

The Influence of Digital Skills on Elementary School Teachers' Performance in Semarang City with Digital School Governance as a Moderating Variable

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Abstract. This study was conducted in Semarang City with a mixed method approach and explanatory sequential design to gain an in-depth understanding of the influence of digital skills on teacher performance with digital governance as a moderating variable. The novelty of this study lies in the simultaneous testing of the influence of digital skills on teacher performance, while exploring the moderating role of school digital governance in the relationship between these variables which has not been comprehensively studied in the context of primary and secondary education. The results of the quantitative analysis show that digital skills have a positive and significant effect on teacher performance ($t = 3.555$; $\beta = 0.198$; $p = 0.003$), as well as school digital governance which has the strongest influence ($t = 14.504$; $\beta = 0.691$; $p = 0.000$). Meanwhile, the results of the moderation test show that the moderating variable does not have a significant effect ($t = 1.171 < t\text{-table } 1.967$), so it does not strengthen or weaken the relationship between variables. Digital skills have an effect on teacher performance. Meanwhile, the tested moderating variables did not have a significant effect, indicating that these factors neither strengthen nor weaken the relationship between the main variables. This study provides theoretical and practical contributions in the development of a digital-based teacher performance model. The main recommendations are the need for policies to continuously improve teachers' digital capacity, strengthen the digital leadership of school principals, and optimize the school's digital governance system as a strategy to improve teacher performance that is relevant to the demands of educational transformation in the digital era.

Keywords: digital skills; digital school governance; teacher performance

INTRODUCTION

Educational institutions have an obligation to provide quality assurance to the community. Quality education will be a bridge to an intelligent, characterful, and competitive society. The achievement of quality education at all levels of education has been carried out through the determination of predicates on education report cards. Elementary school governance is a strategic element that can be utilized by local governments to improve the quality of education. Governance begins with a thought and mindset that can build an organization to be more alive. The mindset in an organization not only forms a structure but also builds individual values and perceptions that are influenced by attitudes, commitments, and performance. In a school organization, there needs to be the same mindset between the principal, teachers, parents, and committee to provide the best for the school. Therefore, good school governance can be implemented effectively to create a quality school. The implementation of good governance in schools aims to ensure that the transformation process carried out is recognized by the

community. The main output of the school is educated people, namely the younger generation, in addition to having knowledge and skills, also still has an identity based on national culture and state ideology (B. Rahman, 2019). The intensity of the quality of knowledge and skills as well as the cultural and ideological foundations possessed by school graduates are highly dependent on public assessment. The principles of good governance make schools as educational institutions have strong accountability to the public.

Many factors are suspected of causing governance in schools, especially in elementary schools, not to run as expected. Among them are the status of the school (private and public) and the accreditation status that has not met the target (Wardani, 2019). In addition, there is no model for transparency in school governance that can be used as a reference in school management. Another factor that causes low governance is the challenge of human resource management. These Human Resources are divided into several categories, namely the challenge of teacher shortages, challenges of teacher work motivation, challenges of teacher work quality and emotional strength among teachers. The findings show that the

shortage of teachers comes from the status of teacher positions and better offers from other educational institutions. This is because the number of teachers who get permanent position status is less than contract teachers. This shortage of teaching staff was seen when almost all interviews conducted with research participants mentioned the shortage of teaching staff. Furthermore, the biggest challenges faced by research participants can be seen in terms of attitudes and self-attitudes as well as emotional strength among teachers (A. H. A. Rahman et al., 2019).

James's (2020) research shows that most school teachers claim above average Teacher Digital Literacy levels; however, more than 50% of schools are digitally proactive. This study suggests that teachers do not seem to be really using ICT tools and digital resources for professional practice. School clusters that are differentiated based on the level of digital activity (TDA) are carried out weekly. This study reveals several important problems in digitally empowering teachers in the field of technology in primary schools in Ghana, where School-Based Management (SBM) governance is adapted to address them (Quaicoe & Pata, 2020).

The variable Digital skills is an important factor that can be used in efforts to increase teacher job satisfaction (Manalu, 2024). The results of the study show that digital skills can significantly increase the job satisfaction of senior high school teachers in Batam City. The results of the study found that the social capital variable is an important factor that can be considered by leaders in order to increase teacher job satisfaction. The results of the study show that social capital has a direct and significant effect on the job satisfaction of senior high school teachers in Batam, Riau Islands Province. Based on contingency theory, a study shows that having a digital strategy alone is not enough to achieve a high level of digitalization (Proksch et al., 2021). Government with digital leadership will become a standard component of a digital society. Digital leadership and state capacity are theoretically based on the same foundation. Both are organic bodies supported by digital insights, digital decision-making, digital implementation, and digital guidance, with digital thinking as the foundation (Peng, 2022). All aspects collaborate throughout the process of organizing the state to help modernize it. Digital competence, platforms, governance, and talent must be improved as part of digital leadership.

Digital governance uses ICT applications to achieve efficiency and effectiveness in government

functions for all stakeholders. However, challenges arise from the complexity due to uncertainty and heterogeneity in processes and stakeholders (Sukhwal & Kankanhalli, 2022). Although technological solutions are available, the right choice of technology remains important because the choice depends on the level of digitalization of the country.

Digital governance is very important to be implemented immediately at the elementary school level. Things that will happen if digital governance is not implemented immediately are educational institutions cannot provide excellent services to the community. Of course, the first victims are students. Students cannot receive educational services according to the nature and nature of their time. The inconsistency of services has a negative impact not only on cognitive but also affective and student skills in managing problems today and in the future.

However, from Alfisyah's research (2023), it is known that the highest pseudo R-Square value is Nagelkerke. The results of the analysis show that only social relations at MAN 1 Lamongan can influence teacher performance. Through this study, it is known that institutional governance has an insignificant effect on improving teacher performance.

Based on the gap phenomenon and previous research, it proves that there is inconsistency in the factors that influence teacher performance. Although in previous studies it was known that the optimal implementation of digital governance in elementary schools is expected to increase institutional resilience, increase trust in institutions and help develop a community-centered and inclusive digital system. From the results of the existing research, it is necessary to further study the influence of digital skills on the performance of elementary school teachers in Semarang City. By considering the phenomena and results of existing research, this research is important and worthy of being studied for further research in accordance with the results of the existing research gap.

METHODS

This study uses a mixed method research approach. According to John W Creswell (2015), mixed methods is an approach in social research, where quantitative and qualitative data are collected, integrated, and then new interpretations are made based on the combination of the strengths of both data in understanding the research problem. This study uses a mixed method to gain a better

understanding of the research problem.

This study uses an explanatory sequential design, data collection begins with quantitative data collection and then continues with qualitative data collection. Explanatory sequential design was chosen because it is in accordance with the needs in answering the formulation of the problem proposed. This condition is in accordance with Bangun's statement (2013) that predicting future competencies requires two things, namely: 1) an accurate assessment of current conditions and 2) an assessment of what will happen next.

The population in this study were elementary school teachers in Semarang City. PTK and Education Personnel in Semarang City total 5,870 spread across 367 educational units (Semarang City Education Information System, 2024). Quoted from the book Research Methodology, Ibrahim (2021) the Slovin formula was formulated by a statistician named Slovin. This formula is used when researchers want to determine the sample size from a large and heterogeneous population, without knowing the characteristics of the population distribution. From the calculation of the Slovin Formula 5%, a representative sample in this study was obtained of 352 teachers.

RESULTS AND DISCUSSION

This study uses SEM-PLS analysis with the calculation process assisted by the SmartPLS 4.0 software application program. Partial Least Square (PLS) analysis is a multivariate statistical technique that compares multiple dependent variables and multiple independent variables. PLS is one of the SEM statistical methods based on variance designed to solve multiple regression when specific problems occur in the data such as small research

sample size, missing data (missing values) and multicollinearity. Evaluation of the Partial Least Square (PLS) model is carried out by evaluating the outer model and evaluating the inner model.

The research hypothesis is conducted by looking at r Statistics and P Values. The hypothesis is declared accepted if P Value < 0.05 . In this study there are direct and indirect influences because there are independent variables, dependent variables, and moderating variables. In the smartPLS 4.0 program, the results of the hypothesis test are seen through the Path Coefficient Bootstrapping Technique in Table 1.

The Influence of Digital Skills on Teacher Performance

The t-statistic value of the direct influence of digital skills on teacher performance is greater than the t-table (1.967) which is 3.555 with an Influence of 0.198 and a P-value < 0.05 of 0.000. So it can be concluded that the direct influence of digital skills on teacher performance is positive and significant. So according to the calculation, digital skills have a positive effect on digital skills.

The Technology Acceptance Model (TAM) theory explains how teachers accept and use technology. This is certainly inseparable from the digital skills of elementary school teachers in Semarang City. This model identifies several key factors that influence a teacher in the level of technology acceptance. Such as the perception of usefulness, ease of use, and attitudes towards the existence of technology.

TAM has 5 main constructs, namely: (1) Perceived ease of use, (2) Perceived usefulness, (3) Attitude toward using technology, (4) Behavioral intention to use, and (5) Actual technology use (actual use of technology) (Davis, 1993).

Table 1. Hypothesis Test Results Using Path Coefficient Bootstrapping Technique

	Original Sampel (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Value	Information
Digital Skills -> Teacher Performance	0.198	0.189	0.056	3.555	0.003	Positive and significant
Digital School Governance -> Teacher Performance	0.691	0.693	0.048	14.504	0.000	Positive and significant
Digital School Governance x Digital Skills -> Teacher Performance	-0.022	-0.031	0.019	1.171	0.741	Negative and insignificant

Elementary School teachers in Semarang City actually benefit from easy access. They have no difficulty finding an internet network, either wired or non-wired. In terms of the existence of devices, even if teachers do not have personal laptops, all schools already have assets purchased through BOS funds. The actual use of technology has actually been implemented in everyday life without realizing it. Every day teachers take attendance by utilizing digital face scans. Recording daily activities, making SKP, and teacher credit points have also been carried out digitally. This certainly affects teacher performance in terms of quantity, quality, and time.

This finding confirms the importance of digital competence as an integral part of teacher professionalism, especially in the era of digital transformation of education. To explore this phenomenon, we can use several alternative theoretical approaches beyond TAM, which provide a broader and more contextual framework.

The Influence of School Digital Governance on Teacher Performance

The t-statistic value of the direct influence of school digital governance on teacher performance is greater than the t-table (1.967) which is 14.504 with an Influence of 0.691 and a P-value <0.05 of 0.000. So it can be concluded that the direct influence of digital governance on teacher performance is positive and significant. So according to the calculation, school digital governance has a positive effect on teacher performance.

School digital governance includes policies, infrastructure, regulations, information systems, data management processes, and stakeholder involvement in using digital technology to support the education process. Teacher performance as an output variable is greatly influenced by the quality of the digital governance system implemented by the institution. When digital governance is transparent, accountable, integrated, and responsive to the needs of users (teachers, students, parents), teachers will be encouraged to work more effectively, efficiently, and professionally.

In the digital context, the theory of Good Governance (UNDP, 1997). emphasizes the principles of participation, accountability, effectiveness, transparency, and responsiveness. In the context of schools, Digital School Governance is a form of adaptation of the principle of good governance in the digital space. When the school digital system is designed and implemented with these principles, it will create a conducive work

ecosystem for teachers. For example, the implementation of a school management information system (SIM) that presents attendance data, performance evaluations, SKP management, and student information systems in an integrated and real-time manner means that teachers are no longer burdened with repetitive administrative matters. This provides space for teachers to focus more on the learning process and self-development. In addition, teacher involvement in the planning and evaluation of digital systems also encourages a sense of ownership and responsibility for the success of governance.

From the perspective of Institutional Theory (Scott, 2013), educational organizations such as schools are subject to institutional pressures, both normative, coercive, and mimetic, which encourage the adoption of digital practices. Schools in Semarang City that implement digital governance are not only to meet the administrative demands of the government (coercive), but also as a form of response to community expectations (normative) and to imitate the success of other schools that are more digital-savvy (mimetic). Teachers as part of the organization are also influenced and motivated to improve their performance, because the digitally standardized governance system demands and facilitates professional work practices.

The Influence of Digital Skills on Teacher Performance Moderated by School Digital Governance Variables

The moderator variable used is the school digital governance variable as a moderator with the exogenous variable being the digital skills variable and the endogenous variable that is influenced by the teacher performance variable. The Ping method used is a method that multiplies the school digital governance variable with the teacher performance variable. The t-count value for the moderation variable is less than the t table 1.171 so the decision is to fail to reject H0. The conclusion is that the existence of this moderating variable does not have a significant effect on teacher performance. The moderation variable does not strengthen or weaken teacher performance.

Actually, it is not true when governance does not affect teacher performance. Effective digital governance should be able to support teacher performance. Digital governance can help manage a conducive school culture so that it can affect teacher performance. Technology and internet access are growing rapidly. The use of computers, cellphones, the web, and the internet or digitalization has become a daily life for society.

The internet can be used as a medium in developing community activities (Bukit et al., 2019). Therefore, computers are a tool that makes it easier for teachers to carry out their duties in education.

Governance cannot stand alone to influence teacher performance. Governance needs to pay attention to excellent service for users. Excellent service means providing very good or the best service, especially for students (Muharam et al., 2023). One form of convenience is the clarity of information and speed of information. The convenience felt by teachers with the help of computer and internet technology directs them to use this technology more in the world of education. Teachers have a high interest in using technology in the field of education (Khadijah, 2020). Teachers and other school academics who are accustomed to using computer and internet technology will be more interested if their school administration is also internet-based.

The era of digitalization as a real effort that will be faced by educational institutions is now marked by technological advances in terms of demands for quality development that have taken place, so that its achievement in social and cultural changes in the school community is significant (Hermawansyah, 2021). Digitization of school administration governance to make it easier to supervise and control (Pradipta et al., 2020).

The problem of school administration governance is not only related to the readiness of the governance system but also related to Human Resources (HR) or its managers. Such as the findings (Musyarapah et al., 2022) which found that the obstacles faced by school management in developing institutions were related to personnel administration issues (Human Resources). To improve IT governance, it is recommended that agencies prepare competent human resources, as well as document every evaluation activity, direct, and monitor the management of academic information systems (Putra et al., 2015). One of the human resources in school activities is the teachers at the school. The ability of teachers to operate the system needs to be improved.

CONCLUSION

Digital skills and digital school governance have a direct influence on teacher performance. Teachers who have high digital skills will actually complete their work faster than those who have less digital skills. Teachers are also able to utilize their skills to optimize the use of technology in learning. If we return to teacher competency, then these

digital skills will help teachers improve their pedagogical and professional competencies. Teachers are legally regulated by the school through policies that are legally made by the school. Digital governance also helps teachers when they are confused about problems that arise due to the use of digital devices in Elementary Schools. Digital school governance neither strengthens nor weakens digital skills towards teacher performance. Although digital governance directly affects teacher performance, if it becomes a moderating variable the results are negative. Digital governance regulates the school's framework in managing digital resources, technology infrastructure, and digital policies. Good digital governance is able to provide good services to students. Therefore, digital governance includes several aspects including policies, procedures, standards, and guidelines for managing and accepting the presence of a digital climate. The need for decision-making skills is possible to be one of the factors that support the digital governance factor towards teacher performance.

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