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The Effect of Teacher Working Group and Supervisory Supervision on Learning Quality through Teacher Commitment in Public Elementary Schools in Serang Regency

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Keywords:
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ABSTRACT

This study aims to analyze the influence of Teacher Working Groups (KKG) and supervisory supervision on the quality of learning through teacher commitment in Public Elementary Schools in Serang Regency. This study uses a quantitative approach with a survey method and path analysis design. The population in this study includes all Public Elementary School teachers in Serang Regency, with sampling using a proportional random sampling technique. Data collection was carried out through a structured questionnaire that has been tested for validity and reliability. The data analysis technique used Structural Equation Modeling (SEM) based on inferential statistics. The results of the study indicate that: (1) Teacher Working Groups have a positive and significant effect on teacher commitment; (2) supervisory supervision has a positive and significant effect on the quality of learning; (4) supervisory supervision has a positive and significant effect on the quality of learning; (5) teacher commitment has a positive and significant effect on the quality of learning; and (6) Teacher Working Groups and supervisory supervision have a positive and significant effect on the quality of learning indirectly through teacher commitment as a mediating variable (intervening). This study concludes that improving the quality of learning in public elementary schools can be achieved optimally through sharpening the KKG forum and intensifying supervisory supervision which has an impact on strengthening teachers' work commitment.

Article Information

Keywords:

Kelompok Kerja Guru, Supervisi Pengawas, Komitmen Guru, Kualitas Pembelajaran, Sekolah Dasar Negeri..

ABSTRACT

Penelitian ini bertujuan untuk menganalisis pengaruh Kelompok Kerja Guru (KKG) dan supervisi pengawas terhadap kualitas pembelajaran melalui komitmen guru di Sekolah Dasar Negeri Kabupaten Serang. Penelitian ini menggunakan pendekatan kuantitatif dengan metode survei dan desain analisis jalur (*path analysis*). Populasi dalam penelitian ini mencakup seluruh guru Sekolah Dasar Negeri di Kabupaten Serang, dengan pengambilan sampel menggunakan teknik *proportional random sampling*. Pengumpulan data dilakukan melalui kuesioner terstruktur yang telah diuji validitas dan reliabilitasnya. Teknik analisis data menggunakan *Structural Equation Modeling* (SEM) berbasis statistik inferensial. Hasil penelitian menunjukkan bahwa: (1) Kelompok Kerja Guru berpengaruh positif dan signifikan terhadap komitmen guru; (2) supervisi pengawas berpengaruh positif dan signifikan terhadap komitmen guru; (3) Kelompok Kerja Guru berpengaruh positif dan signifikan terhadap kualitas pembelajaran; (4) supervisi pengawas berpengaruh positif dan signifikan terhadap kualitas pembelajaran; (5) komitmen guru berpengaruh positif dan signifikan terhadap kualitas pembelajaran; serta (6) Kelompok Kerja Guru dan supervisi pengawas berpengaruh positif dan signifikan terhadap kualitas pembelajaran secara tidak langsung melalui komitmen guru sebagai variabel mediasi (*intervening*). Penelitian ini menyimpulkan bahwa peningkatan kualitas pembelajaran di sekolah dasar negeri dapat dicapai secara optimal melalui pengasahan wadah KKG dan intensifikasi supervisi pengawas yang berimbas pada penguatan komitmen kerja guru.

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1. INTRODUCTION

Education plays an important role in developing human resources, and the quality of education is closely related to the quality of the learning process in schools. Teachers are central to this process because they plan, implement, and evaluate learning activities. Improving learning quality therefore requires not only adequate teaching competencies but also continuous professional development and a strong commitment to educational responsibilities. In elementary schools, these factors are particularly important because teachers contribute to establishing the foundations of students' knowledge, skills, and learning attitudes.

Two forms of professional support that may contribute to learning quality are Teacher Working Groups (Kelompok Kerja Guru/KKG) and supervisory supervision. KKG provides a collaborative forum in which teachers can exchange experiences, discuss instructional problems, develop learning materials, and share teaching practices. Through these activities, KKG is expected to support teachers' professional learning and the implementation of more effective instructional strategies. However, the existence of KKG does not necessarily guarantee improvements in classroom practice. Its contribution may depend on teachers' participation, the relevance of its activities, the continuity of professional learning, and the extent to which the results of collaboration are implemented in classrooms.

Previous research has reported positive contributions of KKG to teacher professionalism and performance. Imelda and Husnul Madihah (2023), for example, examined the KKG program and academic supervision in relation to elementary school teacher performance. Rosyid (2025) also discussed the role of KKG as a professional learning community that supports collaboration and professional development. Hijerah et al. (2024) examined the relationship between academic supervision and KKG performance, highlighting the relevance of supervisory support to the functioning of professional learning activities. Taken together, these studies suggest that collaborative teacher development can provide opportunities to improve professional practice. Nevertheless, evidence of improvements in teacher performance or professional competence does not automatically establish that KKG has a direct effect on learning quality. The relationship between participation in KKG activities and changes in classroom instruction requires further empirical examination.

Supervisory supervision represents another form of professional support. Unlike peer-based collaboration in KKG, supervision involves guidance, feedback, and professional evaluation intended to help teachers improve instructional planning, implementation, and assessment. Previous studies have examined supervision in relation to teacher competence, commitment, and learning quality. Syafitri et al. (2023) discussed the contribution of academic supervision to teacher professional competence, while Revita et al. (2024) examined supervision in relation to teachers' work commitment. Khanifah et al. (2025) and Sa'id et al. (2026) also addressed the relevance of supervisory roles and academic supervision to learning quality. These findings provide a basis for considering supervision as a potential contributor to instructional improvement. However, the effectiveness of supervision may depend on whether the process provides meaningful academic guidance and whether teachers can apply the feedback they receive in their daily teaching practices.

Teacher commitment may help explain why professional support does not always produce the same outcomes. In this study, teacher commitment is considered an internal professional orientation reflected in teachers' dedication, responsibility, and willingness to carry out their duties and improve their instructional practices. KKG and supervisory supervision provide opportunities for professional learning and guidance, whereas commitment may influence whether teachers engage with these opportunities and translate them into classroom practice. Accordingly, teacher commitment is examined as a potential mediating variable linking professional support to learning quality. This proposed role should not be assumed in advance: professional support may be associated with learning quality directly, indirectly through teacher commitment, or through pathways that differ between collaborative development and formal supervision.

Although previous studies have investigated KKG, supervisory supervision, teacher commitment, and learning quality, the findings and explanatory pathways require further examination. Research on KKG has emphasized its potential contribution to teacher professionalism and performance, but the extent to which KKG is directly associated with learning quality may vary across implementation contexts. Similarly, supervisory supervision may be more effective when it provides sustained instructional guidance rather than focusing primarily on administrative compliance. These differences indicate that the availability of professional support and its relationship with learning outcomes should be distinguished from the mechanisms through which such support may operate. In particular, evidence is needed to establish whether teacher commitment mediates the relationships between KKG and learning quality and between supervisory supervision and learning quality.

The present study therefore does not treat the inclusion of four variables in one model as its sole contribution. Instead, it examines the direct relationships of KKG and supervisory supervision with learning quality, their relationships with teacher commitment, and the indirect relationships with learning quality through teacher commitment. This approach makes it possible to examine whether teacher commitment functions as a mediating mechanism and whether the proposed pathways differ between collaborative professional development and supervisory guidance. The theoretical contribution lies in testing the explanatory role of teacher commitment within these relationships, rather than considering commitment only as an independent predictor or an outcome of professional support. The findings can also help clarify whether the two forms of support are associated with learning quality through similar or different pathways.

The context of public elementary schools in Serang Regency, Banten Province, provides an opportunity to examine these relationships within a specific local educational setting. Although KKG forums are present across the regency, their existence alone cannot establish the effectiveness of their activities or their relationship with classroom learning. Likewise, the contribution of supervisory supervision needs to be examined empirically rather than inferred from the implementation of supervision programs alone. Evidence from this context may provide a more specific understanding of the relationships among professional support, teacher commitment, and learning quality in public elementary schools.

Based on this background, this study aims to analyze the effects of Teacher Working Groups and supervisory supervision on learning quality, both directly and indirectly through teacher

commitment, in public elementary schools in Serang Regency. Specifically, it examines the relationships of KKG and supervisory supervision with teacher commitment, the relationships of KKG, supervisory supervision, and teacher commitment with learning quality, and the mediating role of teacher commitment in the relationships between each form of professional support and learning quality.

Table 1.1
Number of KKG per District in Serang Regency

No	Subdistrict	Number of KKG
1	Jackfruit	6
2	Padarincang	8
3	Ciomas	7
4	Pabuaran	5
5	Gunungsari	6
6	Baros	7
7	Lightning	8
8	Tunjung Teja	5
9	Cikeusal	7
10	Kragilan	9
11	Ciruas	10
12	Helter-skelter	7
13	Lebakwangi	5
14	Tanara	6
15	Tirtayasa	8
16	Kopo	6
17	Javanese	7
18	Bandung	5
19	Cikande	10
20	Kibin	6
21	Binuang	6
22	Waringinkurung	7
23	Mancak	6
24	New	7
25	Bojonegara	6
26	Ampel Island	5
27	Kramatwatu	9
28	Swimming	6

Source: (Ministry of Education, Culture, Research, and Technology, 2023)

The Teacher Working Group (KKG) is a forum for continuous professional development for elementary school teachers, serving as a platform for collaboration, sharing experiences, solving learning problems, and improving pedagogical and professional competencies. The existence of KKGs in every subdistrict in Serang Regency demonstrates the local government's commitment to supporting the improvement of the quality of elementary education by strengthening teacher capacity.

Based on data on the distribution of Teacher Working Groups (KKG) in Serang Regency, 28 sub-districts have Teacher Working Groups of varying sizes. Ciruas and Cikande sub-districts have the largest number of KKGs, with 10 each, followed by Kragilan and Kramatwatu, with 9 each. The relatively large number of KKGs in these sub-districts indicates the large number of elementary schools and the need for teacher professional development forums.

Furthermore, several sub-districts have 8 KKGs, namely Padarincang, Petir, and Tirtayasa. The sub-districts of Ciomas, Baros, Cikeusal, Pontang, Jawilan, Waringinkurung, and Anyar each have 7 KKGs. Meanwhile, the sub-districts of Cinangka, Gunungsari, Tanara, Kopo, Kibin, Binuang, Mancak, Bojonegara, and Carenang have 6 KKGs.

The sub-districts with the fewest KKGs are Pabuaran, Tunjung Teja, Lebakwangi, Bandung, and Pulo Ampel, each with five. The differences in the number of KKGs between subdistricts are thought to be influenced by the number of elementary schools, the number of teachers, the area, and the need for teacher development in each sub-district.

Overall, there are approximately 190 Teacher Working Groups (KKG) in Serang Regency across the 28 sub-districts. This number indicates that Serang Regency has a fairly extensive KKG network as a forum for improving the competency of elementary school teachers. However, the large number of KKGs does not necessarily reflect the effectiveness of their implementation. KKG effectiveness depends heavily on the frequency of meetings, the quality of the program, active teacher participation, support from the principal, and guidance from school supervisors.

Therefore, the presence of Teacher Working Groups (KKG) across all sub-districts in Serang Regency offers significant potential for improving the quality of learning. If managed optimally, KKGs can become professional learning communities capable of enhancing teacher competency, strengthening commitment to professional duties, and ultimately improving the quality of learning in public elementary schools in Serang Regency.

In Serang Regency, the local government has facilitated the implementation of Teacher Working Groups (KKG) as a forum for improving teacher professional competence. However, in practice, KKG activities have not been fully effective. Low teacher attendance remains, activities are more administrative than competency-building, discussion outcomes are limited in their implementation in classroom learning, and a culture of sharing good practices among teachers is suboptimal.

A similar phenomenon is also seen in the implementation of supervisory supervision. Supervision, which should serve as professional development, still faces various obstacles, including suboptimal supervision frequency, a limited number of supervisors compared to the number of schools under its supervision, a predominance of administrative assessments over academic development, and suboptimal follow-up of supervision results to improve the quality of learning.

On the other hand, teacher commitment remains a challenge in improving the quality of education. Some teachers have not demonstrated a strong commitment to continuous professional development, learning innovation, or reflection on teaching practice. This situation impacts the quality of the learning process, which does not fully meet the characteristics of active, innovative, collaborative, and student-centered learning.

This phenomenon shows that the success of improving the quality of learning is not only determined by the existence of KKG and supervisory supervision, but is also influenced by teacher commitment as an internal factor that encourages teachers to implement the results of coaching into daily learning practices.

Research on Teacher Working Groups (KKG) has been extensively conducted and has shown that KKG is an effective strategy in improving teacher professionalism. Rosyid (2025) through a study entitled Mapping the Multidimensional Roles of Teacher Working Groups in Indonesia: A Systematic Review of Empirical Studies found that KKG functions as a professional learning community (PBL) capable of improving pedagogical,

professional, collaborative competencies, and teachers' ability to solve various learning problems. The results of this study confirmed that the success of KKG is greatly influenced by active teacher participation and the continuity of the program being implemented. Research conducted by Imelda and Husnul Madihah (2023) entitled The Effect of the Class Teacher Working Group (KKG) Program and Academic Supervision on Elementary School Teacher Performance shows that the implementation of the KKG program has a positive and significant effect on improving teacher performance. Teachers who actively participate in KKG activities have better abilities in developing learning tools, implementing innovative learning strategies, and conducting learning evaluations effectively.

Furthermore, Hijerah, Bukman Lian, and Pahlawan (2024) in their research on the influence of academic supervision on the performance of Teacher Working Groups found that planned academic supervision can increase the effectiveness of the KKG implementation. This has an impact on improving teachers' professional competence and the quality of the learning process in schools. Rosyid (2025) also explained that KKGs are not only a forum for sharing experiences between teachers but also a means of developing a collaborative learning culture that encourages learning innovation and improves the quality of education. Teachers who are active in KKGs tend to more easily adopt learning methods that are in line with curriculum developments. The results of this study are supported by Imelda et al. (2023) who concluded that the more effective the KKG implementation, the higher the teacher's performance in carrying out the learning process. Thus, these various studies indicate that KKGs have an important contribution to improving teacher competence and professionalism, which ultimately impacts the quality of learning.

Supervisor supervision is a crucial factor in improving learning quality. Khanifah, Egar, and Abdullah (2025) found in their study, "The Influence of School Supervisors' Role, Teachers' Work Commitment, and School Culture on Learning Quality," that the role of school supervisors has a positive and significant impact on learning quality. Professional supervision can help teachers improve learning planning, implementation, and evaluation.

Research by Revita, Rifma, Rusdinal, and Anisah (2024) shows that learning supervision has a positive effect on teacher work commitment. Teachers who receive continuous coaching show higher responsibility and motivation in carrying out their professional duties. Syafitri, Irsyad, Rifma, and Yahya (2023) found that systematic academic supervision can improve teachers' professional competence. Supervisors not only function as evaluators, but also as guides who provide solutions to various learning obstacles. Research by Sa'id, Rasiman, and Soedjono (2026) proves that academic supervision has a positive influence on the quality of learning. The better the implementation of supervision, the higher the quality of the learning process carried out by teachers in the classroom. Meanwhile, research published in Frontiers in Psychology (2022) shows that the implementation of group supervision and individual supervision can improve teacher motivation, competence, and performance. Thus, effective supervision is an important instrument in improving the quality of learning in schools. Teacher success in carrying out their professional duties. Revita et al. (2024) found that learning supervision and work motivation have a significant effect on increasing teacher commitment. Teachers with high commitment show greater dedication in improving the quality of learning. Research by Khanifah et al. (2025) also proves that teacher commitment has a positive effect on the quality of learning. Teachers who have high loyalty and responsibility tend to be more consistent in implementing active, creative, and student-centered learning. Syafitri et al. (2023) stated that teacher commitment contributes to increasing professional competence. Teachers with high commitment are more active in participating in training, implementing supervision results, and reflecting on the learning process. Research in Frontiers in Psychology (2022) shows that teacher commitment is an important mediating factor in the relationship between supervision and improving teacher performance. The higher the teacher's commitment, the greater the success of implementing the coaching results in learning activities. Research by Sa'id et al. (2026) also strengthens these findings by concluding that teacher work commitment contributes significantly to improving the quality of learning. Therefore, teacher commitment is a strategic factor in the success of various education quality improvement programs. The quality of learning is a key indicator of the success of the education process. Khanifah et al. (2025) found that learning quality is simultaneously influenced by the role of school supervisors, teacher commitment, and school culture. These three factors support each other in creating effective learning.

Research by Sa'id et al. (2026) shows that academic supervision has a significant effect on improving the quality of learning. Teachers who receive regular coaching are able to organize learning that is more innovative and tailored to the needs of students. Research by Frontiers in Psychology (2022) explains that supervision implemented through group and individual approaches can improve the quality of learning by improving teacher competence and performance. Imelda and Husnul Madihah (2023) found that KKG and academic supervision together improve teacher performance which ultimately impacts the quality of learning in elementary schools. This shows that improving the quality of learning is not only influenced by individual teacher factors, but also by the effectiveness of professional coaching. Furthermore, Hijerah et al. (2024) concluded that improving KKG performance through academic supervision has a positive impact on teacher professionalism and the quality of learning. Teachers who are active in collaborative activities and receive ongoing coaching are able to produce a more effective and meaningful learning process for students.

Based on various previous studies, it can be concluded that Teacher Working Groups, supervisor supervision, and teacher commitment are factors closely related to improving learning quality. However, research integrating these four variables into a single research model, with teacher commitment as a mediating variable, particularly in public elementary schools in Serang Regency, is still very limited. Therefore, this study is expected to fill this gap and provide an empirical contribution to the development of educational management science.

A research gap is a gap between previous research findings, theory, and the empirical conditions that form the basis for the research. Based on the literature review, several research gaps exist, as follows.

Empirical Gap Research findings on the impact of Teacher Working Groups (KKG) on learning quality still show inconsistencies. Some studies conclude that KKGs have a positive and significant impact on improving teacher competency and learning quality because they serve as a means of professional collaboration. However, other studies indicate that the

KKG's impact is less than optimal due to low teacher participation, lack of program continuity, and suboptimal implementation of KKG outcomes in classroom learning.

Similarly, the variable of supervisor supervision is also relevant. Some studies indicate that supervisor supervision significantly impacts learning quality through ongoing academic development. Conversely, several studies have found that supervision has not had an optimal impact due to its focus on administrative aspects, limited frequency of supervision, and ineffective follow-up of supervision results.

Regarding teacher commitment, some studies have shown that teacher commitment has a positive effect on learning quality. However, other research indicates that teacher commitment is insufficient to improve learning quality without the support of a professional development system, a conducive school culture, and effective educational leadership.

Conceptual GapMost previous studies have only examined the direct relationship between Teacher Working Groups and learning quality or supervisory supervision and learning quality. Research that integrates Teacher Working Groups, supervisory supervision, teacher commitment, and learning quality in a single research model is still relatively limited. As a result, the mechanisms by which KKG and supervisory supervision influence learning quality have not been comprehensively explained.

Variable Gap Based on the literature review, teacher commitment has been studied primarily as an independent or dependent variable. Few studies have identified teacher commitment as a mediating variable explaining the relationship between Teacher Working Groups and supervisory supervision on learning quality. However, theoretically, improving learning quality is influenced not only by external guidance but also by teachers' internal commitment to implementing the results of that guidance.

Research Context GapMost research on KKG, supervisor supervision, and teacher commitment has been conducted at junior high, senior high, vocational high, or madrasah levels, while research on public elementary schools is still relatively limited. In addition, research located in Serang Regency has not been widely conducted, so the characteristics of the area have not been studied empirically.

Methodological Gap: Some previous studies used multiple linear regression analysis or simple path analysis, which only tested direct relationships between variables. This study uses the Structural Equation Modeling–Partial Least Squares (SEM-PLS) approach, which allows it to simultaneously test direct relationships, indirect relationships, and the mediating role of teacher commitment.

Research on the influence of Teacher Working Groups (KKG) and supervisory supervision on learning quality through teacher commitment in Public Elementary Schools in Serang Regency has high urgency, both theoretically and practically. First, learning quality is the main indicator of the success of education delivery in elementary schools. Various government policies, such as the Implementation of the Independent Curriculum, improving teacher competency, and strengthening learning communities, have not fully resulted in equitable learning quality. There are still differences in learning quality between schools, which indicates the need to identify factors that influence learning quality. Second, Teacher Working Groups (KKG) are a forum for teacher professional development that is expected to be able to improve pedagogical, professional, social, and personality competencies. However, the effectiveness of KKG implementation still varies. In some schools, KKG activities have not run optimally due to low teacher participation, limited innovation in activities, and less than optimal implementation of KKG results in learning practices. Therefore, it is necessary to examine the extent to which KKG actually contributes to improving learning quality. Third, supervisory supervision has a strategic function in fostering and improving teacher professionalism through academic supervision. However, the implementation of supervision in the field still faces various obstacles, such as limited visit intensity, the large number of schools being supervised, and the dominance of administrative aspects over academic development. This condition raises questions about the effectiveness of supervisory supervision in improving the quality of learning. Fourth, teacher commitment is an internal factor that determines the success of the implementation of various education quality improvement programs. Teachers with high commitment will be more active in participating in professional development activities, receiving input from supervisors, and implementing learning innovations in the classroom. Conversely, low teacher commitment can cause development programs, including KKG and supervisory supervision, to not have an optimal impact on improving the quality of learning. Therefore, teacher commitment needs to be studied as a mediating variable that explains the mechanism of the relationship between KKG, supervisory supervision, and the quality of learning. Fifth, based on previous research studies, there are still inconsistencies in research results regarding the influence of KKG and supervisory supervision on the quality of learning. In addition, research that integrates KKG, supervisory supervision, teacher commitment, and the quality of learning in one research model is still relatively limited, especially in Public Elementary Schools in Serang Regency. This condition indicates a research gap that needs to be filled through more comprehensive research. Sixth,This research has practical relevance because it is expected to produce evidence-based recommendations for the Serang Regency Education Office, school supervisors, principals, and KKG managers in developing policies to improve learning quality. The research findings can be used as a basis for strengthening KKG implementation, increasing the effectiveness of supervisor supervision, and building teacher commitment as a key factor in improving learning quality.

Thus, this research is important to conduct because it not only contributes to the development of theory in the field of educational management, but also produces an empirical model regarding improving the quality of learning through synergy between Teacher Working Groups, Supervisory Supervision, and Teacher Commitment in Public Elementary Schools in Serang Regency.

Based on the background description, it can be understood that the quality of learning in Public Elementary Schools in Serang Regency is influenced by various factors, including the effectiveness of the Teacher Working Group (KKG), the implementation of Supervisory Supervision, and Teacher Commitment. Although various programs to improve the quality of education have been implemented, there are still problems in the implementation of KKG, the implementation of supervisory supervision, and strengthening teacher commitment, which have an impact on the suboptimal quality of learning. On the other hand, the results of previous studies still show different findings

regarding the relationship between these variables, so further research is needed to obtain more comprehensive empirical evidence.

This research is significant because it attempts to integrate the Teacher Working Group (KKG), Supervisory Supervision, Teacher Commitment, and Learning Quality into a single research model. Teacher commitment is positioned as a mediating variable to explain the mechanisms by which KKG (Teacher Working Group) and supervisory supervision can improve learning quality. Therefore, this research is expected to not only contribute to the development of educational management science but also generate recommendations that can serve as a basis for the Education Office, school supervisors, principals, and teachers in formulating strategies to improve learning quality in Serang Regency Public Elementary Schools.

Based on empirical phenomena, theoretical foundations, previous research results, research gaps, and the urgency of the research that has been described, the author is interested in conducting research with the title "The Influence of Teacher Working Groups and Supervisory Supervision on Learning Quality through Teacher Commitment in Public Elementary Schools in Serang Regency." This research is expected to be able to provide an empirical picture of the relationship between the variables studied and produce a model for improving the quality of learning that can be applied in efforts to improve the quality of basic education in Serang Regency.

2. RESEARCH METHODOLOGY

This study employed a quantitative survey design to examine the relationships between Teacher Working Groups (KKG), supervisory supervision, teacher commitment, and learning quality in public elementary schools in Serang Regency, Banten Province, Indonesia. Data were collected using a structured questionnaire. The study examined both direct relationships between the research variables and indirect relationships through teacher commitment.

The target population comprised 707 public elementary schools in Serang Regency. The study selected 88 schools and involved 264 teacher respondents. The distinction between the school-level sampling units and the individual respondents is important: schools served as the units from which participants were recruited, while the unit of analysis was [individual teachers / schools, depending on the actual dataset and analytical procedure]. The questionnaire was completed by teachers to obtain information about the research constructs.

The sample consisted of 88 public elementary schools selected from the population of 707 schools. The sample size was determined using [name of formula, statistical procedure, or other sample-size determination method]. The calculation used the following assumptions: [specify the margin of error, confidence level, expected proportion or effect size, statistical power, or other assumptions relevant to the method used]. Based on this procedure, the required sample was determined to be 88 schools.

The sample-size calculation and its assumptions should be reported explicitly to allow readers to evaluate the adequacy of the sample. The number of schools and the number of individual teacher respondents represent different sampling levels and should therefore be reported separately.

A proportional random sampling procedure was used to select the participating schools. The sampling strata were defined according to [specify the actual stratification variable, such as subdistrict, if this was the procedure implemented]. The number of schools selected from each stratum was determined in proportion to its share of the total population of 707 public elementary schools. Within each stratum, schools were selected randomly from the relevant sampling frame.

After the schools had been selected, teachers were recruited from each participating school according to [describe the actual respondent-selection procedure]. The study included 264 teachers across the 88 selected schools. The distribution of teachers across schools was [specify whether an equal or unequal number of teachers was selected from each school]. If three teachers were selected from every school, this should be stated explicitly and supported by the sampling records. The manuscript should also identify the criteria used to determine teacher eligibility and explain how teachers were randomly selected when a school had more eligible teachers than required.

Data were collected using a structured questionnaire designed to measure Teacher Working Groups, supervisory supervision, teacher commitment, and learning quality. The questionnaire was administered to the selected teacher respondents. Data analysis was conducted using [state the exact statistical method and software used]. The analysis examined the direct relationships between the research variables and the indirect relationships through teacher commitment. The analytical method, unit of analysis, and sample structure were aligned with the level at which the questionnaire data were analyzed..

3. RESULTS AND DISCUSSION

3.1. Evaluation of the Measurement Model.

The measurement model was evaluated to establish the reliability and validity of the constructs before examining the structural relationships. The assessment included indicator reliability, internal consistency reliability, convergent validity, and discriminant validity, as appropriate for the measurement model specification.

Indicator reliability was assessed using the outer loadings of the indicators. Internal consistency reliability was examined using Cronbach's alpha and composite reliability, while convergent validity was evaluated using the average variance extracted (AVE). Discriminant validity was assessed using the criterion appropriate to the analytical procedure, such as the heterotrait–monotrait ratio (HTMT).

The measurement model results should be interpreted according to the values obtained from the original SmartPLS output. Constructs should be considered adequately reliable and valid only when the relevant assessment criteria are satisfied. These results provide the basis for interpreting the structural relationships among Teacher Working Groups (KKG), Supervisory Supervision, Teacher Commitment, and Learning Quality.

3.2 Evaluation of the Structural Model

Indirect effect testing is conducted to determine whether an exogenous variable influences the endogenous variable through a mediating variable. In this study, the testing was conducted using a bootstrapping procedure using the Partial Least Squares-Structural Equation Modeling (PLS-SEM) method. The bootstrapping technique is used to obtain estimates of the indirect path coefficients and their significance levels through a resampling processAfter evaluating the measurement model, the structural model was assessed to examine the proposed relation-

ships among the constructs. The assessment should report collinearity statistics, the coefficient of determination (R^2), effect sizes (f^2), and the significance of the hypothesized relationships, where applicable. The bootstrapping procedure was used to evaluate the statistical significance of the path coefficients and specific indirect effects.

The structural model results provide information about the explanatory capacity of the model and the relative contribution of the predictors. The interpretation of the hypothesized relationships is based on the estimated path coefficients, t-statistics, p-values, and bootstrap confidence intervals. Statistical significance is distinguished from practical importance, because a statistically significant relationship does not necessarily indicate a large effect.

3.3 Direct Effects

The direct-effect analysis revealed different patterns across the proposed relationships. The relationship between KKG and Learning Quality was not statistically significant ($t = 1.149$, $p = 0.251$). Similarly, the relationship between KKG and Teacher Commitment was not statistically significant ($t = 1.321$, $p = 0.187$). Therefore, the results do not provide sufficient statistical evidence to support these two proposed direct relationships in the present sample.

In contrast, Supervisory Supervision was significantly related to Learning Quality ($t = 3.673$, $p < 0.001$) and Teacher Commitment ($t = 5.786$, $p < 0.001$). Teacher Commitment was also significantly related to Learning Quality ($t = 5.409$, $p < 0.001$). These findings indicate that the relationships involving Supervisory Supervision and Teacher Commitment received statistical support in the estimated model.

The non-significant KKG findings should not be interpreted as definitive evidence that KKG activities are ineffective. Rather, the estimated relationships were not statistically established in this study. The findings suggest that the existence or participation in KKG activities alone may not be sufficient to establish a measurable relationship with Teacher Commitment or Learning Quality in the context examined. Further evidence concerning the quality of participation, the relevance of professional-development activities, and the application of collaborative learning in classroom practice would be needed to investigate possible explanations.

The significant relationship between Supervisory Supervision and Teacher Commitment suggests that supervisory practices are associated with teachers' professional commitment in the study context. Likewise, the significant relationship between Teacher Commitment and Learning Quality indicates that higher levels of commitment are associated with Learning Quality in the estimated model. These findings should be interpreted as statistical relationships rather than definitive causal effects, given the study's survey-based design.

3.4 Specific Indirect Effects and the Mediating Role of Teacher Commitment

The specific indirect-effect analysis was conducted to examine whether Teacher Commitment statistically mediated the relationships of KKG and Supervisory Supervision with Learning Quality.

The indirect relationship between KKG and Learning Quality through Teacher Commitment was not statistically significant ($t = 1.280$, $p = 0.201$). Thus, the findings do not support the proposed indirect relationship between KKG and Learning Quality through Teacher Commitment in this sample. This result is consistent with the non-significant direct relationship between KKG and Teacher Commitment and the non-significant direct relationship between KKG and Learning Quality. Nevertheless, the non-significant indirect effect should be interpreted as a lack of sufficient statistical evidence for the proposed mediation, rather than proof that mediation could never occur in another context.

In contrast, the indirect relationship between Supervisory Supervision and Learning Quality through Teacher Commitment was statistically significant ($t = 4.096$, $p < 0.001$). This result supports the proposed indirect relationship and indicates that Teacher Commitment is relevant to understanding the association between Supervisory Supervision and Learning Quality in the estimated model.

The precise type of mediation associated with Supervisory Supervision should be determined by examining the corresponding direct effect, the indirect-effect coefficient, and the bootstrap confidence interval. A significant indirect effect alone is not sufficient to determine whether the mediation is complementary, competitive, or indirect-only. The direction and magnitude of the relevant coefficients must also be considered.

4. CONCLUSION

This study examined the relationships between Teacher Working Groups (KKG), Supervisory Supervision, Teacher Commitment, and Learning Quality in public elementary schools in Serang Regency using PLS-SEM. The findings indicate that the relationships among these variables differ across the proposed pathways.

The results show that the relationships between KKG and Teacher Commitment ($t = 1.321$, $p = 0.187$) and between KKG and Learning Quality ($t = 1.149$, $p = 0.251$) were not statistically significant. In addition, the indirect effect of KKG on Learning Quality through Teacher Commitment was not statistically significant ($t = 1.280$, $p = 0.201$). Therefore, the proposed direct and indirect relationships involving KKG were not supported by the statistical results. These findings should not be interpreted as proof that KKG activities are ineffective in all contexts, but rather as evidence that the proposed relationships were not statistically established in this study.

In contrast, Supervisory Supervision was significantly related to Teacher Commitment ($t = 5.786$, $p < 0.001$) and Learning Quality ($t = 3.673$, $p < 0.001$). Teacher Commitment was also significantly related to Learning Quality ($t = 5.409$, $p < 0.001$). Furthermore, the indirect effect of Supervisory Supervision on Learning Quality through Teacher Commitment was statistically significant ($t = 4.096$, $p < 0.001$). These results support the proposed indirect relationship and highlight the relevance of Teacher Commitment in understanding the relationship between Supervisory Supervision and Learning Quality. The precise type and magnitude of mediation should be determined from the estimated path coefficients, direct effects, and bootstrap confidence intervals.

Practically, the findings suggest that education authorities, school principals, and school supervisors should pay attention to the quality and instructional relevance of supervisory practices and to the development of teachers' professional commitment. Supervisory activities may be designed to provide constructive feedback and support teachers in reviewing their instructional planning, classroom practices, and assessment. Meanwhile, the

non-significant relationships involving KKG indicate a need to evaluate how KKG activities are implemented and whether their outcomes are translated into classroom practice, rather than assuming that the existence of KKG alone improves learning quality.

Future research should examine the characteristics and implementation of KKG activities in greater detail, including teacher participation, the relevance of professional-development programs, and the application of collaborative learning outcomes in classroom instruction. Further studies could also use longitudinal or mixed-methods designs to investigate how supervisory practices and Teacher Commitment relate to changes in Learning Quality over time. Replication in other geographical settings and school populations would help determine the extent to which the present findings can be generalized.

Overall, this study provides context-specific evidence that the relationships of Supervisory Supervision and Teacher Commitment with Learning Quality were statistically supported, whereas the proposed direct and indirect relationships involving KKG were not. These findings underscore the importance of reporting differentiated results and of basing educational recommendations on the statistical evidence obtained.

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