

# Analysis of the Influence of Facilities and Infrastructure, Adoption of IT and Principal Leadership on Teacher Performance

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**Abstract:**

This study aims to analyze the influence of facilities and infrastructure, adoption of information technology, and principal leadership on teacher performance. This study was conducted in a public high school involving 150 teachers as respondents. The research method used was quantitative with a survey approach. Data were collected through questionnaires and analyzed using multiple linear regression. The results showed that facilities and infrastructure positively and significantly affected teacher performance. Likewise, adopting information technology is important in improving the efficiency of teaching, planning, and assessment. Principal leadership also significantly affected teacher motivation, discipline, and professional development. The combined effect of the three variables showed a strong and positive correlation to improving teacher performance. Furthermore, this study highlights the need for a systemic approach in school management. Facilities and infrastructure are physical and psychological supporting elements affecting teacher comfort and work enthusiasm. Adopting information technology must be accompanied by ongoing training so that teachers are not only passive users but can also explore the innovative teaching potential. Meanwhile, the principal needs to play a role as a transformational leader who not only directs but also inspires teachers to continue to develop. These findings can be used as a reference for school management and policymakers in designing effective strategies to support and improve the quality of education.

**Keywords:** Facilities, Information Technology, Leadership, Teacher Performance

## Introduction

The quality of education in schools is greatly influenced by teacher performance. As the main actor in the learning process, teacher effectiveness directly impacts student learning outcomes and the school's overall quality. Teachers who manage the class well, deliver material effectively, and build positive relationships with students will create a conducive and productive learning atmosphere. Several factors contribute to teacher performance, including the school's physical environment, access to modern technology, and the quality of school leadership. A comfortable school environment and adequate facilities will support teachers in their duties. In addition, access to technology allows teachers to develop innovative learning methods. Strong leadership from school management also plays an important role in motivating and guiding teachers to continue to improve their professionalism (Februati et al., 2024).

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To build a learning process that is both effective and meaningful, facilities and infrastructure are crucial. Classrooms, labs, libraries, and other learning resources facilitate various educational pursuits. Students can learn more intently and with more pleasure when teachers access high-quality facilities to implement various creative and new pedagogical approaches freely. The converse is also true: insufficient facilities can significantly challenge effective instruction. Learning effectiveness can be negatively impacted by classrooms that are too small, laboratories with inadequate equipment, or a lack of instructional materials. Not only can this disorder affect students' final grades, but it may also dampen teachers' excitement and drive to do their jobs well. Efforts to increase the quality of education in schools must prioritize providing suitable facilities and infrastructure (Utami et al., 2025).

Incorporating IT into the educational system is fast becoming a defining feature of today's educational landscape. Digital assessment systems, interactive learning software, e-learning platforms, and other online resources have completely altered the nature of education. Technology makes learning easier, faster, and more interesting, whether in or out of the classroom. While instructors can tailor their lessons to each student's unique interests and needs, students have 24/7 access to course resources (Rofi'i et al., 2023). The availability of these resources is important, but the infrastructure's preparedness and the teachers' skills are even more crucial to integrating technology into the educational system. For technology to be used optimally, educators need a reliable internet connection, sufficient hardware, and continuous professional development. The use of technology can be counterproductive and add to teachers' workloads without this support. Consequently, investments in the capacity development of human resources and the enhancement of supporting infrastructure in schools must accompany the technology implementation strategy (Mohzana et al., 2020).

Strong leadership, particularly from the principal, greatly influences a healthy and productive learning environment. Not only does a capable principal handle administrative tasks, but they also become an advocate for raising the bar for student learning. A principal who is both visionary and competent in administration may inspire their staff, guide their pedagogical practices, and provide programs for continuous professional growth (Mohzana et al., 2023). In contrast, poor or ineffective leadership can severely affect overall school performance. Disorganization, internal strife, and low employee morale are common results of poor team management, poor decision-making, and poor communication skills. In the end, this impacts how well students learn and how much they accomplish. Therefore, increasing education quality must prioritize enhancing the principal's leadership capacity (Subroto et al., 2024).

Based on these dynamics, this study aims to determine the extent to which facilities and infrastructure, adoption of information technology, and principal leadership influence teacher performance. These three aspects were chosen because they are believed to have a strategic role in supporting teachers in carrying out their duties optimally. By understanding the relationship between these factors and teacher performance, a more comprehensive picture can be obtained regarding efforts to improve school learning quality. The findings of this study are expected to provide useful insights for school management, education authorities, and other stakeholders in formulating relevant policies and programs. The information obtained can be the basis for strategic decision-making in procuring facilities, technology training for teachers, and strengthening the leadership capacity of principals. Thus, the results of this study are expected to make a real contribution to improving the quality of education as a whole.

Previous studies have highlighted factors influencing teacher performance (Mallarangan et al., 2024; Wardana et al., 2024; Djunaedi et al., 2024). These three studies suggest the importance of internal factors (leadership), external factors (training and technological infrastructure), and organizational culture in

supporting teacher performance. However, several gaps have not been addressed in these studies. First, the study by Mallarangan et al. focused more on teacher training and education, without explicitly discussing the contribution of physical facilities or technology to performance. Second, the study by Wardana et al. only examined leadership and organizational culture, without considering the role of IT adoption and supporting infrastructure in teacher performance. Third, the study by Djunaedi et al. emphasized the role of technology, but did not directly associate it with principal leadership styles or the quality of school facilities. Therefore, this study offers novelty by simultaneously combining three important variables: facilities and infrastructure, information technology adoption, and principal leadership to analyze their influence on teacher performance, particularly in the context of formal education in Indonesia.

## **Literature Review**

### **Teacher Performance**

When we talk about how well teachers do their jobs, we talk about their performance as educators. Learning outcomes must be objectively and continuously evaluated, class management skills must be present, and students must be actively involved in their learning to achieve this. How well educators can design engaging lessons for their pupils depends on these factors. The effectiveness of a school's educational program is typically measured by the level of performance of its teachers. Students' academic performance, character development, and intrinsic motivation to study are all positively impacted by teachers who can exhibit high levels of professionalism and devotion. Effective communication skills, understanding of course materials, use of creative pedagogical approaches, professionalism in dealing with students and colleagues, and timeliness in completing assignments are some of the markers used to evaluate teachers' overall effectiveness. These measures reflect how well a teacher fulfills his or her duties as an educator. The system for evaluating teachers' performance takes on greater significance in this setting. Periodic and impartial evaluations can aid in pinpointing problem areas, offering helpful criticism, and ultimately leading to better instruction overall. Aside from that, this approach helps ensure that everyone holds each other to account in the classroom, which means that everything about learning can be seen clearly, evaluated, and focused on improving overall education (Mallarangan et al., 2024; Mohzana et al., 2023; Djunaedi et al., 2024).

### **Facilities and infrastructure**

Buildings, suitable classrooms, laboratories, libraries, sports facilities, and the availability of essential instructional materials are all vital parts of school facilities and infrastructure. These things are important because they are the backbone of a good educational system. The instructional process's ease, safety, and effectiveness can be negatively impacted by inadequate infrastructure support for executing learning and teaching activities. Proper infrastructure serves as a foundational element and also has a direct impact on establishing an ideal setting for learning. Students will be more engaged, and teachers will have an easier time delivering information efficiently in a clean, well-organized classroom with suitable learning tools. Therefore, having sufficient facilities and infrastructure is crucial in bolstering the efficacy of instruction and raising student engagement and accomplishment in the classroom. According to previous studies, teacher satisfaction and performance are positively correlated with well-maintained facilities. A pleasant and productive work environment results from a combination of factors, including well-maintained classrooms, sufficient learning resources, and accessible teaching and learning tools. Teachers can devote more time and energy to their work in this setting since they are not distracted by the lack of resources (Lubis et al., 2023; Ramli et al., 2024; Tannady et al., 2023).

### **Information Technology**

Incorporating information technology has transformed the educational landscape, making the teaching-learning process more adaptable, engaging, and dynamic. As a result of this transition, educators may

emphasize student engagement and create more engaging lessons rather than relying on traditional lecture formats. With the help of technology, students have access to learning opportunities whenever and wherever they like, and teachers may tailor lessons to meet the requirements of individual students through differentiated instruction. Teachers can make their lessons more engaging, visually appealing, and personalized by using tools like interactive whiteboards, learning management systems (LMS), and various digital resources. Students can participate more actively thanks to interactive elements, including instructional videos, online quizzes, and virtual discussions. Thanks to technological advancements, teachers can more easily track their student's progress in real-time and offer immediate comments. Learning can be greatly enhanced with the help of technology when used properly. The administrative side of schooling is another area where technology has improved efficiency. Teachers can save time and effort by automating and integrating processes like grade recording, attendance tracking, and performance reporting. Thanks to technological advancements, online professional development activities, including webinars, courses, and communities for digital learning, are also readily available to educators. This resource allows educators to keep their expertise current without taking time away from the classroom (Wardana et al., 2024; Manap, 2023; Djunaedi et al., 2023).

### **Principal Leadership**

The quality of the principal's leadership significantly impacts the school's performance. A good principal does more than just run the school's day-to-day operations; they develop into a leader with vision who can chart a course for the institution's future. They show leadership in the classroom by actively working to raise students' achievement, assisting educators in developing and implementing high-quality lesson plans, and placing a premium on students' results in class. Also, with the help of capable administrators, school districts may foster an atmosphere that values teamwork and acceptance of all perspectives. They foster an environment where employees feel comfortable collaborating, sharing ideas, and being creative. Supporting, recognizing, and facilitating professional development are all crucial parts of a principal's job description that motivate teachers. The success of educational initiatives and their influence on the whole school community depend on strong, quality-oriented leadership from principals. According to previous studies, positive teacher morale, low turnover rates, and better student learning outcomes indicate excellent principal leadership. Leadership strategies like offering feedback, rewards, and empowerment can foster a happy and effective work atmosphere (Yahya et al., 2023; Asmarany et al., 2024).

### **Research Method**

This study used a quantitative approach with a survey method to collect data from a sample of 150 teachers who teach in public high schools. The sampling technique used was purposive sampling, with the criteria for respondents being teachers who have at least two years of teaching experience. The purpose of selecting this criterion is to ensure that respondents have adequate understanding and experience related to the school environment and the dynamics of teacher work. Data collection was carried out by distributing questionnaires. The research questionnaire consisted of four main parts: facilities and infrastructure, adoption of information technology, principal leadership, and teacher performance. Each item in the questionnaire was measured using a Likert scale with a range of values from 1 (strongly disagree) to 5 (strongly agree) to capture respondents' perceptions and level of agreement with the statements submitted. Before the questionnaire was distributed widely, validity and reliability tests were carried out on the instrument to ensure the accuracy and consistency of data measurement. Data analysis was carried out using multiple linear regression with the help of SPSS software.

## Results

This study's results indicate that the three independent variables, namely facilities and infrastructure, adoption of information technology, and principal leadership, have a positive and significant influence on teacher performance. This means that the better the condition of the facilities and infrastructure, the higher the level of utilization of information technology, and the more effective the principal's leadership, the higher the performance demonstrated by the teacher. These three factors support each other in creating a conducive work environment and encourage teachers to carry out their duties optimally. The regression model used in the analysis showed an R-squared value of 0.67. This value indicates that these three variables can explain 67% of the variation in teacher performance, while other factors outside the research model influence the remaining 33%. This finding reinforces the importance of providing adequate facilities, integrating technology into learning, and the active role of the principal in fostering and motivating teachers. Therefore, improving the quality of education in schools cannot be separated from serious attention to these three aspects simultaneously.

Facilities and infrastructure have contributed significantly to teacher job satisfaction and performance effectiveness in the school environment. Adequate facilities, such as comfortable classrooms, complete teaching equipment, and a well-maintained physical environment, create supportive working conditions. In such situations, teachers can run the learning process more smoothly and structure without being disturbed by infrastructure limitations. The existence of supporting facilities also allows teachers to apply more varied and interactive learning methods, thereby encouraging maximum student involvement. In addition to supporting the technical aspects of learning, good facilities, and infrastructure also affect the psychological aspects of teachers. When teachers feel supported by a decent work environment, they feel more confident and motivated in their duties. Access to teaching materials, laboratories, libraries, and educational technology provides a sense of security and increases self-confidence in facing learning challenges in the classroom. This has a direct impact on increasing teacher professionalism and productivity, which ultimately helps improve the overall quality of education.

The adoption of information technology has also been shown to have a significant positive impact on improving teacher performance. Based on the survey results, many respondents reported improvements in delivering lesson materials. Technology allows teachers to use more engaging visual and interactive media so that students become more focused and involved in the learning process. In addition, the use of technology also expands access to a variety of learning resources, allowing teachers to present more contextual and relevant materials. Furthermore, teachers who actively use digital tools in learning activities show higher levels of efficiency and innovation. Using online learning platforms, automated assessment applications, and collaborative media, such as digital discussion forums, makes the evaluation and feedback process faster and more accurate. Technology also helps teachers design differentiated learning according to students' needs and learning styles. Thus, the integration of information technology not only improves the quality of teaching but also strengthens the position of teachers as learning facilitators in the digital era.

Principal leadership emerged as one of the strongest predictors of teacher performance in this study. Principals who apply a supportive leadership style by providing clear direction, listening to teacher input, and actively encouraging a positive work environment can create a conducive school climate. This kind of support makes teachers feel valued and cared for, which in turn has an impact on increasing work enthusiasm and professional responsibility. Leadership practices such as regular feedback, open and transparent communication, and professional development opportunities through training, workshops, or seminars positively correlate with teacher motivation and job satisfaction. Teachers who feel structurally and emotionally supported by the principal tend to be more committed to their duties, show higher

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performance, and are more open to innovation in teaching. This emphasizes that the role of the principal is not only as an administrator but also as a learning leader who directly influences the quality of education.

## Discussion

The findings of this study confirm that improving teacher performance cannot be achieved through a partial approach but rather requires a holistic and integrated strategy. Adequate facilities and infrastructure are an important foundation in creating a supportive work environment, but this is not enough if it is not balanced with support in other aspects. Strengthening technology-based learning systems and visionary leadership are two crucial elements that must go hand in hand to encourage teacher performance. Investment in physical infrastructure, such as classrooms, laboratories, and other supporting facilities, needs to be accompanied by real initiatives to improve the integration of information technology in learning activities. In addition, developing the leadership capacity of school principals must also be a priority, given their strategic role in creating a positive and productive work culture. This comprehensive approach will ensure that teachers receive complete physical, professional, and emotional support to achieve the best performance and provide maximum impact on the quality of education in schools.

Although each variable of facilities and infrastructure, adoption of information technology, and principal leadership contribute positively to teacher performance, the study results show that the combined influence of the three produces a more significant impact. When these three elements are applied simultaneously and in harmony, a strong synergy creates a supportive, innovative, and inspiring work environment for educators. This combination not only strengthens the effectiveness of teachers in delivering material but also increases motivation, professionalism, and collaborative spirit in the school environment. Schools that consciously invest in developing physical infrastructure, using information technology, and increasing leadership capacity tend to experience a real increase in teacher performance and student learning outcomes. The three complement and strengthen each other, creating a sustainable and adaptive educational ecosystem to the demands of the times. Thus, an integrated approach to managing educational resources is a strategic key to improving the quality of education.

These findings are consistent with previous research findings that highlight the interdependent nature of various inputs in the education system. Physical facilities, technology, and leadership are not stand-alone elements but complement and reinforce each other in creating an effective learning environment. When one element is not met, the effectiveness of the other elements can be disrupted. Therefore, a fragmented approach to education management often does not produce optimal results. These findings reinforce the importance of integrated and comprehensive policy planning and resource allocation. The government, school administrators, and other stakeholders must consider all aspects of the education environment in developing quality improvement programs. This includes not only the procurement of physical facilities but also the development of learning technology and increasing leadership capacity. With holistically designed policies, efforts to improve the quality of education will be more effective and sustainable in the long term.

## Conclusion

Based on the research results, teacher performance is influenced by various factors, with facilities and infrastructure, adoption of information technology, and principal leadership as very important elements. These three elements have been proven to significantly contribute to creating a supportive, innovative, and productive work environment for teachers. Ensuring that all three are met properly can improve the quality of the learning process and overall educational outcomes. To improve teacher performance sustainably, education stakeholders need to prioritize the development of school infrastructure, provide training and

support in the use of digital tools, and strengthen leadership practices at the school level. These strategies require cross-sector coordination and consistent investment over time. This research provides an important foundation for further studies and the formulation of evidence-based policies to strengthen teachers' role in improving the quality of education. Future studies can examine additional variables such as student behavior, classroom climate, or curriculum design to understand better the factors that influence educational effectiveness.

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