

The Influence of Digital Literacy Skills and School Principal Supervision on Teacher Performance in Public Elementary Schools in Tambakromo Subdistrict, Pati Regency

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Abstract: The purpose of the study was to analyze the effect of teacher's digital literacy and school principal supervision on teacher performance in public elementary schools in Tambakromo Subdistrict, Pati Regency, Central Java. In the digital age and during the COVID-19 pandemic, digital literacy has become an essential skill for teachers to face the challenges of modern education, where online learning and technology play a significant role. This quantitative research uses a non-experimental approach and a correlational design, with data collected through questionnaires distributed to a sample of 114 teachers, representing the population. The results indicate that digital literacy significantly influences teacher performance, with a significance value of 0.000 ($p < 0.05$) and a t-value of 4.174, which is greater than the t-table value of 1.987. Likewise, the supervision by school principals has a significant effect on teacher performance, with a significance value of 0.000 and a t-value of 9.953, which exceeds the t-table value of 1.987. Additionally, the F-test results reveal that, together, digital literacy and supervision by school principals influence teacher performance with an F-value of 95.619 ($p < 0.05$). Overall, these two variables account for 76% of the variance in teacher performance, while the remaining 24% is influenced by other factors. This study underscores the importance of teacher digital competency and the role of school principal supervision in enhancing educational performance. Based on the result of the study, it can be concluded that both digital literacy skills and principal supervision are essential factors in improving teacher performance in the context of modern education.

Keywords: Digital literacy, education, educational technology, school principal supervision, teacher performance.

1. Introductions

Digital literacy is defined as the ability to understand and use information in various forms from a vast array of sources that can be accessed using electronic devices such as the internet, laptops, and smartphones. Digital literacy is an essential skill needed by every individual to participate in the modern world. The education sector has also started to utilize digital devices in the learning process. The need for digital devices in education became more pronounced during the COVID-19 pandemic in 2020. The Indonesian Minister of Education and Culture issued Circular Letter No. 4 of 2020 regarding Education Policies During the Emergency Period of the Coronavirus Disease (COVID-19) Spread. One of the key points of this circular was remote learning, or online learning, which required teachers and students to have digital literacy skills, regardless of readiness.

In an era of technological advancement, teachers, as educators, should enhance their abilities to use digital devices, primarily to equip students with access to knowledge, so they are not left behind compared to their peers globally. Therefore, teachers who were not trained in the digital era must develop their digital literacy skills to assist students in learning in line with the evolving times. The greatest challenge teachers face today is coping with the technology era. If teachers lack competence in technology, it certainly affects their performance in education because they are expected to be creative and innovative. Teachers are required to keep up with the times by continuously upgrading their competencies. They should act as facilitators and leverage digital technology to create creative lessons that encourage students to think critically and participate more actively. Teachers play a critical role in improving education quality because they are directly involved in the learning process. If the government wants to improve the quality of education, they must focus on improving the quality of teachers.

The school principal, as the person responsible for education in the school, plays a vital role. A principal must fulfill various roles as an educator, manager, administrator, supervisor, leader, innovator, and motivator (EMASLIM) to optimize the available educational components, both human and non-human. The target of supervision is the teacher. The goal of supervision is to improve learning in the classroom and the school, helping teachers become more adaptable, competent, and focused on their work. Effective supervision by school principals is essential for improving teaching quality, as it helps teachers to enhance their competencies and adjust to new demands in education. Principal supervision is directed toward creating a productive learning environment by guiding and assessing teachers' teaching methods and their interaction with students. This study aims to analyze the impact of digital literacy skills and principal supervision on teacher performance in public elementary schools in the Tambakromo Subdistrict, Pati Regency. It explores how these two factors contribute to the overall effectiveness of teachers in adapting to modern educational requirements, promoting student success, and meeting the demands of the technological era.

1.1 Conceptual framework

1.1.1 Teacher's Digital Literacy Skills

Teacher's digital literacy skills refer to the ability to understand and use digital devices as a form of mediated communication in various aspects of daily life. The indicators for this variable are focused on learning, including: Internet Searching, Hypertextual Navigation, Content Evaluation, and Knowledge Assembly. Data for this is gathered using questionnaires.

1.1.2 Principal Supervision

In the administration of education at school, the principal not only acts as a leader but also as a supervisor. Principal supervision is a core responsibility of the principal, aiming to help teachers enhance their professional capabilities. The principal's task is to guide and develop teachers and staff so they can perform their duties to the best of their abilities. Supervision involves guiding and mentoring teachers to work effectively in educating and teaching their students. In addition to coaching teachers in the teaching and learning process, supervision also evaluates their personal, professional, and social interactions with fellow teachers and other school personnel.

1.1.3 Teacher Performance

Teacher performance refers to the behavior or response that produces results, specifically regarding how they perform a task. Teacher performance is the outcome or achievement produced by a teacher based on their ability to manage teaching and learning activities, including lesson planning, implementation, evaluation, and fostering interpersonal relationships with students. Teacher performance can be measured based on the competencies that each teacher must possess.

In this study, teacher performance is assessed using a performance evaluation instrument developed by the Ministry of National Education, Directorate General of Teacher and Educational Personnel Improvement in 2010, which includes four competency domains: pedagogical, personal, social, and professional competencies.

1.2 Research objectives

Based on the problem formulation above, the objectives of this research are: (1) To analyze the effect of the influence of digital literacy skills on teacher performance in public elementary schools in Tambakromo Subdistrict, Pati Regency. (2) To analyze the effect of the influence of principal supervision on teacher performance in public elementary schools in Tambakromo Subdistrict, Pati Regency. (3) To analyze the combined effect of digital literacy skills and principal supervision on teacher performance in public elementary schools in Tambakromo Subdistrict, Pati Regency.

2. Methodology

2.1 Research design

This study aims to examine the relationship between teachers' digital literacy skills and principal supervision with teacher performance in public elementary schools in Tambakromo Subdistrict, Pati Regency. This is a non-experimental quantitative study, where the researcher does not manipulate variables but analyzes existing facts, hence referred to as an ex-post facto study. The study does not apply interventions to the subjects as an experimental study would but examines facts using a questionnaire reflecting teachers' perceptions about various activities and conditions in public elementary schools in Tambakromo Subdistrict, Pati Regency. The research approach used is correlational with ex-post facto data.

2.2 Research Sample

The sample in this study consists of 114 teachers from public elementary schools in Tambakromo Subdistrict, Pati Regency.

2.3 Data Collection

Data collection techniques in this study were carried out using a questionnaire. The questionnaire method involves providing a set of written questions to respondents to answer. This method is used to gather data on teacher education, leadership competence, and performance.

2.4 Data Analysis

Data was collected through questionnaires using a Likert scale. In this scale, statements are accompanied by five alternative answers, each with assigned weights: strongly agree = 5, agree = 4, neutral = 3, disagree = 2, and strongly disagree = 1. The validity test is conducted by distributing the questionnaire to 30 teachers outside the study sample as a test instrument.

3. Findings and discussion

3.1 The Influence of Digital Literacy Skills on Teacher Performance

Based on the results of hypothesis testing, it is proven that there is a significant influence between Digital Literacy Skills and Teacher Performance in Tambakromo Subdistrict, Pati Regency. The hypothesis testing was conducted using the t-test. From the results of the regression analysis using the SPSS 25 program, the significance value for the digital literacy skills variable is $0.000 < 0.05$ probability. According to these criteria, H_a is accepted, indicating that there is a significant influence between Digital Literacy Skills and Teacher Performance in Tambakromo Subdistrict, Pati Regency.

Another criterion used in testing the partial significance between digital literacy skills and teacher performance is comparing the t-table value with the t-count value. If the t-count $>$ t-table, the alternative hypothesis is accepted. If t-count $<$ t-table, the null hypothesis is accepted. The t-table value for research with $n = 86$ is 1.987. Based on the results of the regression analysis, the t-value is 4.174. Since the t-count value (4.174) is greater than the t-table value (1.987), it can be concluded that the accepted hypothesis is that there is a significant influence between Digital Literacy Skills and Teacher Performance in Tambakromo Subdistrict, Pati Regency.

The results of this study are in line with research conducted by Abdollah (2020), which shows that the biggest challenge teachers face today is dealing with the era of technology. If teachers lack competence in technology, it will certainly affect their performance in education, as teachers are required to be creative and innovative.

The findings in this study also align with the results of research by Dien H. Pham (2021) on digital literacy and student performance, which shows that digital literacy affects student performance, and that technological advancements benefit learning performance and the work competencies of graduates.

Further relevant supporting research was conducted by Hening Laksani on teacher confidence in digital literacy based on the theory of planned behavior, which indicates that 21st-century behavioral beliefs are related to the implementation of digital literacy concepts. The research conducted by Hening Laksmi (2019) provides insights into teachers' beliefs about integrating digital literacy in developing their professionalism in the digital age.

3.2 The Influence of Principal Supervision on Teacher Performance

Based on the results of hypothesis testing, it is proven that there is a significant influence between Principal Supervision and Teacher Performance in Tambakromo Subdistrict, Pati Regency. The hypothesis testing was conducted using the t-test. From the results of the regression analysis using the SPSS 25 program, the significance value for the principal supervision variable is $0.000 < 0.05$ probability. According to these criteria, H_a is accepted, meaning there is a significant influence between Principal Supervision and Teacher Performance in Tambakromo Subdistrict, Pati Regency.

Another criterion used in testing the partial significance between principal supervision and teacher performance is comparing the t-table value with the t-count value. If the t-count $>$ t-table, the alternative hypothesis is accepted. If t-count $<$ t-table, the null hypothesis is accepted. The t-table value for research with $n = 86$ is 1.987. Based on the results of the regression analysis, the t-value is 9.953. Since the t-count value (9.953) is greater than the t-table value (1.987), it can be concluded that the accepted hypothesis is that there is a significant influence between Principal Supervision and Teacher Performance in Tambakromo Subdistrict, Pati Regency.

The results of this study are in accordance with research conducted by Yoserizal (2015), which states that supervision significantly affects teacher competence. With the regular implementation of supervision, teachers will always strive to improve their competencies toward better performance.

3.3 The Influence of Digital Literacy Skills and Principal Supervision Influence on Teacher Performance

From the F-test results in this study, the calculated F value is 95.619 with a significance value of $0.000 < 0.05$ probability. The calculated F value (95.619) is greater than the F table value (3.10). Based on this comparison, it can be concluded that digital literacy skills and principal supervision simultaneously (together) have an effect on teacher performance. Therefore, the results of this study indicate that there is an influence of digital literacy skills and principal supervision together on teacher performance at public elementary schools in the Tambakromo Subdistrict, Pati Regency.

The combined influence of digital literacy skills and principal supervision on teacher performance at public elementary schools in Tambakromo Subdistrict, Pati Regency, is 76%, while 24% is influenced by other factors. This is in line with McDaniel's opinion, as cited by Uno et al. (2014), who stated that performance is an interaction between a person's ability and motivation. In relation to teacher performance, it is reflected in their role as an implementer and administrator of teaching activities. In other words, teacher performance can be seen in the activities of planning, implementing, and assessing the teaching and learning process, with the intensity grounded in work ethics and professional discipline.

4. Conclusion and Recommendation

Based on the results of this study, it can be concluded that (1) Digital Literacy has a significant effect on teacher performance in public elementary schools in Tambakromo Subdistrict, Pati Regency. This indicates that the digital literacy skills possessed by teachers can improve their performance in the teaching process, especially in the digital era and during the COVID-19 pandemic. (2) Principal Supervision also significantly influences teacher performance. With effective supervision from school principals, teachers become more competent and motivated to improve the quality of their teaching. (3) The combination of digital literacy and principal supervision has a very significant impact on teacher performance, with a contribution of 76%. This indicates that both factors complement each other and provide a positive and significant impact on teacher performance in elementary schools.

Based on the research results and hypothesis testing results, the researcher provides the following suggestions: (1) The education department and schools should continue to support training and the development of teachers' digital skills to ensure they can effectively use technology in managing the learning process. Additionally, it is important to provide facilities that support digital development, such as adequate devices and internet access. (2) School principals should continue to improve their competence in supervising teachers by providing more structured guidance and enhancing communication and constructive feedback. Effective supervision will help teachers to continuously develop and improve the quality of their teaching. (3) Since only 76% of the variance in teacher performance is explained by the two main factors (digital literacy and principal supervision), it is important to consider other factors that also influence teacher performance. Therefore, a more comprehensive approach needs to be applied, which involves developing other aspects such as motivation, learning facilities, and a school culture that supports growth.

By taking these steps, it is expected that a better educational environment will be created, and teacher performance will continue to improve, ultimately enhancing the quality of education at the elementary school level. Furthermore, researchers hope that the results of this study can be developed again in the next study with a wider population and more in-depth analysis.

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Conflict of Interest

Authors declare there is no conflict of interest.

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