



The Performance of School Principals and Teachers in Science Learning Achievement

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Abstract: Learning achievement cannot be separated from the performance of teachers and school principals. The principal as an academic supervisor indirectly plays a role in learning achievement through managing teacher resources and teachers play a direct role in learning achievement. This research aims to determine the performance of teachers and the performance of school principals in terms of mathematics learning achievement. This research used a qualitative research design with research data collection using interview, observation and documentation techniques. Meanwhile, for data validity, technical triangulation and source triangulation were used. Data analysis began with data reduction, data presentation and ended with drawing conclusions. The results of this research found that there was teacher and principal performance in achieving mathematics learning. The teacher's performance in this case was as a learning resource, class manager, motivator and evaluator. Meanwhile, the principal's performance as an academic supervisor is carried out by forming a supervision team, determining schedules, supervision techniques and instruments, checking the completeness of the administration of learning tools and the suitability of the teaching modules prepared by the teacher. Apart from that, the principal holds meetings and individual meetings to find out and monitor the learning process, evaluate learning, and the problems faced by teachers. However, the principal has not carried out monitoring by visited classes and directly observed the learning process carried out by teachers and has not used instruments when supervising the learning process and evaluation. However, in realizing learning achievements, school principals carry out follow-up actions to increase teacher teaching competence through MGMP activities, workshops or training for teachers.

Keywords: Principal performance; Science achievement; Teacher performance

Introduction

Performance is the result of the quantity and quality carried out by employees in carrying out their duties and responsibilities based on those assigned to them (Mangkunegara, 2016). Soetrisno (2016) added that there are aspects of working time and cooperation to achieve the goals set by the organization, related to the concept of performance. The overall results of a person's work during a certain period in carrying out tasks. Achieving

planned performance criteria must be supported by comprehensive performance management (Fermayani et al., 2024). The principal as a leader holds responsibility and plays an important role in the success of the teaching and learning process in the school. The principal's performance is the result of the work achieved by the principal in carrying out his main duties, functions and responsibilities in managing the school he leads. The principal's ability to strategize will be able to anticipate problems that might occur in his school. Good strategic

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management in an organization will make it easier for the organization to achieve its goals (Hendrowati et al., 2023).

The school principal plays a role in achieving educational goals and always influences everything related to the needs of teachers and the needs of students at school (Julaiha, 2019). In carrying out learning activities the principal as a leader plays a role in improving student learning outcomes. The principal is the leader and person responsible for implementing quality learning in the school. Quality learning is characterized by good performance (Karyati, 2020). Academic supervision is a series of activities to help teachers develop their abilities in managing the learning process so that they can improve pedagogical and professional competence, which leads to improving the quality of student graduates (Karyati, 2020).

The role of school principals in improving student learning outcomes is carried out by improving and increasing teacher professionalism (Wahyudi et al., 2020). Teacher professionalism influences learning achievement, especially in mathematics learning. Ruwaida (2021) said that students' mathematics learning achievements are influenced by the teacher's role in the learning process. Sari et al. (2020) firmly stated that the role of teachers as educators in the learning process influences student learning outcomes. The teacher's role in the learning process includes acting as a demonstrator, class manager, mediator, facilitator and evaluator (Rusman, 2017).

When the teacher has carried out his role well and there has been good interaction and communication in the teaching and learning process between the teacher and students, this will influence student learning outcomes. Ansong et al. (2017) firmly stated that the better the teacher's role in the learning process will improve student learning outcomes, conversely, if the teacher's role in carrying out learning is not good, it will reduce student learning outcomes. Therefore, the ability and quality of teachers in carrying out learning activities needs to be monitored with supervision and guidance from the school principal as supervisor.

Based on Minister of Education and Culture Regulation No. 40 of 2021 Article 12 concerning the workload of school principals, it is stated that the workload of school principals is to carry out the main managerial tasks, develop entrepreneurship, and supervise teachers and education staff. In supervision activities, the principal carries out two supervision activities, namely managerial supervision and academic supervision (Sulastri, 2019). Managerial supervision is aimed at all school administration activities, while academic supervision is more directed at improving the quality of learning. In this research, the discussion

focuses on academic supervision of teachers regarding learning achievement. The leadership carried out by the school principal as an academic supervisor towards teachers aims to provide assistance, guidance and services to teachers in improving and enhancing the learning process or solving problems faced by teachers during the learning process (Wibowo, 2014).

Learning achievement or often referred to as learning achievement refers to learning progress accompanied by assessments that can be used to assess that the expected learning outcomes have been achieved (KKNI, 2015). In learning activities at school, educational institutions generally use learning outcomes as a reference used to measure learning achievement or success (Sojanah & Kencana, 2021). Hanafi et al. (2015) firmly stated that achievement or success in mathematics learning is marked by the completion of student learning through the established KKM. A class is said to be complete if the classical percentage achieved is 75%.

Based on data on final semester test scores obtained from mathematics teachers, it was found that the mathematics learning outcomes of students in class VIII SMPN 1 Talangpadang had not been achieved, this was because the percentage of student learning outcomes that reached the KKM in that class was $\leq 75\%$. Apart from that, based on interviews, it is known that students' mathematical calculation operations skills are still very low. Not only that, teachers also lack mastery in the use of learning media that utilizes technology, which can be seen in the learning process not using interactive learning media such as interesting learning videos and PPTs to support mathematics learning and the learning methods used by teachers are less varied.

The results of student test scores and interviews then led to an assumption that the achievement or success of mathematics learning in class VIII.7 SMPN 1 Talangpadang was influenced by the role of the teacher and the role of the principal. This assumption is also strengthened by the research results of Sari et al. (2020) that the role of teachers in the learning process has an impact on student learning outcomes. Then Ruwaida (2021) opinion firmly states that students' success or achievement in learning mathematics is influenced by the teacher's role in the learning process. Therefore, the ability and quality of teachers in carrying out the learning process needs to be considered through the role of the school principal as an academic supervisor (Wibowo, 2014). This then made researchers interested in conducting research on the role of teachers in the mathematics learning process in class VIII and the role of the principal as an academic supervisor of teachers in achieving mathematics learning.

So far, several studies conducted by Munawar (2019), Nurohiman (2016), Purwanto et al. (2020), Putra (2016), and Wibowo (2014) the role of school principals in unraveling the problems of teacher professionalism, especially teacher performance, then research conducted by Esi et al. (2016) examined the role of teachers in improving learning outcomes, especially their role as facilitators and motivators. There is very little research that examines the role of school principals and the role of teachers in achieving mathematics learning, especially the role of school principals as academic supervisors for teachers, especially in Pringsewu Regency. So in this study, the researcher focused his research on the role of the principal and the role of teachers in achieving mathematics learning, especially on the role of the principal as an academic supervisor.

Method

This research uses a qualitative research approach with a case study type of research. Case study research focuses on investigating and understanding an event or problem that has occurred to an individual or group by collecting various kinds of information. As in this research, cases or problems related to learning not being achieved, especially in mathematics learning in class VIII SMPN 1 Talangpadang and this are thought to be influenced by the role of the teacher and the role of the school principal. Therefore, researchers want to know how the performance of teachers and the principal's performance is in achieving mathematics learning in class VIII SMPN 1 Talangpadang. To obtain data in this research, researchers used interview guide, observation and documentation instruments which were previously validated by expert validators to make them suitable for use. The subjects in this research were the principal and teachers at SMPN 1 Talangpadang. The validity of the data used is technical triangulation and source triangulation. The data analysis technique uses a model (Miles et al., 2014), namely data reduction, data presentation and drawing conclusions as depicted in Figure 1.



Figure 1. Miles & Huberman model qualitative data analysis technique

Result and Discussion

The results of the research found that there was teacher performance and principal performance in achieving mathematics learning at SMPN 1 Talangpadang. Teacher performance in learning achievement includes the teacher's role as a learning resource, the teacher's role as a class manager, the teacher's role as a motivator, and the teacher's role as an evaluator. Meanwhile, the performance of the principal as an academic supervisor in achieving mathematics learning at SMPN 1 Talangpadang begins with the process of planning academic supervision, implementing academic supervision, and following up on academic supervision. The discussion regarding teacher performance and principal performance in achieving mathematics learning at SMPN 1 Talangpadang is as follows.

*Teacher Performance in Learning Achievement
Teacher performance as a learning resource*

As a learning resource, mathematics teachers master the learning material, teachers are able to explain the material clearly and coherently and confidently to students. Apart from that, it is known that teachers have reference learning resources that can support the learning process in the form of learning media in the form of printed books and modules. Teachers will find it easier to teach if they are able to use learning media that act as learning resources (Mukarromah & Andriana, 2022). This is in line with the opinion of Jaudin et al. (2021) who say that as a learning resource teachers must master each material well to be taught and have various kinds of learning resource references that can be recommended to support the learning process. Then Nasution (2014) firmly stated that teachers can play a good role as learning resources if the teacher masters the subject matter to be taught. The teacher's more dominant mastery of teaching materials, as well as interesting media and teaching materials, are factors that influence the competence of SKI teachers in classroom management (Arsyad, 2023).

Teacher performance as class manager

As a class manager, the mathematics teacher plays a role in preparing teaching modules. This is in line with the research findings of Zein (2016), namely that one of the factors that can bring success in learning is that before entering the classroom, the teacher always makes a learning plan. In line with this, Monicha et al. (2022) say that in classroom management the teacher plays the role of a classroom management planner including preparing lesson plans and preparing various tools to assist in the learning process. If the teacher's classroom

management is good, the students' learning outcomes are good, and vice versa (Mutiarames et al., 2021). Apart from that, the class VIII mathematics teacher manages the learning process starting by opening learning activities through apperception at the beginning of the lesson, checking student attendance, conveying the topic of material that will be discussed and the objectives of the learning that will be achieved. This is in line with the results of research conducted by Fatikasari (2021) which states that in managing learning teachers carry out preliminary activities by conducting apperception, checking students' readiness and attendance, as well as conveying the topic and objectives of the learning.

Furthermore, in the core learning activities the teacher delivers learning material using the lecture method without using teaching aids or technology-based learning media. The learning methods used by teachers have not varied, only using lecture and question and answer methods. So it can be seen that during the learning process students tend to get bored and don't focus on paying attention to the teacher, there are even students who fall asleep during class time. This is in line with the results of research conducted by Sari et al. (2020) which states that the use of the lecture method without the support of learning media in the learning process makes teachers tend to be more dominant in teaching learning material in the form of concepts, thus making students quickly become sleepy and bored when the teacher explains. It would be good if teachers use new or varied learning methods when teaching, not just with lectures and questions and answers. Then in the closing activity of the lesson it was seen that the teacher gave additional assignments for students to do at home.

Apart from managing learning, there is also managing the classroom environment. In managing the classroom environment, it can be seen that the teacher conditions the classroom so that it remains comfortable and clean before learning begins by checking the cleanliness of the classroom. School culture and environment are not formed instantly, they need to be a continuous process that is inherently integrated (Hendrowati, 2021). Then in the aspect of student management, it can be seen that the teacher conditions the students based on the neatness of their seats, but during the learning process there are still students who are busy chatting with their classmates when the teacher explains and it is also seen that the teacher has not been able to liven up the learning atmosphere in the classroom by involving students to be active during learning. This is in line with the opinion of Jaudin et al. (2021) who say that teachers condition students by arranging students' seats and supervising the learning

process in class. The role of the teacher as a class manager can be seen in Figure 2.



Figure 2. Teacher's role as class manager

Teacher Performance as a Motivator

As a motivator, mathematics teachers are quite optimal in carrying out their role. Where it can be seen that when learning is taking place the teacher provides sufficient motivation to students, the motivation given is in the form of assessing the results of students' work while other motivations include giving praise, creating a pleasant learning atmosphere, and providing positive comments on the results of students' work so that students are enthusiastic about learning as well. It was already visible when researchers conducted research. The teacher's performance as a motivator for students is very important because it has an impact on students' enthusiasm for learning. Research by Esi et al. (2016) states that the role of teachers as motivators is said to be less than optimal, because teachers do not provide motivational encouragement to students so they are enthusiastic about learning. Likewise, what was stated by Salsabilah et al. (2021) who say that teachers have complex duties and responsibilities towards achieving educational goals, because teachers are a source of inspiration and motivation in education.

Teacher performance as an evaluator

Mathematics teacher plays a role in measuring the level of success of students. Before evaluating the teacher has prepared test questions that will be given to students. The learning evaluation is expressed in the form of test questions, either essay questions or multiple choice questions, with questions taken from the learning material that has been implemented at the meeting. Meanwhile, follow-up depends on the situation, for now it is not being followed up due to time constraints as it is approaching the end of the semester assessment. The teachers as evaluators have a role in measuring the level of success of students. Saumi et al. (2021) also said that teachers as evaluators are expected to be able to evaluate students' learning processes and outcomes.

Performance of the Principal as Academic Supervisor in Learning Achievement

The principals are required to have comprehensive responses and knowledge in preparation for carrying out their duties as a leader (Hendrowati & Badrun, 2023). As a school principal, of course you play an important role in guiding and developing teachers and staff for the purposes of teaching and educational activities that will be carried out to achieve learning. Principal supervision is directed at improving teacher performance and learning outcomes (Umasugi, 2023). Minister of National Education Regulation Number 13 of 2007 concerning The Principals Standards, states that school principals must have at least five competencies, namely: personality competency, managerial competency, entrepreneurial competency, supervisory competency, and social competency (Yusuf & Jamali, 2019). The principal in his position in carrying out supervision is obliged to develop teachers to improve the quality of their teaching (Zuldesiah et al., 2021). Learning achievement depends on learning outcomes and the teacher's ability to carry out the learning process. Therefore, the ability and quality of teachers in carrying out learning activities needs to be monitored with supervision and guidance from the school principal as academic supervisor (Wibowo, 2014). The academic supervision activities start from the process of planning academic supervision, implementing academic supervision, and following up on academic supervision.

Academic Supervision Planning by the Principal

The principals academic supervision planning begins with forming a supervision team consisting of the principal and 7 certified senior teachers who are given a letter of assignment to assist with academic supervision activities. After that, the principal and the team formulate objectives, techniques, schedules and instruments for academic supervision. This is in line with the opinion of Hartanto et al. (2019) who say that academic supervision planning consists of formulating goals, setting a schedule, choosing techniques, and choosing academic supervision instruments.

The principals routinely carry out academic supervision with the aim of assisting teachers in developing quality learning processes and increasing teacher professionalism. Implementation of academic supervision is scheduled once every semester, then academic supervision instruments have been prepared from the official superior. The school principal as supervisor/supervisor must design a supervision implementation program using appropriate methods and techniques. Supervision activities by the school principal must be carried out democratically and deliberatively so that teachers are given the opportunity to express their opinions in an effort to achieve common

goals. Implementing appropriate supervision will improve teacher quality and condition teachers to perform well. The quality of education is a direct result of the ability to achieve standardization, accuracy and educational content created through government planning regarding what targets will be achieved in schools, what can be taught, who can be taught, who can teach (Nurdin, 2021).

Supervisors are tasked with helping to improve the quality of education (managerial supervision), school supervisors are also tasked with helping to improve the quality of the teaching/guiding learning process and student learning achievement results in order to achieve educational goals (Ramadhan, 2017). In implementing academic supervision, the principal uses group supervision techniques and individual supervision techniques. The group technique is carried out by holding meetings between the principal and teachers as well as group discussions between the supervision team and the teachers. Meetings and discussions are held to discuss matters related to the learning process. Meanwhile, for individual techniques, the principal holds individual meetings with the teacher. This is in line with research by Marhawati (2020) that the principal's academic supervision program includes group supervision, namely through KKG activities and individual supervision which is carried out once every semester.

Implementation of Academic Supervision by the Principal

In implementing academic supervision, the principal uses group supervision techniques in the form of meetings and discussions between the principal, team and teacher council as well as individual techniques holding personal meetings with teachers. The school principal and supervision team will check the administrative completeness of the learning tools that the teacher has prepared before carrying out learning in class using the instruments that have been prepared, then will see the suitability of the learning implementation plan (RPP) and syllabus that the teacher has prepared. Apart from that, apart from supervising learning tools, the principal at SMPN 1 Talangpadang carries out supervision of the learning process through meetings and discussions as well as individual meetings to find out the problems experienced by teachers during learning, the learning methods and media used by teachers in order to improve the quality of learning.

However, despite this, in the implementation of supervision of the learning process at SMPN 1 Talangpadang, the principal does not supervise class visits, only when there is a new teacher teaching at the school. In fact, by supervising class visits, the principal can see and observe directly how the teacher carries out

the learning process, find out mastery of the learning material, suitability of the material being taught, use of learning methods and media, as well as the teacher's skills in activating teaching and learning activities. This is in line with the opinion of research conducted by Hariyanta et al. (2014) which states that a good school principal will supervise teachers when carrying out learning activities in the classroom by conducting class visits. The principal sees directly the implementation of learning, so that he can find out the overall advantages and disadvantages. teachers have in teaching. Furthermore, regarding supervision of learning evaluations, the principal, assisted by the supervision team, will monitor whether the teacher has carried out evaluations at the end of the lesson, routinely carries out assessments such as daily tests and what forms of assessments are carried out by the teacher. Then the school principal also monitors student learning outcomes and remedial programs carried out by teachers.

Follow-up Academic Supervision by the Principal

In implementing follow-up academic supervision, the principal analyzes the results of academic supervision and then evaluates them together with the teacher to discuss and create joint solutions related to deficiencies found during the implementation of learning. This is in line with Wibowo (2014) opinion that academic supervision is aimed at providing assistance, guidance or services to teachers in improving and improving the learning process or solving problems faced by teachers during the learning process.



Figure 3. The role of the school principal as academic supervisor

The principal carries out direct and indirect follow-up. This is in line with the statement expressed by Hartanto et al. (2019) that the school principal as an academic supervisor follows up on the results of supervision by carrying out direct and indirect follow-up. The follow-up given by the principal of SMPN 1 Talangpadang was to provide assistance related to increasing teacher teaching competence through MGMP

activities, seminars, upgrading related to teacher teaching skills. The role of the principal that has been implemented at SMPN 1 Talangpadang can be seen in Figure 3.

Based on the explanation above, the role of the principal as an academic supervisor for teachers in achieving mathematics learning has been implemented at SMPN 1 Talangpadang. Supervision encourages teachers to become more empowered, and teaching and learning situations become better, teaching becomes effective, teachers become more satisfied in carrying out their work because there is an increase in their performance (Juni, 2016). The school principal is one of the components of education that has an influence in improving teacher performance (Karwati & Priansa, 2017). However, there are aspects that need to be paid attention to, including those related to the selection of techniques and instruments that will be used in carrying out academic supervision. In carrying out supervision of the learning process, the head should The school also chooses the class visit supervision technique so that the principal can see and observe directly how the teacher carries out the learning process, find out the mastery of the learning material, the suitability of the material being taught, the use of learning methods and media, as well as the teacher's skills in activating teaching and learning activities Later, teachers can further improve their abilities in managing the learning process, so that mathematics learning in class VIII can be achieved because there are teachers who play a maximum role in the learning process. Putra (2016) stated firmly that education consists of a system that is in synergy with each other to achieve educational goals, but when one system does not carry out its role well, in this case the school principal, it will affect other systems, both teachers and students and vice versa.

Conclusion

Based on the results and discussion, it can be concluded that there is a role for teachers and school principals in achieving mathematics learning. The role of the teacher in this case includes: as a learning resource, demonstrated by the teacher mastering the learning material and having references to learning resources; as a class manager, the teacher prepares lesson plans, checks student attendance, cleanliness, neatness of seating, provides apperception and conveys learning objectives. However, in implementing learning, the method used is only the lecture method without a combination of varied learning methods and the teacher has not utilized learning media that supports the learning process so that students tend to be bored and passive and not enthusiastic when learning. Apart from

that, teachers also carry out activities to close learning by giving homework to students; As a motivator, teachers do not fulfill their role optimally; As an evaluator, the teacher carries out learning evaluations at the end of the teaching and learning activities. Meanwhile, the principal's role as an academic supervisor is carried out by forming a supervision team consisting of 7 senior teachers, determining schedules, techniques and supervision instruments, checking the completeness of the administration of learning tools and the suitability of the RPP prepared by the teacher. Apart from that, the principal also holds meetings and individual meetings to find out and monitor the learning process, evaluate learning, and problems faced by teachers during learning. However, the principal has not carried out monitoring by visiting classes and directly observing the learning process carried out by teachers and has not used instruments when supervising the learning process and evaluation. However, school principals, in realizing the achievement of mathematics learning, carry out follow-up actions to improve teachers' teaching competence through MGMP activities, workshops or training in order to provide assistance and improve teachers' abilities in managing learning.

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Author Contributions

Conceptualization, Tri Yuni Hendrowati, Mega Lestari, and Robia Astuti; methodology, M. Badrun; software, Tri Yuni Hendrowati; validation, Tri Yuni Hendrowati, Mega Lestari, and Robia Astuti; formal analysis, M. Badrun; investigation, Mega Lestari; resources, Tri Yuni Hendrowati, Mega Lestari, Robia Astuti, and M. Badrun; data curation, Robia Astuti; writing—original draft preparation, Tri Yuni Hendrowati; writing—review and editing, Tri Yuni Hendrowati; visualization, Robia Astuti; supervision, M. Badrun; project administration, Tri Yuni Hendrowati; funding acquisition, Tri Yuni Hendrowati, Mega Lestari, Robia Astuti, and M. Badrun. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

In research on the performance of school principals and teachers in learning achievement, acknowledgment and management of conflicts of interest play a central role. Researchers must honestly identify and disclose personal circumstances or interests that may influence how they report or interpret research results. By doing so, research integrity remains intact, and the reported outcomes can be trusted by the educational community.

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