Original Research

The Effect of Collaborative Supervision Approaches and Collegial Supervision Techniques on Teacher Intensity Using Performance-Based Learning

Bambang Budi Wiyono1, Ach. Rasyad1, and Maisyaroh1

Abstract
This study aims to examine the effect of collaborative supervision approaches and collegial supervision techniques on teacher intensity using performance-based learning in the learning process. In addition, its purpose is also to examine the impact on student learning outcomes. This study was conducted in East Java, Indonesia, with a descriptive correlational research design. The research samples were obtained in three cities, namely Malang, Blitar, and Batu, with a total sample of 146 primary education teachers. The data collection techniques used in this research were questionnaires and documentation, while the data analysis techniques used were descriptive statistics, product-moment correlation, regression and path analysis. The results show that the collaborative supervision approach and collegial supervision techniques have a significant influence on performance-based learning, but has no effect on student learning outcomes, either directly or indirectly. Performance-based learning applied by teachers strongly affects students’ learning outcomes.

Keywords
collaborative approach, collegial technique, supervision, performance-based learning, learning outcome

Introduction
Learning achievement has become a priority scale in educational development. Several research results have shown that student learning outcomes are still not optimal (Argina et al., 2017; Fenanlampir et al., 2019; Stacey, 2011; Wulandari & Jailani, 2015). Viewed from certain dimensions, students’ learning outcomes do not show comprehensive results either. Some are only emphasized in the field of knowledge, not in the field of attitudes, skills, or other personality attributes. One of the main causes that determine student learning outcomes is learning, which is considered to be of lower quality.

Learning is a system in which there are components that interact with and influence each other. Student learning outcomes are determined by these components, which include educational objectives, learning strategies, learning models, learning methods, learning materials, and learning assessment. Based on these components, teacher quality and the quality of teacher learning are the main factors that determine the process and student learning outcomes. The results of the study by Canales and Maldonado (2018) have shown that teacher quality influences student achievement. The educational background and experience of teachers influence students’ learning outcomes. The research results of Motegi and Oikawa (2019) have also revealed that the quality of learning has an impact on student achievement. There is an interaction between the learning component and other learning components. The effectiveness of learning time interacts with the quality of teacher learning. Learning time has a strong influence on student achievement when implemented with high-quality teacher learning.

On the one hand, each student has a different learning style. It is influenced by the teacher’s instructional style. The research results of Bicer (2014) have shown that the highest student exhibits diverging learning style, which is also in line with teachers' data sources. Vizeshfar and Torabizadeh (2018) also showed that the highest learning style of students is divergent. Judging by the teaching of teachers, the

1Universitas Negeri Malang, Indonesia

Corresponding Author:
Ach. Rasyad, Faculty of Education, Universitas Negeri Malang, Jl. Semarang 5, Malang 65145, Indonesia.
Email: achrasyadpls@gmail.com

Creative Commons CC BY: This article is distributed under the terms of the Creative Commons Attribution 4.0 License (https://creativecommons.org/licenses/by/4.0/) which permits any use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (https://us.sagepub.com/en-us/nam/open-access-at-sage).
preferred method is participatory teaching in learning theory, which is the preferred instruction via teaching in the practice of learning. The divergent learning style of the students shows high-test score in the final exam. There are significant differences between the pretest, formative assessments, and post-tests. Thus, it is obvious that students’ learning styles influence students’ learning outcomes, and is influenced by teacher teaching as well (Jerrim et al., 2019).

On the other hand, the results of the study by Kang and Im (2013) have shown that based on several learning components, instructional communication variables, instructional support, guidance and facilitating learning, and the presence of instructor are variables that significantly influence learning achievement and learning satisfaction perceived by students in an online learning environment. However, social intimacy does not have a significant effect on the two dependent variables. The five variables are more directed to the steps of the learning model. Therefore, it is necessary to study teacher learning to improve students’ learning achievement. A modern learning model that emphasizes students’ real competence is performance-based learning.

**Literature Review**

**Performance-Based Learning**

The learning model is the steps of the activities carried out by the student and the teacher in the process of teaching and learning interaction that begins from the opening, the core, to the closing. The learning model is a complete series of presentations of teaching material, starting from the initial activities, the core, until the end of the learning done by the teacher, as well as all the related facilities used directly and indirectly during the teaching and learning process. Judging from a theoretical basis, the learning model can be classified into two models, namely a student-centered learning model and a teacher-centered learning model. The student-centered learning model is based on humanistic psychology, which emphasizes students’ activities in the learning process. The teacher-centered learning model is based on a principle of behavioral psychology that emphasizes the teacher’s activity in the learning process. Some examples of student-centered learning models are contextual learning models, collaborative learning, self-directed learning, problem-based learning, project-based learning, problem-posing, and performance-based learning, while some examples of teacher-centered learning models include direct instruction, explaining and presentation, and concept teaching.

Some studies have shown that the student-centered learning model is effective in improving student achievement, but other studies have shown that it is not fully effective. Bechter et al. (2019) showed that teacher-training programs using student-centered learning strategies could increase students’ motivation, basic psychological need satisfaction, effort, and self-efficacy in physical education. On the other hand, Fischer and Hänze (2019) showed that teacher-guided methods have a higher influence on students’ cognitive engagement compared to student-activating techniques. The cognitive engagement has a significant influence on the final interest, subjective learning achievement, and development of academic competencies. It shows that not all learning models based on humanistic psychology are effective for student learning. This also shows that not all learning models based on humanistic psychology can effectively improve student achievement. Therefore, it is always necessary to assess existing learning models.

Performance-based learning is one of the student-centered learning models, which is a learning model that emphasizes the ability of students to achieve concrete knowledge. Students are able to apply the knowledge acquired, not just understanding the information. In addition, students are able to apply the knowledge and skills gained in real-life situations. For this reason, the learning process not only emphasizes how students are taught but also how students are evaluated in relation to the achievement of their learning outcomes. Learning assessment is done through listening, observing, and talking with the students when completing assignments. Students can learn from assessment and develop their knowledge and skills through self-evaluation. Teachers acclimatize their teaching practices according to the student’s performance.

Performance-based learning models have not been extensively studied. A study by Baughman et al. (2012), on the examination of the competency-based learning and assessment, indicated that self-assessment resulted in the greater professional development of students compared to peer assessment. Performance-based learning places more emphasis on self-assessment in shaping real performance. The five basic competencies measured were analysis and judgment, communication, initiative, continuous learning, and teamwork.

On the one hand, Bora (2020) research, in his research, showed that there was no difference in the use of the text-based approach and the performance-based approach for students who were delightful, interesting, useful, meaningful, easy, and satisfying. The difference is only in the aspect of the perception of improvement in the use of the textbook and the performance-based approach. This shows that performance-based learning is effective in achieving students’ learning outcomes, but it has not been fully proven to have a major impact on the achievement of student learning outcomes.

On the other hand, in terms of the development of learning models, performance-based learning is one of the models of modern learning. Based on the results of the study, it also shows that modern learning models are not completely effective in improving students’ learning outcomes. Hidalgo-Cabrillana and Lopez-Mayan (2018) showed that, in some aspects, modern learning could improve student achievement in reading and mathematics, but do not show significant differences in other aspects. Cordero and Gil-Izquierdo (2018), in his study, also proposed that traditional learning strategies
could have a positive influence on student achievement, while learning strategies that emphasize innovative active learning actually presented a negative impact on student achievement. Therefore, performance-based learning, as one of the modern learning models, requires a more in-depth study of its effectiveness in student learning outcomes.

The Collaborative Supervision Approach and the Collegial Supervision Technique

Teaching supervision is the process of providing assistance carried out by the supervisor to the teacher to improve the quality of the process and student learning outcomes. Several results of the study showed that not all supervision activity programs have a significant positive impact on improving teachers’ teaching competence. Wiyono et al. (2017), in their research, showed that only 8 of the 25 supervision techniques studied have a significant effect on teachers, namely, classroom action research, classroom visitations, teaching demonstrations, in on training activities, teachers’ group meetings, training, seminars, and clinical supervision. Certainly, this is influenced by the quality of the teaching supervision process carried out, both in terms of the approach and in terms of the supervision techniques applied.

The supervision approach is the behavioral orientation applied by the supervisor in carrying out the supervision. Broadly speaking, the supervision approach can be classified into three, namely, directive, non-directive, and collaborative supervision approaches (Glickman, 2007). The directive supervision approach is an approach emphasized on the supervisors. Supervisors actively guide, direct, and give examples to teachers. Supervised teachers tend to accept and follow the supervisor’s guidelines. This supervision approach is based on behaviorist psychology. To learn, the supervisors must have a lot of guidance, directions, and examples to the teachers.

The non-directive supervision approach is a more emphasized approach for guided teachers. Supervisors tend to listen and give encouragement to the teacher. This approach is based on the premise that learning is the result of imitation and practice, and it refers to humanistic psychology. This approach is based on the premise that learning is essentially a personal experience resulting from the individual’s curiosity toward the environment. For this reason, in the learning process, individuals must actively identify and solve problems through their own findings.

The collaborative supervision approach is a combination of directive and non-directive supervision orientation. Both supervisors and teachers are equally active and share responsibilities. This approach is based on the premise that learning is an alliance between students and teachers. Learning outcomes can be optimal if there is a close peer relationship between the supervisor and the teacher. The basis of the underlying psychology is cognitive psychology. Therefore, in order for the supervision process to achieve maximum results, it requires maximum enthusiasm and interaction between supervisors and supervisees.

The application of this approach is considered to have a different effect on supervision outcomes. However, not much research has examined the supervision approach. The effect of each type of supervision approach on improving teacher competence remains an issue. Based on several studies, Willegems et al. (2017) suggested that collaborative teacher research could improve teachers’ knowledge and attitudes toward collaboration, reflection, inquiry, and student-centered learning. The results of a study by Kemmis et al. (2014) also showed that one form of effective mentoring in improving the competence of new teachers is through collaborative self-development. Collaborative teacher research or collaborative self-development often uses the characteristics of a collaborative supervision approach. The results of the study are in line with the opinions of Higgins et al. (2018) who argued that emphasis on collaboration through duo ethnography research allowed supervisors to reflect and not feel isolated. The results of the study show that the characteristics of the collaborative supervision approach are effective in improving teachers, especially prospective teachers and new teachers. It is not even beneficial to both the teacher and the supervisor. However, some of these studies do not directly examine the supervision approach, and many are just iterative reviews. Therefore, there is a need for empirical research in this field. How this affects student achievement is still an issue.

In addition to this approach, a component of teaching supervision that is crucial to the supervision outcomes is the supervision technique. The technique is a method used in carrying out the supervision process. There are several supervision techniques, which can be applied in carrying out teachers’ instructional competencies. Judging by the number of teachers who are fostered, it can be grouped into two, namely, group techniques and individual techniques. Group technique is a supervision technique applied to multiple numbers of teachers, for example, teacher meetings, teaching demonstrations, workshops, training, upgrading, and discussions, and the like. The problems that are fostered tend to be the same. The individual technique is a supervision technique applied to teachers individually, for example, class visits, self-assessments, class observations, and the like. Thus, the problems faced by teachers tend to be specific to individual teachers.

The technique that is effective in improving teacher proficiency is also an issue. The research results of Wiyono et al. (2015) showed that emphasizing enthusiasm and collaborative supervision based on humanistic principles could influence teacher competence. However, the study results of Wiyono et al. (2017) showed that not all supervision techniques that emphasize collaborative participants could effectively improve teacher competency. Of the 12 supervision techniques that emphasize collaboration, only three supervision techniques have been shown to have a
significant effect on teacher competency. Therefore, further research is needed.

On the one hand, no research has been found that links the supervision approach, supervision techniques, performance-based learning models, and student achievement. The effect of applying collaborative approaches and collegial supervision techniques to the teachers’ intensity in the application of performance-based learning models remains an issue in the learning process. The relationship between the collaborative supervision approach and collegial supervision techniques is also an issue. On the other hand, the extent to which collaborative supervision approaches, collegial supervision techniques, and performance-based learning models affect students’ learning outcomes remains an issue. Based on these issues, this research was conducted. This study aims to find the coefficient of influence between these variables, both directly and indirectly. In addition, it is intended to describe the implementation of each variable in the field.

The hypotheses tested in this study are as follows: (a) there is a direct effect of collaborative supervision approach to teachers’ performance-based learning, (b) there is a direct effect of collegial supervision techniques on teachers’ performance-based learning, (c) there is a direct effect of teachers’ performance-based learning on students’ learning outcomes, (d) there is a direct and indirect influence of the collaborative supervision approach to students’ learning outcomes, and (e) there is a direct and indirect effect of collegial supervision techniques on student learning outcomes.

Method

This study aims to determine the effect of collegial supervision techniques and collaborative supervision approaches on teacher intensity using performance-based learning, as well as their impact on student achievement. The research design used is correlational research. The study was conducted in East Java. The research sample was obtained in the cities such as Blitar City, Malang City, and Batu City, with 146 teachers in the elementary school level, consisting of 56 teachers from Malang City, 50 teachers from Blitar City, and 40 teachers from Batu City. The sampling technique was random sampling. The size of the sample was based on the number and characteristics of each region, with the highest number of teachers in Malang, followed by Blitar City, and the least is Batu City. Thus, the sample became a representative one.

In accordance with the objectives of the study, four variables were studied, namely, the collaborative supervision approach, collegial supervision techniques, performance-based learning, and student learning achievement. The collaborative supervision approach is a supervision process that emphasizes both active and interactive behavior between supervisors and teachers in the implementation of supervision. While the collegial supervision technique is supervision carried out by using fellow colleagues as supervisors in conducting the process through teacher’s meetings, or other forms of activities. Moreover, performance-based learning is a learning model that emphasizes on students’ activities to maximize their performance in the learning process, while students’ learning outcomes are their average scores during the learning process.

The data collection techniques in this study were questionnaires and documentation. The questionnaire technique was used to collect data of the teaching supervision approach followed by the teacher, the collegial supervision technique followed by the teacher, and the performance-based learning conducted by the teacher. However, documentation was used to collect the data on student learning achievement taught by teachers.

In accordance with data collection techniques, the main instrument used in this study was a questionnaire. The development of the research instrument is based on variables, dimensions, and indicator variable points that are studied. The instrument for measuring the supervision approach was an issue on the percentage of collaborative supervision use followed by the teacher, with answers from 0% to 100%. The instrument for measuring collegial supervision techniques consisted of issues on frequency using collegial supervision techniques, with answer choices using 1 time, 2 times, 3 times, and so on. The instrument for measuring the use of performance-based learning models was in the form of checklist issues, using performance-based learning in teaching, and the instrument for measuring student achievement in the form of average scores was achieved by students. The instrument was tested prior to determining the effectiveness of the instrument. The validity seen is content validity to know the suitability of the content and the legibility of the instrument’s sentences. Teachers with the same characteristics were tested. The results of the tests show that the instrument items can be properly understood. Thus, it can be concluded that the instruments used in this study show good content validity.

In accordance with the objectives of the study, four data analysis techniques were used to process the results of data collection, namely, descriptive statistics, correlation analysis, regression, and path analysis. Descriptive statistics were used to describe the implementation of collaborative supervision approaches, collegial supervision techniques, and teachers’ performance-based learning, while correlation, regression, and path analysis were used to evaluate the effects of collaborative supervision approach variables and collegial supervision techniques on the teachers’ performance-based learning and students’ learning outcomes. This is in accordance with the design and research objectives, namely, correlation research to test the direct and indirect influence of exogenous and endogenous variables. The analysis assumption test was carried out using the Kolmogorov–Smirnov technique for the data normality test. The calculation was done using the SPSS program.
Results
Description of the Collaborative Supervision Approach, Collegial Supervision Techniques, and Performance-Based Learning That Teachers Carry Out

In accordance with the objectives of the study, the first analysis was conducted using descriptive statistics to illustrate the use of collaborative approaches, collegial supervision techniques, and performance-based learning by teachers. The results of the analysis are presented in Table 1.

Based on Table 1, it can be concluded that the supervision of teaching carried out by supervisors in Indonesia, especially in the East Java region, still lacks a collaborative approach. The percentage is only 27.77% with a higher standard deviation, which is 29.92% of the highest value is 100%. Thus, variations in the use of collaborative approaches are also much higher than the average value.

From a technical standpoint, supervisors also lack the use of collaborative supervision techniques. The mean value was obtained only at 0.99 with a standard deviation of 1.597 of the highest value is 4. This means that supervisors still lack the collegial supervision technique, on average only once, with greater variations in use. There are considerable differences in the use of techniques between supervisors with each other.

It can also be seen from the analysis results that using performance-based learning, by teachers in the learning process, is minimal. The mean value was obtained only at 0.12 or about 12%, with a standard deviation of 0.33. Thus, it can be concluded that teachers still lack the use of performance-based learning in learning. There are relatively high variations in the use of one teacher with another.

Effect of Collaborative Supervision Approach, Collegial Supervision Techniques on Teacher Performance-Based Learning

To see the effect of the collaborative supervision approach and collegial supervision techniques on teacher performance-based learning, it is necessary to observe the relationship between the variables. The coefficient of the relationship between collegial supervision approach variables, collaborative supervision techniques, teacher performance-based learning, and student learning achievement, are presented in Table 2.

Based on Table 2, it can be underlined that there is no significant positive relationship between the applications of collaborative supervision approaches with collegial supervision techniques. Supervisors who use a collaborative supervision approach do not automatically apply collegial supervision techniques as well. The supervisor’s behavioral orientation emphasizes that the enthusiasm of the two components, namely, the supervisor and the supervisee, does not always apply to supervision by colleagues. Although supervision is performed by superiors, the orientation of the supervision behavior performed can also emphasize collaborative practice.

The results of the second analysis show that there is a positive relationship between the intensity of using the collaborative supervision approach and the performance-based learning of teachers. The higher the supervisor applies the collaborative supervision approach, the higher the teacher will apply the performance-based learning in the learning process. On the other hand, there is no significant positive relationship between the use of collaborative supervision approaches and the average student learning outcomes.

| Table 1. Collaborative Supervision Approaches and Collegial Supervision Techniques Followed by Teachers, and Performance-Based Learning Applied by Teachers. |
|---|---|---|---|
| s.No. | Variable | Average | SD | Criteria |
| 1 | Collaborative supervision approach | 27.77% | 29.920 | Less |
| 2 | Collegial supervision techniques | 0.99 | 1.597 | Less |
| 3 | Performance-based learning | 0.12 | 0.330 | Less |

| Table 2. Coefficient of Relationships Between Variables. |
|---|---|---|---|
| Exogenous variable | Endogenous variable | r | p | Information |
| Collaborative Supervision Approach | Collegial supervision techniques | .102 | .111 | Not significant |
| | Performance-based learning | .182 | .014* | Significant |
| | Students’ learning outcome | -.094 | .130 | Not significant |
| Collegial Supervision Techniques | Performance-based learning | .186 | .012* | Significant |
| | Students’ learning outcome | .089 | .143 | Not significant |
| Performance-based learning | Students’ learning outcome | .234 | .002* | Significant |
The third research result shows that there is a positive correlation between the intensity of using collegial supervision techniques and performance-based learning. The higher the supervisor applies collegial supervision techniques, the higher the teacher will apply performance-based learning in the learning process. On the other hand, there is also no significant positive relationship between the use of collegial supervision techniques and student learning outcomes.

The fourth research result shows that there is a significant positive relationship between the intensity of the teacher who implements performance-based learning in the learning process and the average student learning outcomes. This means that the higher the teacher applies performance-based learning in the learning process, the greater the learning outcomes achieved by the students.

The fifth research result shows that there is no significant relationship between the collaborative supervision approach and student learning outcomes. In addition, there is no significant relationship between collegial supervision techniques and student learning outcomes.

**The Effect of a Collaborative Supervision Approach, Collegial Supervision Techniques on Teacher Performance-Based Learning and Student Learning Outcomes**

To understand the effect of collaborative supervision approaches and collegial supervision techniques on teacher performance-based learning and its impact on student learning outcomes, regression analysis and path analysis are necessary. Therefore, it is necessary to observe the beta and t values of each variable. Broadly speaking, the results of the analysis of the direct effect of exogenous variables on endogenous variables, and the direct effect of endogenous variables on endogenous variables are shown in Figure 1.

Based on Figure 1, it can be seen that the collaborative supervision approach has a direct effect on teachers’ performance-based learning, with a beta value of 0.164 and t-value of 0.045 (<0.05). Similarly, collegial supervision techniques have a significant direct effect on teachers’ performance-based learning, with a beta value of 0.170 and t-value of 0.039 (<0.05). However, collaborative supervision approach has no direct effect on student learning outcomes. A β-value of −0.145 was obtained with a t-value of 0.080 (>0.05). Similarly, collegial supervision techniques have no direct effect on student learning outcomes. A β-value of 0.057 was obtained with a t-value of 0.488 (>0.05). There is a significant effect on the intensity of performance-based learning conducted by teachers on student learning outcomes, with a β-value of 0.250 and a t-value of 0.003 (<0.05).

The indirect effect obtained by multiplying the coefficient of the direct effect of variable X on Y with the coefficient of the effect of variable Y on the variable Z. Based on those formulas, it can be seen that the indirect effect of the collaborative supervision approach to students’ learning outcomes was (0.164 × 0.250) = 0.041 so that the total effect obtained was 0.041 + (−0.145) = −0.104. The total value of the coefficient of indirect effect is greater than the direct effect, so it can be concluded that the collaborative supervision approach has an indirect effect on students’ learning outcomes.

The results of the analysis of the indirect effect of collaborative supervision techniques on student learning outcomes were (0.170 × 0.250) = 0.0425, and the total was 0.0425 + (−0.057) = 0.014. The value of the coefficient of indirect effect is greater than the direct effect, so it can be concluded that there is an indirect effect of collaborative supervision techniques on the students’ learning outcomes.

Based on the results of the analysis, it can be underlined that the collaborative supervision approach directly affects teachers’ performance-based learning and shows indirect
effects on the students’ learning outcomes. Similarly, collegial supervision techniques directly influence teachers’ performance-based learning and provide indirect effects on students’ learning outcomes. The teachers’ performance-based learning directly influences students’ learning outcomes.

**Discussion**

This study aims at determining the direct and indirect effects of collaborative supervision approach variables, collegial supervision techniques with teachers’ performance-based learning and students’ learning outcomes. In addition, it also describes the implementation of the collaborative supervision approach, collegial supervision techniques, and performance-based learning implemented by teachers. Based on the process of data collection and analysis results, two main objectives of this study can be achieved.

The results of the first study showed that the collaborative supervision approach and collegial supervision techniques that were followed and implemented by teachers were in the poor category. They were in accordance with the research by Wiyono et al. (2017) which showed that teachers were still very poor in following or implementing collegial supervision. Of the 25 supervision techniques, the average frequency of implementing collegial supervision is only 1.14 in the 18th. Even generally, the frequency of teachers receiving supervision of learning was still low (Samawi et al., 2019).

The second research finding shows that there is a significant effect of the collaborative supervision approach on teacher learning-based performance. The higher the supervisor applies the collaborative supervision approach, the greater the intensity of the teacher who implements performance-based learning in the learning process. The results of this study are consistent with several previous studies, which showed that the supervisor and supervisee positions are the same through a collaborative approach. Through a collaborative approach, we can also distinguish the relationship process between supervisors and supervisees and can learn from each other, work in teams, and help each other. Through collaborative supervision, supervisors and supervisees can build new knowledge. Thus, it performs an effective supervision activity (da Silva Pinheiro et al., 2014; Lau et al., 2019; MacKay & Brown, 2013). This finding is also in line with the experiment result of Wiyono et al. (2015) which showed that collaborative active supervision based on humanistic principles is very effective in increasing teacher professional competence.

The third research finding shows that collegial supervision techniques affect teacher performance-based learning. The more intensive using collegial supervision techniques, the greater the intensity of teachers who use performance-based learning in the learning process. The results of this study are consistent with the results of Wiyono et al. (2017) who studied that of the eight supervision techniques that significantly influence teacher competence; there are four supervision techniques that emphasize collegiality in the process of supervision activities, namely classroom action research, teacher working group meetings, in-on-in training activities, and seminars. Through collegial supervision, it is also possible to get feedback, and supervision becomes more open and constructive (Stinchfield et al., 2019; Wahesh et al., 2017; Bulman et al., 2016). The research results of Wiyono (2018) that tested the self-evaluation of the principal’s transformational leadership, teacher motivation, teamwork effectiveness, and school improvement showed that self-evaluation with feedback had the strongest influence on work motivation and teacher’s work effectiveness. The results of this study are also in line with the results of the study by Strieker et al. (2016), which shows that collaborative and non-directive communication approaches show a significant role in improving the teaching skills of prospective teachers. This approach can also facilitate teacher candidates to apply self-directed and self-regulated learning.

The findings of this study were also in line with the results of Wiyono and Triwiyanto’s (2018) research, which proved that there was an influence of activities in teachers’ working group meetings with their professionalism. There are various activities in teachers’ working group meetings that place a great deal of emphasis on collegial supervision techniques, where these activities are carried out by fellow teachers through discussions, sharing sessions, or producing cooperative work.

The fourth research finding shows the significant influence of the performance-based model applied by the teacher on student learning outcomes. The higher the teacher applies the performance-based model, the greater the learning outcomes achieved by the students. The results of this study are consistent with the findings of Hussain et al. (2018), which show that problem-based learning is effective in improving students’ academic performance, both directly and indirectly, and understanding of the material being taught. Problem-based learning places a lot of emphasis on efforts to shape student performance. The results of this study are also in line with the results of Matzemacher et al. (2019), showing that practice-based learning can increase students’ engagement. Practice-based learning has similar characteristics to performance-based learning, emphasizing practice to shape student performance. The findings of this study also clarify the results of Hidalgo-Cabrillana and Lopez-Mayan (2018), showing that modern learning is better for improving student achievement compared to traditional learning models. The findings is also in line with the study results of Rasyad et al. (2019), indicating that the instructor quality is the main determinant factor of the learning outcomes of trainee.

The fifth finding proves that the collaborative supervision approach does not directly show significant influences, but it has an indirect effect on students’ learning outcomes. Similarly, the collegial supervision technique variables do not have direct effects, but they show a significant indirect
effect on students’ learning outcomes. Furthermore, the results of this study are in accordance with the existing theory that the nature of supervision is to improve or enhance teachers’ ability in teaching, so that it will also increase students’ learning outcomes. Some research results support the idea that supervision can improve teachers’ teaching competencies that can facilitate students’ learning and improve their outcomes (McMeeking et al., 2012).

**Conclusion**

Based on the results of the study, it is revealed that there is an influence of a collaborative supervision approach and collegial supervision techniques on teacher performance-based learning. It shows that the supervision process that emphasizes the similarity of positions between supervisors and supervisees is more effective in improving teacher competency. The findings of this study also reinforce the results of previous studies, demonstrating that by increasing the balanced role between supervisors and supervision, increasing the enthusiasm of supervisors and supervisees, increasing inaction, feedback, helping each other, and expressing ideas will bridge the supervision objectives and can be achieved effectively. This is a characteristic of the collaborative supervision approach and collegial supervision techniques.

Collaborative supervision and collegial supervision approaches affect teacher performance-based learning but do not affect students’ learning outcomes. The supervisions have an indirect effect on the students’ learning outcome. It shows that there is no direct relationship between the applications of the supervisions and the achievement of student learning outcomes. However, there is an indirect relationship. Effective supervision of teachers increases teacher competency and commitment. With increasing teacher competence and commitment, it can only have an impact on the improvement of student learning outcomes.

The results of the study also show that there is no significant relationship between collaborative supervision approaches and collegial supervision techniques. It shows that the supervision approach and the supervision technique have different dimensions. The supervision approach is more directed toward the behavioral orientation that the supervisor applies, while the collegial supervision technique refers to the use of a colleague as a supervisor. Thus, the collaborative supervision approach can also be applied to the supervision model that refers to superiors as supervisors, to achieve effective supervision. Similarly, collegial supervision techniques will be more effective when implementing collaborative supervision approaches.

**Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

**ORCID iDs**

Bambang Budi Wiyono https://orcid.org/0000-0002-2748-141X
Ach. Rasyad https://orcid.org/0000-0001-5518-7149

**References**

Argina, A. W., Mitra, D., Ijabah, N., & Setiawan, R. (2017). Indonesian PISA result: What factors and what should be fixed? *Proceedings Education and Language International Conference, 1*(1), 69–79. http://jurnal.unissula.ac.id/index.php/ELIC/article/view/1212

Baughman, J. A., Brumm, T. J., & Michelson, S. K. (2012). Student professional development: Competency-based learning and assessment. *The Journal of Technology Studies, 38*(1), 115–127. https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=1665&context=abe_eng_pubs

Bechter, B. E., Dimmock, J. A., & Jackson, B. (2019). A cluster-randomized controlled trial to improve student experiences in physical education: Results of a student-centered learning intervention with high school teachers. *Psychology of Sport and Exercise, 45*, 101553. https://doi.org/10.1016/j.psychsport.2019.101553

Bicer, D. (2014). The effect of students and instructors’ learning styles on achievement of foreign language preparatory school students. *Procedia —Social and Behavioral Sciences, 141*, 382–386. https://doi.org/10.1016/j.sbspro.2014.05.067

Bora, S. F. (2020). Performative didactics: Tapping into learners’ attitudes towards text and performance-based approaches in foreign language learning. *Innovation in Language Learning and Teaching, 14*, 150–163. https://doi.org/10.1080/17501229.2018.1538225

Bulman, C., Johnson, C. F., Griffith, A., Hallworth, S., Kerry, A., Khan, S., Mills, K., & Shar, P. (2016). The development of peer reflective supervision amongst nurse educator colleagues: An action research project. *Nurse Education Today, 45*, 148–155. https://www.ncbi.nlm.nih.gov/pubmed/27504899

Canales, A., & Maldonado, L. (2018). Teacher quality and student achievement in Chile: Linking teachers’ contribution and observable characteristics. *International Journal of Education Development, 60*, 33–50. https://doi.org/10.1016/j.ijedudev.2017.09.009

Cordero, J. M., & Gil-Izquierdo, M. (2018). The effect of teaching strategies on student achievement: An analysis using TALIS-PISA-link. *Journal of Policy Modeling, 40*(6), 1313–1331. https://doi.org/10.1016/j.jpolmod.2018.04.003

da Silva Pinheiro, G. M., de Carvalho Macedo, A. P. M., & da Costa, N. M. V. N. (2014). Collaborative supervision and professional development in nursing. *Revista de Enfermagem Referência, 4*(2), 101–109. http://dx.doi.org/10.12707/RJIII1381

Fenanlampir, A., Batlolona, J. R., & Imelda, I. (2019). The struggle of Indonesian students in the context of TIMSS and PISA has not ended. *International Journal of Civil Engineering and Technology (IJCIET), 10*(2), 393–406. http://www.iaeme.com/ijciet/issues.asp?JType=IJCIET&VType=10&JType=02

---

*Fenanlampir, A., Batlolona, J. R., & Imelda, I. (2019). The struggle of Indonesian students in the context of TIMSS and PISA has not ended. International Journal of Civil Engineering and Technology (IJCIET), 10(2), 393–406. http://www.iaeme.com/ijciet/issues.asp?JType=IJCIET&VType=10&JType=02*
Fischer, E., & Hänze, M. (2019). Back from “guide on the side” to “sage on the stage?” Effects of teacher-guided and student-activating teaching methods on student learning in higher education. *International Journal of Educational Research, 95*, 26–35. https://doi.org/10.1016/j.ijer.2019.03.001

Glickman, D., Gordon, S. P., & Gordon, J. M. R. (2007). *Supervision and instructional leadership, a developmental approach* (7th ed.). Boston: Pearson Allyn & Bacon.

Hidalgo-Cabrillana, A., & Lopez-Mayan, C. (2018). Teaching styles and achievement: Student and teacher perspectives. *Economics of Education Review, 67*, 184–206. https://doi.org/10.1016/j.econered.2018.10.009

Higgins, M., Morton, A. E., & Wolkenhaur, R. (2018). Reconceptualizing preservice teacher supervision through duothenography: Reflecting, supporting, and collaborating with and for each other. *Teaching and Teacher Education, 69*, 75–84. https://doi.org/10.1016/j.tate.2017.09.020

Hussain, M., Sahudin, S., Abu Samah, N. H., & Anuar, N. K. (2018). Students’ perception of an industry-based approach problem-based learning (PBL) and their performance in drug delivery courses. *Saudi Pharmaceutical Journal, 27*(2), 274–282. https://doi.org/10.1016/j.jsps.2018.11.009

Jerrim, J., Oliver, M., & Sims, S. (2019). The relationship between inquiry-based teaching and students’ achievement. New evidence from a longitudinal PISA study in England. *Learning and Instruction, 61*, 35–64. https://doi.org/10.1016/j.learninstruc.2018.12.004

Kang, M., & Im, T. (2013). Factors of learner–instructor interaction which predict learned outcomes in online learning environment. *Journal of Computer Assisted Learning, 29*(3), 292–301. https://doi.org/10.1111/jcal.12005

Kemmis, S., Heikkinen, H. L. T., Franson, G., & Aspfors, J. (2014). Mentoring of new teachers as contested practice: Supervision, support, and collaborative self-development. *Teaching and Teacher Education, 43*, 154–164. https://doi.org/10.1016/j.tate.2014.07.001

Lau, J., Su, Y., Chen, C., & Dai, C. (2019). Using a collaborative model in supervision with international counseling students. *The Journal of Humanistic Counseling, 58*(2), 150–164. https://doi.org/10.1002/jhco.12103

MacKay, L., & Brown, J. (2013). Collaborative approaches to family systems supervision: Differentiation of self. *Australian New Zealand Journal of Family Therapy, 34*(4), 325–337. https://doi.org/10.1002/anzf.1036

Matzemacher, D. E., Gonzales, R. L., & do Nascimento, L. F. M. (2019). From informing to practicing: Students’ engagement through practice-based learning methodology and community services. *The International Journal of Management Education, 17*(2), 191–200. https://doi.org/10.1016/j.ijme.2019.03.002

McMeeking, L. B. S., Orsi, R., & Cobb, R. B. (2012). Effect of a teacher professional development program on the mathematics achievement of middle school students. *Journal for Research in Mathematics Education, 43*(2), 159–182. https://www.jstor.org/stable/10.5951/jresmatheduc.43.2.0159

Motegi, H., & Oikawa, M. (2019). The effect of instructional quality on student achievement: Evidence from Japan. *Japan and the World Economy, 52*, 100961. https://doi.org/10.1016/j.japwor.2019.100961

Rasyad, A., Wiyono, B. B., Zulkarnain, & Sucipto. (2019). The determinant factors that influence results of gradual training of early childhood education teachers based on the program evaluation in Indonesia. *Cogent Education, 6*, 1–21. https://doi.org/10.1080/2331186X.2019.1702840

Samawi, A., Ariffin, I., Wiyono, B. B., & Imron, A. (2019). Learning supervision strengthening based on school culture in kindergarten. *International Journal of Innovation, Creativity and Change, 5*(4), 1–11. https://www.ijicc.net/index.php/volume-5-2019/146-vol-5-iss-4

Stacey, K. (2011). The PISA view of mathematical literacy in Indonesia. *Journal on Mathematics Education, 2*(2), 95–126. http://dx.doi.org/10.22342/jme.2.2.746.95-126

Stinchfield, T. A., Hill, N. R., & Bowers, R. (2019). Integrative reflective model of group supervision: Practicum students’ experiences. *Counselor Education and Supervision, 58*(2), 141–157. https://doi.org/10.1002/ces.12137

Stricker, T., Adams, M., Cone, N., Hubbard, D., & Lim, W. (2016). Supervision matters: Collegial, developmental and reflective approaches to supervision of teacher candidates. *Cogent Education, 3*(1), 1251075. https://doi.org/10.1080/2331186x.2016.1251075

Vizeshfard, F., & Torabizadeh, C. (2018). The effect of teaching based on dominant learning style on nursing students’ academic achievement. *Nurse Education in Practice, 28*, 103–108. https://doi.org/10.1016/j.nepr.2017.10.013

Wahesh, E., Kemer, G., Willis, B. T., & Schmidt, C. D. (2017). An analysis of peer feedback exchanged in group supervision. *Counselor Education and Supervision, 56*(4), 274–288. https://doi.org/10.1080/01060052.2015.1089087

Willegems, V., Consuegra, E., Struyven, K., & Engels, N. (2017). Teachers and pre-service teachers as partners in collaborative teacher research: A systematic literature review. *Teaching and Teacher Education, 64*, 230–245.

Wiyono, B. B. (2018). The effect of self-evaluation on the principals’ transformational leadership, teachers’ work motivation, teamwork effectiveness, and school improvement. *International Journal of Leadership in Education, 21*(6), 705–725. https://doi.org/10.1080/13603124.2017.1318960

Wiyono, B. B., Kusmintardo, & Imron, A. (2015). Effect of humanistic principles-based active-collaborative supervision on teachers’ competence. *Acta Scientiae et Intellectus, 2*(2), 9–26. https://drive.google.com/file/d/1M_v8mxpi8q-arznZ63ZMcn7bTclxpaAg/view

Wiyono, B. B., Kusmintardo, & Sucipto. (2017). The effective supervision techniques that influence teacher’s performance. *Man in India, 97*(24), 25–33. https://serials journals.com/abstract/33975_3.pdf

Wiyono, B. B., & Triwiyanto, T. (2018). The effective development techniques in teacher working group meeting to improve teacher professionalism. *International Journal of Engineering & Technology, 7*(3.25), 295–298. https://www.sciencepubco.com/index.php/jet/article/view/17585

Wulandari, N. F., & Jailani. (2015). Indonesian students’ mathematics problem solving skills in PISA and TIMSS. In *Proceedings of international conference on research, implementation, and education of mathematics and sciences* (pp. 191–198). https://eprints.uny.ac.id/23182/