed using thematic analysis methods. The results of the study show that school principals play a central role in utilizing education report card data to identify learning needs, formulate teacher development priorities, and develop PLC agendas collaboratively. Systematic and evidence-based planning has been proven to strengthen teachers' reflective practices, enhance learning effectiveness, and positively impact student learning outcomes, particularly in literacy and numeracy. The main obstacles identified include time constraints, dependence on school principals' leadership, and a lack of optimal continuous evaluation. These findings confirm the importance of adaptive, collaborative, and data-driven leadership in learning as a foundation for teacher professional development in elementary schools.

INTRODUCTION

Basic education plays a strategic role in shaping literacy, numeracy, character, and skills competencies in the 21st century, which are the foundation for students' success at the next level. The quality of learning in elementary schools is significantly influenced by the capacity of teachers and the leadership of school principals in designing learning processes that are adaptable to the needs of students and the dynamics of educational policies (Mora-Ruanoet al., 2021; Voogt & Roblin, 2012). Therefore, strengthening teacher professionalism through continuous development is an important aspect in improving the quality of education.

In this context, school principals not only play the role of administrative managers but also instructional leaders who ensure that the learning process runs effectively through strategic planning, academic supervision, and teacher empowerment [3,4]. Various studies show that directed, collaborative, and data-driven learning leadership has a positive relationship with improving the quality of learning and teacher professionalism [5,6].

One of the widely used approaches to enhance teacher professionalism is the Professional Learning Community (PLC), which emphasizes collaboration among teachers in analyzing student learning outcomes, sharing teaching practices, and engaging in continuous reflection. In recent developments, this concept has evolved into Collaborative Professionalism, which is a collaboration based on shared responsibility for student learning and the collective development of teachers [7]. Cutting-edge research confirms that the success of PLCs is primarily determined by the quality of data-driven planning and visionary leadership of principals [8,9].

In the framework of this research, PLC planning is understood as a systematic strategic process and includes five main components: needs analysis based on educational report cards and assessment results; setting measurable learning objectives; the formation of a learning community driving team; the preparation of collaborative programs that are relevant to the needs of the school; and the provision of resources such as time, budget, and school policy support. If these five elements are implemented consistently, PLC has the potential to improve teacher competence and learning quality in a sustainable manner.

SD Negeri Temperak was chosen as the research location because it has experienced an increase in education report card scores over the last two years, particularly in the aspects of literacy and numeracy. However, academic studies on how school principals plan PLCs based on educational report card data in rural elementary schools are still limited. Previous research has tended to focus more on the implementation of PLCs than on the strategic and contextual planning process.

In line with this background, this study aims to describe the principal's strategy in planning a teacher learning community in SD Negeri Temperak, analyze the data-based strategic steps implemented in learning community planning to support teacher professional development, and identify the supporting factors and obstacles faced in the planning process as part of efforts to improve the quality of learning.

METHODS

This study employs a qualitative approach with a case study design to gain an in-depth understanding of the principal's strategy in planning a data-driven learning community at SD Negeri Temperak. The design of the case study enables researchers to explore real-world contexts, social processes, and interactions among educational actors in complex and dynamic situations [10,11]. This approach was chosen because it is suitable for exploring the experiences and strategies of school principals holistically within the context of rural elementary schools.

The research was conducted at SD Negeri Temperak, Rembang Regency, which was chosen purposively because it had shown an increase in education report card scores over the last two years, particularly in literacy and numeracy aspects. The research informants include school principals, driving teachers, and classroom teachers who are directly involved in the planning and implementation process of the learning community. The selection of informants was made based on their active involvement in PLC activities and understanding of the school's data-driven policies, in line with the principle of deep collaboration in professional learning [12,13]

Data were collected through three primary techniques, namely in-depth interviews guided by a semi-structured protocol developed according to the Interview Protocol Refinement Framework [14], non-participatory

observation of learning community planning meetings, and document analysis, which included education report cards, School Work Plans (RKAS/BOS), and meeting minutes. The integration of these methods was intended to ensure the completeness and credibility of the data through a systematic triangulation process [15].

The data analysis process was conducted simultaneously with data collection, utilizing a thematic analysis approach. The stages of analysis include transcription, coding, categorization of themes, and drawing conclusions based on patterns of meaning that emerge. [16]. The analysis model employed is interactive, encompassing data reduction, data presentation, and conclusion drawing and verification, as recommended in contemporary qualitative research [11].

The validity of the data is maintained through triangulation of sources and techniques, as well as member checking of participants, to ensure the accuracy of the findings [10,15]. The researcher also compiled a trail audit to support the credibility, dependability, and confirmability aspects of the research [16]. The entire research process is conducted in accordance with the ethical principles of educational research, including obtaining consent from participants, maintaining participant confidentiality, and using data solely for academic purposes [17].

RESULTS AND DISCUSSION

Principal's Strategy in Learning Community Planning

The research findings indicate that the principal plays a central role in initiating and directing the implementation of the Professional Learning Community (PLC) at SD Negeri Temperak. The planning process begins with analyzing education report data and national assessment results, which serve as the basis for identifying areas that need improvement in learning quality. The principal guides teachers to focus on areas that remain low, such as numeracy skills and project-based learning. This process demonstrates the application of effective data-driven leadership, as stated by Schildkamp and Poortman (2023)Leaders who incorporate empirical evidence into their decision-making are better equipped to enhance the quality of learning in schools.

In addition, the principal integrates the results of the data analysis into the annual PLC meeting to prioritize improving teacher competence. This approach shows the application of participatory instructional leadership principles, where the principal plays the role of a facilitator of teacher learning and not just an administrator [3]. These findings reinforce the view that strong learning leadership can enhance teacher motivation and professionalism through strategic direction and reflective support [6].

Data-Driven Strategic Steps in PLC Planning

In the planning stage, the principal sets measurable learning goals based on the results of the education report card. These goals are formulated in learning community meetings with teachers, creating an understanding of the program's direction. This collaborative approach has been proven to strengthen teachers' sense of ownership and enhance the consistency of PLC implementation. As emphasized by Riveros et al. (2022), Liu et al. (2022), and Hallinger & Wang (2022),Teacher collaboration that is reflectively facilitated has a significant impact on the effectiveness of learning communities.

The principal also optimizes school resources by allocating BOS funds and scheduling special times for PLC activities. This arrangement demonstrates that structural support is a crucial prerequisite for the success of teachers' professional development [8]. In addition, the principal strives to build a culture of reflection by encouraging teachers to document their teaching practices and discuss them in PLC forums. This process serves as a means to identify competency gaps while designing data-driven follow-up actions [9].

The results of observations and interviews also show that the principal employs an open communication strategy in every PLC meeting. Teachers are allowed to express challenges and propose improvements directly, making the planning process adaptive. This strategy aligns with the findings of O'Connor and Park (2023), Who emphasizes the importance of collaborative leadership in maintaining the effectiveness of PLCs at the elementary school level As a summary of the field findings, the relationships among elements in data-driven PLC planning are visualized in Figure 1. This conceptual model illustrates the flow of the principal's role as an instructional

leader in initiating PLC planning strategies and their impact on enhancing teacher professionalism and learning quality.
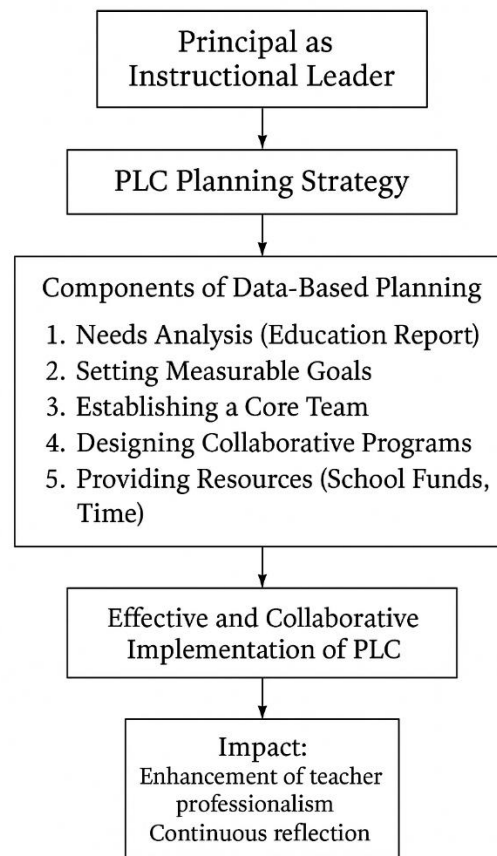

Figure 1. Data Driven PLC Planning Strategy Model by the Principal

This is consistent with the view of Stoll and Kools (2017), who assert that schools functioning as learning organizations are capable of fostering a culture of continuous reflection through an adaptive PLC structure.

Supporting Factors and Implementation Constraints

The primary factors supporting the implementation of PLC at SD Negeri Temperak are the visionary leadership of the principal, the collaborative culture among teachers, and policy support from the local education office. The principal actively coordinates with school supervisors and leverages government programs to strengthen teachers' capacity. Such support reinforces the findings of Hallinger and Wang (2022), which states that instructional leadership oriented toward systemic support makes a significant contribution to improving school quality.

However, this study also identified several challenges, such as limited teacher time due to administrative workloads, dependence on the principal to facilitate meetings, and the absence of a continuous evaluation mechanism. These conditions align with the findings of Hairon and Tan (2017), who noted that hierarchical structures and bureaucratic cultures in schools often hinder genuine collaboration within PLCs. Nevertheless, the adaptive measures implemented by the principal of SD Negeri Temperak, such as rescheduling activities and providing motivational incentives, demonstrate adaptive leadership in addressing resource constraints.

Overall, the findings of this study indicate that the success of PLCs is primarily determined by the quality of data-driven planning, participatory leadership support, and teachers' reflective culture. The model applied at SD Negeri Temperak can be categorized as *data-informed collaborative planning,* a model of teacher professional development that integrates evidence-based analysis with reflective collaboration. [8,18]. These findings offer

important implications for the development of PLC practices in rural elementary schools, particularly in fostering a contextual and evidence-based continuous learning system

CONCLUSION

This study demonstrates that the principal's strategy for planning learning communities at SD Negeri Temperak is implemented systematically through the analysis of education report data, the establishment of measurable learning goals, and the organization of resources and time for teachers. The principal plays an active role as an instructional leader, guiding teachers to collaborate within the Professional Learning Community (PLC) forum to improve the quality of learning based on actual classroom needs.

The data-driven planning approach has proven effective in strengthening the culture of reflection among teachers and enhancing their professionalism. The principal successfully integrates data analysis results, academic supervision, and teacher competency development into a continuous improvement cycle. The observed impacts include improved teacher collaboration, increased engagement in reflective teaching practices, and better student learning outcomes in literacy and numeracy.

Nevertheless, the successful implementation of PLCs still faces several challenges, such as limited time, dependence on the principal, and suboptimal continuous evaluation. Therefore, stronger policy support and further training for principals and teachers are needed to ensure that PLC programs remain sustainable and adaptive to the context of rural elementary schools.

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