An Application of General Principles of Educational Supervision Program Development at State Senior High School 3 Pangkalan Bun

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Abstract	Article Info
General principles of educational supervision development as a guideline for supervision activities to run effectively, efficiently, and sustainably. The purpose of the research is to determine the application of general principles of educational supervision program development at SMA Negeri 3 Pangkalan Bun Qualitative research by Seeing the problems and research objectives to be achieved, this research uses phenomenological research. Data collection techniques are interviews, observation and documentation. Data analysis by conducting data condensation, data presentation and drawing conclusions/verification. The results of the research: the application of general principles of educational supervision program development at SMA Negeri 3 Pangkalan Bun has been implemented systematically, planned, and based on data through a comprehensive needs analysis and consistent application of supervision principles. The supervision process begins with mapping the needs of teachers, students, and schools through various instruments such as surveys, observations, interviews, document analysis, and educational reports, which then become the basis for compiling relevant and evidence-based supervision programs. The implementation of supervision is led through the principal's instructional leadership and is carried out in a collaborative cycle based on the GTK platform, including planning, observation, feedback, follow-up, and reflection. The use of educational report cards, teacher performance assessments, and mapping of PKB needs strengthens the accuracy of supervisory decisions and the provision of professional support. Overall, the implementation of these supervisory principles has had a positive impact on improving school quality, as reflected in improvements in literacy, numeracy, character, safety, diversity, and learning quality.	

INTRODUCTION

Education is a conscious and planned effort to prepare the nation's next generation of quality (Marpaung et al., 2023). As a learning environment, schools naturally have a set of programs and learning activities to carry out this educational mandate (Kusumawati, 2020). As an educational institution, schools prepare everything carefully and systematically.

Improving the quality of education in schools can be done through supervision carried out by the principal (Huseyinli et al., 2014; Lubis & Pratama, 2021; Primayanti, 2015; Rozi, 2016; Usman, 2017). The term educational supervision has become a hot topic in developed countries. To further understand the meaning of "supervision," Mubarok et al. (2025) explains that supervision is a coaching activity planned to help teachers and other school staff to help

their work effectively. Not much different from the definition of Educational Supervision expressed by Shabur et al., (2023) who see supervision as a procedure for providing direction and conducting critical assessments of the teaching process. Almost the same opinion was also expressed by Burton and Bruckner that supervision is a service technique whose main goal is to study and improve together the factors that influence child growth and development (Moewardi et al., 2020).

Educational supervision is a crucial aspect in efforts to improve the quality of education in schools (Supit et al., 2021). Various supervisory activities related to the learning process can be monitored, evaluated, and improved to achieve the desired educational goals. Supervision goes beyond mere oversight in the sense of control, but rather focuses on coaching, mentoring, and empowering educators and staff to enable them to perform optimally in accordance with professional standards.

According to Syaputra et al., (2020) there are several things that underlie the importance of supervision. "namely: Social change, Globalization, Development of science and technology, Urbanization, Regional changes, Thriving bureaucracy, Educational Democracy and Monetary crisis. The explanation above is some of the parts that underlie the importance of educational supervision for teachers, all of these aspects require teachers to be able to carry out their duties in any situation, and encourage teachers to continuously adapt to developments in science, technology and community mobility, starting from this assumption, educational supervision is needed for teachers.

Supervision is so important for teachers and stakeholders in the world of education that many studies have been conducted related to educational supervision, such as research conducted by (Mena et al., 2016) through their research explaining that supervision carried out by the principal has a positive influence on teacher performance, and supervision is the right step in improving teacher performance. Similar research was also conducted by (Susilowati et al., 2021) through their research explaining that the influence of supervision carried out by the principal on teachers in improving the teaching and learning process is very large, the implementation of supervision carried out by the principal emphasizes more on fostering teachers' abilities in managing learning. The findings through research conducted by (Handayani & Selamat, 2015) concluded that the essence of supervision in Islamic education is a joint effort carried out to improve the quality of learning and teaching with scientific principles and cooperation.

Developing an educational supervision program requires general principles to guide effective, efficient, and sustainable supervision activities. These principles include openness, objectivity, democracy, constructiveness, and an orientation toward developing the potential of both teachers and students (Lestari, 2016). With clear principles, the supervision program can be systematically designed, tailored to the needs of the school, and able to meet the challenges of the ever-evolving dynamics of education.

The shift in educational paradigms that emphasize the quality of the teaching and learning process demands that educational supervision play a more active role in improving teachers' professional competence (Mukhtar & Luqman, 2020). Good supervision not only assesses results but also provides direction, guidance, and motivation to continuously innovate in developing learning strategies (Benu, 2019). Therefore, understanding the general principles of developing educational supervision programs is crucial for principals, school supervisors, and teachers in realizing quality education.

Schools are expected to produce the nation's next generation who are not only academically intelligent but also adaptive, creative, and have character (Anggreni, 2021). This phenomenon in various educational institutions indicates that the quality of the learning process still faces several gaps, both in planning, implementation, and evaluation. Many teachers have not fully implemented innovative learning, curriculum implementation is often inconsistent, and a culture of reflection and self-improvement is not optimal (Fau et al., 2022). This condition is influenced by the lack of systematic professional mentoring for teachers in

carrying out their duties. This is where educational supervision should play a central role, but practice in the field often shows that supervision is still understood as an inspection or administrative control activity, rather than as a continuous professional development process.

This gap is becoming increasingly critical given the importance of educational supervision in improving school quality. Effective supervision can strengthen the quality of the learning process through ongoing coaching, consultation, mentoring, and teacher empowerment. Supervisory principles such as objectivity, openness, democracy, constructiveness, and professional development are fundamental to its successful implementation (Wahyudin, 2020). Curriculum development, digital transformation, and the demands of 21st-century competencies mean that a systematic supervision program based on general principles is becoming increasingly relevant. Without clear principles, supervision activities have the potential to be sporadic, unfocused, and focused solely on administrative fulfillment (Haryanti and Indramawan, 2018). Therefore, strengthening understanding of the general principles of supervisory program development is crucial to optimize the role of supervision as an instrument for quality improvement.

Based on these needs, a goal is needed (*objective*) a study that specifically discusses and clarifies general principles in developing educational supervision programs. This study aims to provide a conceptual and practical understanding of how these principles should be designed, implemented, and evaluated in a school context. Principals, supervisors, and teachers receive strong theoretical provisions and operational guidance in designing supervision programs that are appropriate to school needs, run effectively, and support the improvement of teacher professional competence. The discussion is also directed at providing an overview of the relationship between supervision principles and the dynamics of learning implementation and how these principles can reduce the existing gap.

This study offers novelty and contribution by emphasizing the importance of supervision principles as a strategic foundation in developing future-oriented supervision programs. It not only presents the principles theoretically but also places them within the framework of current school needs, which require supervision to be humanistic, collaborative, reflective, and oriented towards learning innovation. This study combines school managerial perspectives, teacher professional development, and the demands of educational transformation, providing a comprehensive perspective (Arifin et al., 2023; Hasibuan et al., 2024; Jamal, 2014; Jasmine & Martdianty, 2022; Kusrini et al., 2018; Muttaqin et al., 2023; Ruslan et al., 2024; Singerin, 2021; Smith, 2018; Sulani et al., 2022; Sunaryo, 2020; Yao et al., 2023; Yue et al., 2024). The general principles of developing a supervision program are not only academically relevant, but also provide practical contributions to educational actors in their efforts to realize better and more sustainable learning quality.

SMA Negeri 3 Pangkalan Bun has a number of characteristics that make it a unique and relevant research location to examine the application of general principles of educational supervision program development. *First* This school is located in West Kotawaringin Regency, Central Kalimantan, which geographically has its own unique educational dynamics. Its location in an urban area, yet close to suburban areas and industrial areas, creates a heterogeneous student population. The diversity of students' socioeconomic and cultural backgrounds requires teachers to adapt learning strategies flexibly, making coaching-based educational supervision crucial to ensuring equitable learning quality.

Second SMA Negeri 3 Pangkalan Bun is a growing school with a continuously increasing student population. This growth has resulted in a growing need for enhanced teacher performance, consistent curriculum implementation, and an optimized learning environment. In such a context, a systematic supervision program based on principles such as objectivity, openness, democracy, constructiveness, and a focus on teacher development is crucial. The uniqueness of SMA Negeri 3 Pangkalan Bun lies in how the school strives to maintain the quality of learning amidst rapid growth and changes in curriculum policies.

Third This school has a strong commitment to quality improvement, as reflected in

various teacher professional development programs, such as internal MGMP activities, competency improvement workshops, and the use of technology in learning. However, this commitment needs to be more systematically integrated into the educational supervision program so that teacher development is not merely incidental, but sustainable. Against this backdrop, this research location provides a significant opportunity to examine the extent to which educational supervision principles are effectively applied in school management, particularly in synergizing coaching, evaluation, innovation, and mentoring.

*Fourth*SMA Negeri 3 Pangkalan Bun has a school leadership structure that is quite responsive to change. The principal and management team tend to implement a collaborative approach in managing school programs. This makes the research location even more interesting because it shows the opportunity to apply democratic and constructive supervision principles. Research at this school can provide an empirical picture of how supervision practices can be effective in an environment with a collaborative organizational culture but still face challenges such as limited resources, variations in teacher competency, and the need for technology-based learning innovation.

*Fifth*Another unique aspect is the school's efforts to integrate academic and managerial supervision proportionally. SMA Negeri 3 Pangkalan Bun strives to ensure that the learning process not only meets administrative standards but also pays attention to the quality of teacher-student interactions, the use of learning media, and competency achievement. This opens up opportunities for research to examine the implementation of supervisory principles in the context of a school attempting to balance administrative demands with the need for more humanistic professional development.

With these characteristics, SMA Negeri 3 Pangkalan Bun is a unique and strategic location to study the application of general principles for developing educational supervision programs. This uniqueness not only provides a rich research context but also allows researchers to gain a comprehensive picture of the challenges, practices, and opportunities for supervision development in a real-world setting in a developing secondary school.

Based on the description above, the aim of this research is to analyze*General Principles of Developing Educational Supervision Programs*It is relevant to study this in more depth as a basis for planning and implementing supervision in the school environment.

METHOD

This research, if viewed from the location of the data source, falls into the field research category (*field research)*. Field research is to find out where the events that are the object of research take place, so as to obtain direct and up-to-date information about the relevant problems, as well as*cross checking*to existing materials (Fitri & Haryanti, 2020). Viewed from the perspective of data characteristics, it is included in qualitative research, namely research that aims to understand phenomena about what is experienced by research subjects, such as behavior, perception, motivation, actions, and others holistically, and by means of description in the form of words and language, in a specific natural context and by utilizing various natural methods (Moleong, 2013).

Case studies also attempt to describe a particular setting, object, or event in depth (Bogdan & Biklen, 1998). This opinion is supported by (Yin, 2002) who states that case studies are a strategy chosen to answer questions.*how* And *why,*if the focus of the research is to examine contemporary (present) phenomena in real life. In this research, we also use cases (*case study*), implementation of the madrasah principal's strategy in developing talents and interests. Case study method (*case studies*). This case study is the researcher's choice to obtain accurate data regardingApplication of general principles for developing educational supervision programs at SMA Negeri 3 Pangkalan Bun. This case study is based on a research location that has characteristics related toApplication of general principles for developing educational supervision programs at SMA Negeri 3 Pangkalan BunBy using this case study design, it is hoped that the information and data obtained will provide insights into various experiences

regarding the topics discussed in the research focus. From this site, we can then draw conclusions regarding the strategic approach of madrasah principals in developing talents and interests in madrasahs.

The data collection procedure used in this study is: Participant Observation. In this case, the researcher attempted to systematically observe and record the symptoms that appeared in the study.State Senior High School 3 Pangkalan Bun. The observation technique used in this study is participant observation. The purpose of participant observation is to observe events as they occur naturally in the field. In this technique, researchers involve themselves or interact directly with the activities carried out by the subjects by systematically collecting data from the required data. In-Depth Interviews (*In deep Interview*) The interview method for this research is used as a guideline in conducting research. In this case, the researcher uses an in-depth interview technique (*in deep interview*), namely by digging up in-depth information regardingresearch focus. Researchers will interview informants, namely The principal of the madrasah, and so on. Documentation The documents in question can include photographs, madrasah documents, interview transcripts, and documents on the history and development of the madrasah. All of this documentation will be collected for analysis to complete the research data. In this case, the researcher took photographs related to the research study.

According to Haryanti (2019) data analysis is the process of systematically searching and organizing data obtained from interviews, field notes, and other materials, so that it can be easily shared with others. Data analysis is the process of systematically searching and organizing interview transcripts, field notes, and other materials collected by researchers. Analysis activities continue by reviewing data, organizing, dividing it into manageable units, synthesizing, looking for patterns, finding what is meaningful and what is researched and reported systematically. This research uses a case study design, so data analysis is carried out in three stages, namely: (1) data condensation, (2) data presentation, and (3) verification and drawing conclusions (Miles et al., 2014).

RESULT AND DISCUSSION

The implementation of the principles of developing a supervision program at SMA Negeri 3 Pangkalan Bun is carried out by:

1. Needs Analysis

Before developing a supervision program, a supervisor must have data on the needs of teachers or principals (Wibowo & Subhan, 2020). Analyzing the competency development needs of teachers and principals is absolutely essential to determine what learners need to learn, why they need to learn it, and how they choose to learn it. This involves collecting and analyzing data from various sources, such as students, stakeholders, subject matter experts, and existing materials. Meanwhile, (Leithwood, K., Anderson, S., Mascall, B., & Strauss, 2010) defines needs analysis as a process of needs and determining priorities. Needs analysis is the first step in the learning design process Analyze, Design, Develop, Implement, and Evaluate or abbreviated as ADDIE. Needs analysis identifies the core problem to be solved, the target audience, the current state, the desired outcomes, and training recommendations. Needs analysis sets the stage for designing and developing effective learning design experiences (Jamaluddien & Sumargiyani, 2022).

To perform a requirements analysis, there are various methods and tools available depending on the scope, complexity, and resources of your project.

1) Surveys and questionnaires are useful for collecting quantitative data from large numbers of learners or stakeholders, such as their demographic information, learning preferences, expectations, and satisfaction levels.
2) Interviews and focus groups can be used to collect qualitative data from small groups of people, to gain insights into their opinions, attitudes, beliefs and experiences.
3) Observation and assessment allow you to measure the basic level of learners and identify

their strengths and weaknesses.

4) Document analysis is useful for collecting data from existing materials such as curriculum documents or syllabi (Sa'adah, 2018).

It can be used to review the content, scope, sequence, and alignment of current instruction, and identify gaps or inconsistencies.

As for how to analyze the data after you collect the data, you need to analyze it to identify key findings and their implications for your learning design. Depending on the type, format, and quality of the data, you can use different techniques and tools. Descriptive statistics are useful for summarizing and presenting quantitative data, such as mean, median, mode, frequency, percentage, or standard deviation. You can use software such as Excel or SPSS to perform descriptive statistics and create charts, graphs, or tables. Thematic analysis is useful for identifying and organizing qualitative data into themes, categories, or patterns. You can use software such as NVivo or Atlas.ti to code, label, and group data according to themes or categories. Gap analysis is useful for comparing the current and desired state of learners or instruction, and identifying gaps or differences. Tools such as SWOT analysis or fishbone diagrams

Before developing a supervision program, a needs analysis is necessary. Some of the key needs that typically arise in the field include:

1) Teacher
   Improving pedagogical competence, digital literacy, active learning methods (PAIKEM), and reflection skills.
2) Student
   Need learning contextual, creative, based projects, and develop character.
3) School
   requires quality improvement, achievement of performance indicators, and a collaborative culture in the school environment (Kusumawati, 2020).

2. Implementation of the main principles underlying effective supervision at SMA Negeri 3 Pangkalan Bun

Supervision principles that emphasize human development, collaboration, and empowerment are becoming increasingly relevant.principleInstructional leadership, active participation, and ongoing assessment are now the foundation of principals' supervision. Instructional leadership requires principals to focus not only on administrative aspects but also on curriculum development, teaching methods, and teacher development. Active participation reflects the need to involve all stakeholders in the supervision process, including teachers, students, and even parents (Sahertian, 2008). Meanwhile, ongoing assessment emphasizes the importance of continuous and ongoing evaluation to achieve sustainable improvements in educational quality (Sunaedi & Rudji, 2023).

The main principles underlying effective supervision at SMA Negeri 3 Pangkalan Bun include:

1) Instructional Leadership

Instructional leadership is one of the main principles in principal supervision. This principle emphasizes the principal's role as a leader in the teaching and learning process in schools. According to research by (Nazar, 2017), principals who act as instructional leaders can significantly improve student learning outcomes through close supervision of the curriculum, teaching implementation, and assessment of learning outcomes. Research by (Mondiani, 2012) shows that effective instructional leadership involves developing a clear vision of learning, supporting teacher professional development, and creating an environment that supports innovation and continuous improvement. Principals who apply this principle tend to be more successful in boosting teacher performance and student achievement.

Based on the results of interviews and documentation studies at SMA Negeri 3

Pangkalan Bun, the activities carried out by the principal at the beginning of the new school year are to formulate the vision, mission and educational objectives together with the school development team (TPS) as a direction in carrying out the learning process within a certain period of time, namely the short term, medium term and long term. Then after the school development team has completed the draft vision, mission and objectives, the next step is to hold a plenary meeting with parents and student representatives and involve other educational elements such as the School Supervisor, community leaders, religious leaders and education observers in the school environment. This activity is intended to obtain input and expectations for the educational institution he leads. Input and expectations from all elements are used as material to refine the vision, mission and educational objectives. Then, once they have been mutually agreed upon, the next step is to socialize the vision, mission and objectives to all school residents. The function of the school's vision, mission and objectives is to serve as strategic guidelines for directing and managing the school effectively, providing motivation for the school community and becoming a benchmark for the school's success.

2) Collaborative Supervision

Collaborative supervision is a principle that encourages active participation between principals and teachers in the supervision process. This principle emphasizes the importance of open dialogue, cooperation, and shared decision-making in order to achieve better educational goals. Research by (Shabur et al., 2023) found that collaborative supervision can increase a sense of ownership and responsibility among teachers, which in turn improves the quality of teaching. Effective collaboration in supervision also strengthens trust between principals and teachers, allowing for more constructive feedback and the implementation of more effective improvement strategies (Supit et al., 2021). The explanation above shows that collaborative supervision can create a more open and supportive school culture, which is essential for improving teacher engagement and performance.

Supervision activities carried out at SMA Negeri 3 Pangkalan Bun follow the supervision system provided by the Ministry of Primary and Secondary Education through the education house in the GTK room, there is a performance management feature that includes a teacher competency improvement cycle consisting of 1) Discussion of Learning Observation Planning, 2) Observation of Learning Implementation in the classroom, 3) Discussion of follow-up results of class observations, 4) Implementation of follow-up actions by teachers/principals and 5) Reflection on the implementation of follow-up actions. These five cycles are collaborative and participatory, the principal and teachers in the supervision or observation process prioritize dialogue and cooperation and are empowering. Decisions for improvement are made by teachers as the observed party, and the measurement of progress and improvement of teacher competency is seen from the results of the teacher's own reflection. The extent to which teachers are able to understand their developed abilities and weaknesses or challenges that must be resolved. This can increase a sense of ownership and responsibility among teachers, which in turn improves the quality of teaching. Effective collaboration in supervision also strengthens trust between the principal and teachers, which allows for more constructive feedback and the implementation of more effective improvement strategies.

3) SupervisionBased Data

The use of data in principal supervision has become increasingly important. Data-driven supervision involves collecting and analyzing teacher and student performance data to support more informed decision-making (Chrisvianty et al., 2020). Furthermore, the use of data in supervision enables principals to identify strengths and weaknesses in teaching practices and design more targeted improvement strategies. Data used in supervision can include student test results, classroom observations, and teacher performance evaluations. Therefore, it can be seen that well-conducted data-driven supervision can result in significant improvements in student learning outcomes and teacher performance. The success of this approach depends heavily on the principal's ability to interpret and use data effectively.

The results of the needs analysis and the educational report card analysis serve as the

basis for planning the supervision program and other school programs. In implementing the supervision program at SMA Negeri 3 Pangkalan Bun, in addition to the results of the educational report card analysis which serve as a basis for improving teacher competency, the principal also uses data on the results of the teachers' annual performance results. Data used in supervision can include student test results, classroom observations, and teacher performance evaluations. The results of the educational report card analysis serve as an improvement in collective performance that influences school quality improvement, while the results of the teachers' annual performance results are used to improve their teachers' competencies. The results of these supervisory activities depend on the principal's expertise in analyzing the results of the educational report card and the teachers' annual performance.

4) DevelopmentProfessionalSustainability

The implementation of the principles of continuous professional development at SMA Negeri 3 Pangkalan Bun is based on teacher competency needs. The mapping of teacher competency development needs is based on the results of follow-up discussions in the teacher performance assessment cycle assisted by the Ruang GTK platform. In addition, teacher competency development needs can also be taken from the results of the teacher competency development needs analysis from the questionnaire instrument provided by the principal or school supervisor. Then, after the mapping of teacher competency development needs is determined, the teacher's Continuous Professional Development Team (PKB Team) determines the type of training and training time for teachers on a scheduled basis. In addition, teachers are also given the opportunity to develop their competencies through teacher study group activities at school, and the principal provides opportunities for teachers to participate in training, workshops, and other activities outside of school activities.

From a series of activities implementing the general principles of educational supervision at SMA Negeri 3 Pangkalan Bun which can be observed by the author through case studies in the field, it shows significant results, namely seen in the results of the education report from year to year which received a good predicate or green in the components of Literacy, Numeracy, Character, School Safety Climate, Diversity Climate and Learning Quality.

Research findings indicate that the implementation of the supervision program development principles at SMA Negeri 3 Pangkalan Bun begins with a systematic, data-driven needs analysis process. The principal and team identify needs through surveys, interviews, observations, document analysis, and educational report card analysis to map the needs of teachers, students, and the school. The results of this analysis then serve as the basis for developing a relevant supervision program, ranging from improving teachers' pedagogical competence and digital literacy, strengthening contextual learning for students, to developing a culture of quality at the school level. This approach reflects the application of the ADDIE model at the analysis stage, where the school structuredly identifies performance gaps, sets priorities, and determines appropriate intervention recommendations. Thus, supervision planning at SMA Negeri 3 Pangkalan Bun is evidence-based and aligned with actual needs in the field.

These findings differ from previous studies (Bafadal, 2011; Sulam et al., 2024; Sunaedi & Rudji, 2023; Wahyuningsih, 2021), which have characterized supervision as a more administrative activity focused on monitoring the teaching process without a structured needs analysis. Previous studies rarely integrate quality data such as educational report cards or instructional design frameworks like ADDIE as a basis for supervision planning. Furthermore, previous studies have not emphasized a comprehensive data-driven approach or the strengthening of digital literacy and a culture of quality as direct outcomes of the supervision process. Therefore, this study offers empirical evidence that supervision based on multi-data needs analysis can produce programs that are more contextual and relevant, and impact teacher performance and learning outcomes.

The school consistently applies the core principles of supervision through instructional leadership, collaborative supervision, data-driven supervision, and ongoing professional development. The principal acts not only as an administrator but also as a learning leader who

actively formulates a vision and mission with stakeholders, facilitates dialogue, and monitors curriculum implementation. Supervision takes place through a collaborative cycle based on the GTK platform, involving planning, observation, feedback, follow-up, and teacher reflection. Furthermore, data from educational report cards and teacher performance assessments are used as the basis for supervisory decisions to ensure targeted improvements. PKB needs mapping is also conducted to design training, teacher working groups, and other professional support. The overall implementation of these principles has proven to have a positive impact, as evidenced by improvements in the school's educational report card in aspects of literacy, numeracy, character, safety climate, diversity, and learning quality.

These findings differ from previous studies (Mardalena et al., 2020; Mubarok et al., 2025; Sulani et al., 2022; Supit et al., 2021), which positioned supervision as a hierarchical activity and emphasized formal evaluation over collaboration. Many previous studies (Arifin et al., 2023; Kusrini et al., 2018; Muttaqin et al., 2023; Yue et al., 2024) indicate that supervision is still conducted incidentally, does not utilize digital platforms such as GTK, and does not utilize educational reports or teacher performance data intensively as a basis for supervision. Previous research (Arifin et al., 2023; Hasibuan et al., 2024; Jasmine & Martdianty, 2022; Kusrini et al., 2018; Muttaqin et al., 2023; Smith, 2018; Sunaryo, 2020; Yao et al., 2023; Yue et al., 2024) highlights the principal's role as an instructional leader directly involved in the teacher learning cycle. Furthermore, empirical evidence regarding the impact of supervision on improving school quality indicators is often limited, while this research demonstrates a clearer and more measurable relationship. Therefore, this research offers a more modern, data-driven, collaborative approach to supervision, oriented toward tangible quality improvement.

The findings of this study provide important implications for educational supervision practices in schools. First, supervision initiated with a data-driven needs analysis demonstrates that supervision planning will be more targeted if schools rely on empirical information such as educational report cards, classroom observations, and teacher performance assessments. This approach emphasizes that decision-making in supervision can no longer be based on assumptions, but must utilize diagnostic data to map problems and formulate relevant interventions. Second, the implementation of the principal's instructional leadership implies a more collaborative work culture, where teachers are positioned as partners in quality improvement, not simply objects of evaluation. Third, supervision based on the GTK platform and the supervision cycle system strengthens the regularity and consistency of teacher development, thereby creating a culture of continuous reflection within the school environment. Fourth, mapping the needs of PKB integrated with supervision demonstrates that teacher professional development is an integral part of the process of improving learning quality. Overall, these findings imply that systematic and collaborative supervision can have a direct impact on improving school quality indicators, including literacy, numeracy, character, and learning climate.

Substantive contributions to the development of educational supervision theory and practice. This study also offers a more comprehensive data-based supervision framework by combining educational report cards, teacher performance assessments, and observation results as the foundation for supervisory decision-making. This study provides a collaborative supervision implementation model through the GTK platform that can be replicated by other schools to strengthen supervision management. This study also provides concrete empirical evidence that planned and needs-based supervision can improve school quality culture and student learning outcomes. Furthermore, this study demonstrates the importance of the principal's role as an instructional leader in creating a productive, reflective, and learning-oriented school environment.

This research was conducted at only one school, so the findings cannot be generalized to other schools with different characteristics. The data used was qualitative and lacked quantitative analysis that could statistically measure the relationship or effectiveness of supervision. Furthermore, the study did not delve deeply into student perspectives or technical

barriers to using the GTK platform. The study also did not compare with other schools, so the potential for benchmarking was not achieved.

Further research needs include expanding the context by involving more schools so that variations in the application of supervision principles can be compared more comprehensively. Research should also enrich the approach with quantitative or mixed-methods methods to objectively measure the effects of data-based and collaborative supervision on teacher competency and student learning outcomes. Furthermore, exploring student experiences and the indirect impact of supervision on classroom climate and learning motivation remains an important area that has not been explored in this study. Research development could also be directed at assessing the effectiveness of digital platforms such as GTK in supporting the supervision cycle, including user readiness, technical factors, and potential innovations that can improve the quality of educational supervision.

CONCLUSIONS

The conclusion of the research findings shows that the implementation of the supervision program development principles at SMA Negeri 3 Pangkalan Bun has been carried out systematically, planned, and based on data through a comprehensive needs analysis and consistent application of supervision principles. The supervision process begins with mapping the needs of teachers, students, and schools through various instruments such as surveys, observations, interviews, document analysis, and educational reports, which then become the basis for developing a relevant and evidence-based supervision program. The implementation of supervision is led by the principal's instructional leadership and is carried out in a collaborative cycle based on the GTK platform, including planning, observation, feedback, follow-up, and reflection. The use of educational reports, teacher performance assessments, and mapping of PKB needs strengthen the accuracy of supervisory decisions and the provision of professional support. Overall, the implementation of these supervisory principles has a positive impact on improving school quality, reflected in increased literacy, numeracy, character, safety climate, diversity, and learning quality.
This study recommends that further research involve more schools to compare the application of supervision principles in different contexts, allowing for replication of the model used at SMA Negeri 3 Pangkalan Bun. The research approach should also be expanded with quantitative or mixed-methods methods to allow for more objective and standardized measurement of the impact of supervision on teacher competency and student learning outcomes. Furthermore, incorporating the perspectives of students, parents, and other stakeholders is crucial for a more comprehensive understanding of the influence of supervision on the learning experience and school culture

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