

## **The Effect of Principal's Leadership and Digital-Based Strategic Implementation on Competency Improvement**

**Hana Meilani<sup>1</sup>, Nur Ahyani<sup>2</sup>, Mulyadi<sup>2</sup>**

<sup>1</sup>SMP Negeri 1 Koba, Bangka Tengah, Kepulauan Bangka Belitung, Indonesia,

<sup>2</sup>Univeristas PGRI Palembang, South Sumatra, Indonesia

Corresponding author e-mail: [hanameilani1973@gmail.com](mailto:hanameilani1973@gmail.com)

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**Abstract:** The purpose of this study was to determine the effect of principal leadership and the implementation of strategic digital-based school management on improving teachers' pedagogical competence at SMP Negeri 1 Koba, Central Bangka Regency. The sample size taken was 40 teachers from SMP Negeri 1 Koba, Central Bangka Regency. The sampling technique was saturated sampling, where all respondents were taken at SMP Negeri 1 Koba, Central Bangka Regency. Data collection was carried out by distributing questionnaires using a 5-point Likert scale to measure 90 statement items. The analysis technique used is multiple linear regression analysis. The results showed that there was an influence of principal leadership and strategic implementation of digital-based school management on improving teachers' pedagogical competence. Second, there was an influence of principal leadership on improving teachers' pedagogical competence. Third, there was a strategic implementation of digital-based school management on improving teachers' pedagogical competence.

**Keywords:** Leadership, Pedagogical Competence, Strategic Implementation

### **A. Introduction**

The educational process has thus far been conducted in interactive, motivating, enjoyable, and challenging ways, encouraging students to actively participate and allowing them enough room for initiative, creativity, and independence in line with their talents, interests, and physical and psychological development. To maximize the efficacy and efficiency of acquiring graduate skills, each educational unit implements learning planning, the learning process, and assessments of the learning process. The learning process is holistic, meaning that the development of one domain cannot be separated from the development of other domains. It is entirely oriented on growing affective domains, knowledge, and skills. In this approach, the full learning process results in the development of character traits with excellent attitudes, knowledge, and abilities.

Whether in a classroom, a special room with a specific purpose, like a science lab, computer room, library, open learning space, sports field, or other supporting rooms at school, teachers and students interact in space and time as they carry out teaching and learning activities face to face. This is a characteristic of the classical learning process.

According to (Depdiknas, 2003), teachers, who serve as the primary facilitators of teaching and learning activities, must possess academic excellence, competence, and educational credentials, be in good physical and mental health, and be able to achieve educational objectives. Teachers are urged to relearn how to effectively use various information technology applications when faced with the challenging scenario of teaching in the settings of the COVID-19 pandemic; in this context, the teacher's pedagogical competency is at risk.

The COVID-19 pandemic necessitates the use of proper learning strategies for a productive and fast online learning procedure. To accomplish the intended learning objectives, teachers must be able to plan and carry out effective learning. A teacher faces a hurdle when trying to oversee a technology-based learning process during the Covid-19 outbreak. Focusing on technology use in online learning demands a significant amount of teacher pedagogical expertise.

The ability of the instructor to direct students' learning is referred to as pedagogical competence in the Law Concerning Teachers and Lecturers Number 14 of 2005. The amount of success of the learning process and the results of pupils will depend on the pedagogical competency that sets instructors apart from other professions. The ability of the teacher to use teaching aids, audio-visuals, and information technology is one sign of pedagogical competency. This skill is developed over time through consistent, methodical learning attempts. They are urged to follow and abide by the principal's rules while performing their duties. Since the principal and the teachers serving as online class managers must work well together to organize effective and interactive online learning between teachers and students, special pandemic management strategies are required. Covid-19, a digitally based school management system, is being used.

Almost all of the teachers at SMP Negeri 1 Koba have various and complete social media accounts, and on average - generally used to support the online learning process, according to a preliminary survey conducted on 40 teachers regarding the use of social media and information technology during the online learning process from March to August 2020. According to preliminary research conducted in several junior high schools in the Central Bangka district, it was discovered that the information technology tools and media used in junior high schools, including both public and private schools as well as madrasas/Islamic boarding schools, are still very basic, with only the use of social media like WhatsApp, Google applications

form, Google meet, Zoom meet, youtube channel, blog, and vlog, and a very small number of junior high schools having websites.

During the Covid-19 pandemic outbreak in 2020, only two junior high schools in Central Bangka Regency – the private schools SMP Dian Harapan in Pangkalan Baru District and SMP Negeri 1 Koba in Koba District – used the LMS system, according to survey data. However, the use of LMS applications at the junior high school level is still uncommon. The majority of web-based LMS systems are employed by high school/vocational school-level educational units or even university institutions.

Social media platforms used include Facebook, Instagram, Telegram, and a WhatsApp group. Other programs used include YouTube channel, blog, vlog, Google form, Zoom Meet, Google Meet, and Office 365. School administrators must have the correct strategy to empower teachers when dealing with the COVID-19 pandemic calamity, which directly affects students' teaching and learning activities. This will ensure that teachers are better prepared and able to use information technology as a learning tool.

The early stages of the digital-based school management approach were implemented at SMP Negeri 1 Koba in the manner described below: completing an inventory of teachers' use of social media, apps, and other digital platforms, confirming that teachers have accounts on these platforms and other ICT tools, Make sure teachers give educational materials to pupils using social media and apps, turn on and off the school's website, Provide instruction to teachers on how to use the YouTube platform to facilitate online learning, Make sure that schools provide chances for the development of unique digital-based school management application systems by conducting routine monitoring and assessment of the online classroom management process for all instructors' subjects.

It is essential to establish information technology that can be used to produce, utilize, and maximize online learning at SMP Negeri 1 Koba. The need for digital-based school management encourages school principals to adopt strategic policies to develop digital platforms for information technology application systems called LMS (Learning Management System). LMS is the term general for computer systems developed specifically to manage online learning, distribute learning materials, and track student progress.

Utilizing the human and financial resources that belong to the school, the LMS (Learning Management System) system is one specific example of how digital-based school management has been strategically implemented at SMP Negeri 1 Koba. The following actions were taken to strategically integrate digital-based school management at SMP Negeri 1 Koba: Ensure that all instructors and academic staff concur that SMP Negeri 1 Koba will advance by developing a web/page-based LMS

system. Make sure the school's change budget includes digital school management. Make sure the LMS system becomes the institution's flagship program for the 2020 academic year. As a school facilitator for utilizing the LMS system, see to it that the school develops an LMS management team. work along with the school's ICT specialists to create a web-based LMS system, Guarantee Teachers and students, who are the LMS's primary users in the SMP Negeri 1 Koba setting, receive training from the school on how to use it. Make sure the school conducts additional digital-based training to enhance the abilities of the teachers to use information technology tools/media. must make certain that the LMS is made specifically for SMP Negeri 1. Koba is the main ICT media and tool for organizing online learning.

The majority of teachers at SMP Negeri 1 Koba, or 85.7% of teachers, concur that the school has a particular LMS application as a follow-up and development of the strategic implementation of digital-based school administration, according to the findings of a survey performed by researchers. The principal's presence at SMP Negeri 1 Koba is crucial to the strategic implementation of digital school management through the use of the Spensapacak LMS system. This presence goes beyond the principal's attendance at meetings to include how the principal's strong leadership ensures that the strategic steps for digital school management go off without a hitch. As a leader, the school administrator must be able to foster camaraderie among the school community and persuade it that digitally based school programs, activities, and regulations are centered on instructors and students as well as an efficient online learning process. The goal of this study is to identify and discuss how the principal's leadership and the strategic adoption of digital-based school administration affect teachers at SMP Negeri 1 Koba by enhancing their pedagogical competency.

## **B. Methods**

This study adopted a quantitative descriptive methodology. A total of 40 teachers from SMP Negeri 1 Koba in the Central Bangka Regency's Koba subdistrict made up the study's population. 40 teachers from SMP Negeri 1 Koba in the Central Bangka Regency's Koba subdistrict comprised the sample. Saturated sampling was the method used in this study. Questionnaires, observation, and documentation were the methods of data collection in this study (Sugiono, 2018). Utilizing the Likert Scale methodology, data was gathered. Using SPSS For Windows version 26.00, the data analysis method employs both simple regression analysis and multiple regression.

Multiple regression analysis is used in this study to examine how two independent factors affect the dependent variable. In this study, teacher pedagogical competency (Y) is the dependent variable, and the independent variables are strategic implementation of school-based management (X1) and teacher pedagogical competency (X1), either partially or concurrently. The partial and simultaneous

regression techniques utilized in this research method might be used for analysis or hypothesis testing. When one of the independent variables is controlled (made constant), the researcher wants to know how the independent and dependent variables interact.

### C. Results and Discussion

#### The influence of the principal's leadership on increasing teacher pedagogical competence

Regression equation  $Y = 27.697 + 0.570X_1$  represents the model of the relationship between principal leadership and teacher pedagogical competence. Based on the principal's leadership variable's effect on teachers' pedagogical proficiency at SMP Negeri 1 Koba in the Koba sub-district of Central Bangka Regency, a significance test was conducted. obtained t count 3,667 > t table 2,042, where the t count value is greater than the t table and the significance value of 0.000 is less than 0.05, then Ho1 is accepted to show that the principal's leadership has an impact on the pedagogical competence of the teachers at Koba 1 Public Middle School in Koba sub-district, Bangka Regency Middle.

**Table 1. Principal's Leadership Coefficient**

	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	27.697	19.834			1.396	0.173
Principal leadership	0.570	0.155	0.556		3.667	0.001

Source: SPSS output processed by researchers in 2023

You can look at the findings of the summary model to determine how big of an impact the independent variable has on the dependent variable. The R-value, which is a symbol for the correlation coefficient value, is shown in the summary test results. The correlation coefficient at the value in question is 0.410. This result might be taken as showing that there is a sufficient link between the two research variables. This table also provides the R Square value, also known as the coefficient of determination (KD), which indicates how effective the regression model created by the interaction of the independent and dependent variables is. The KD value obtained is 0.556 which can be interpreted as the independent variable.

Teachers are learning agents who contribute to the improvement of formal education quality as well as the strategic advancement of education in Indonesia (Siregar, 2020). By Law Number 14 of 2005 concerning teachers and lecturers, teaching staff are therefore accountable for effectively implementing the learning process and must

position the teaching profession with superior pedagogical abilities as a characteristic of the teaching staff profession that differentiates it from other professions.

According to Law Number 14 of 2005 Concerning Teachers and Lecturers, the competence of teaching staff is described as a set of knowledge, abilities, and conduct that teachers or lecturers must possess, absorb, and master to perform their professional tasks. The three interconnected competency standards for teaching personnel are learning management, professional development, and academic mastery. Pedagogical, personal, social, and professional abilities are the four basic competencies from which competency standards for teaching personnel are established. These four skills—pedagogical competence, professional competence, personality competence, and social competence—are integrated into the performance of teaching staff.

**The Influence of strategic implementation of Digital-based school management on increasing Teacher Pedagogical Competence**

The regression equation  $Y = 34.876 + 0.571X_2$  represents the model of the relationship between teacher pedagogical ability and the strategic application of digital-based school management. The pedagogical proficiency of teachers at SMP Negeri 1 Koba in the Koba sub-district, Central Bangka Regency, was evaluated based on the significance test of the variable strategic implementation of digital-based school administration. obtained t count 3.143 > t table 2.042 where the t count value is greater than the t table and the significance value of 0.000 is less than 0.05, Ho2 is accepted so that there is an influence of the strategic implementation of digital-based school management on the pedagogical competence of teachers at Koba 1 State Middle School in the sub-district Koba, Central Bangka Regency.

**Table 2. Coefficient of Strategic Implementation of Digital-Based School Management Using the Spensapacak LMS**

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	34.876	20.834		1.674	0.105
LMS digitization	0.571	0.182	0.498	3.143	0.004

Source: SPSS output processed by researchers in 2023

You can look at the findings of the summary model to determine how big of an impact the independent variable has on the dependent variable. The R-value, which is a symbol for the correlation coefficient value, is shown in the summary test results. The correlation value is 0.348 for the value mentioned above. This result might be

taken as showing that there is a sufficient link between the two research variables. This table also provides the R Square value, also known as the coefficient of determination (KD), which indicates how effective the regression model created by the interaction of the independent and dependent variables is. The computed KD value of 0.498 indicates that the independent variable.

The word principal is derived from two words: head, which denotes the chairman or head of an organization or institution, and school, which is a place where lessons are learned and imparted. The head of an education unit, according to (Wahjosumidjo, 2015), is a functional teacher who also has the responsibility of overseeing a school where the teaching and learning process is conducted or a location where interaction between teaching staff and students takes place. teachers as content or lesson providers while students are receiving instruction. According to (Daryanto, 2011), the efficiency of an educational organization in determining whether it is of high or low quality is significantly influenced by the head of the educational unit. The school principal performs a control function over educational teaching activities, similar to that of an education commander. The degree to which a school administrator is responsible for carrying out the vision and goal of the institution and how well he or she gets along with the many stakeholders will ultimately determine whether education advances or stagnates.

According to (Kaswan, 2019), leadership is a sociological phenomenon or process that entails the use of influence by one person over one or more other persons to steer activities toward the achievement of shared goals, and goals that call for interdependent actions between members of the group/organization. Consequently, leadership entails the following: 1) Sociological phenomena and human relations, 2) Use of influence, 3) Activity direction and organization, 4) Achieving the desired group/organizational goals, and 5) Interdependent actions and team building. Because it is one of the success aspects of running an organization, influence in leadership is crucial. The ability to persuade, convince, motivate, inspire, and wisely use one's authority to influence other people or parties favorably is how Klann (2003) defines a leader's influence in (Kaswan, 2019).

### **The influence of the principal's leadership and strategic implementation of digital-based school management on increasing teacher pedagogical competence**

The model of the relationship between principal leadership and the strategic implementation of digital-based school administration toward enhancing teacher pedagogical competence is simultaneously expressed in the form of the regression equation  $Y = 20.861 + 0.424 + 0.222X$ . As a result of the principal's leadership style and strategic execution of management in digital-based schools, teacher pedagogical competency will rise.

A simultaneous test was conducted using the F test to ascertain the relationship between the strategic implementation of digital-based school administration and the principal's leadership variables on teachers' pedagogical competence to ascertain the validity of the hypothesis. The following are the test criteria:

- a. If the probability value (significant) < 0.005, then Ho3 is rejected
- b. If the probability value (significant) is > 0.005, then Ho3 is accepted

Based on the principle leadership variable's significance test and the strategic adoption of digital-based school administration, the teachers at Koba 1 State Middle School in the Koba sub-district, Central Bangka Regency, have improved their pedagogical skills. Since the significance value of 0.000 is less than 0.05 and the calculated f value is 7.041 > f table of 3.29, Ho3 is accepted, indicating that there is a significant relationship between the principal leadership variable and the strategic implementation of school management. digital-based to increase the pedagogical competence of teachers at SMP Negeri 1 Koba in the Koba sub-district, Central Bangka Regency.

**Table 3. Multiple Regression Test /Anova**

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3647.291	2	1823.645	7.041	.003 <sup>b</sup>
Residual	7511.584	29	259.020		
Total	11158.875	31			

Source: SPSS output processed by researchers in 2023

You can look at the outcomes of the summary model to determine how much of an impact the independent variable simultaneously has on the dependent variable. The R-value, a symbol for the correlation coefficient value, is shown in the display of the overall test results. The correlation value is 0.427 for the value mentioned above. This result indicates that there is a moderate/sufficient amount of association between the three research variables. The coefficient of determination (KD), which measures how well the regression model created by the interaction of the independent factors and dependent variable performed, is also derived through this table. The computed KD value of 0.572 indicates that the independent variables X1 and.

### **Efforts to Increase Teacher Pedagogical Competence by Improving Principal Leadership**

The findings from the observations demonstrate that the school's principal can put into practice a learning leadership style that emphasizes quality teaching and learning processes, assessment and assessment, as well as service and leadership

that can help guide teaching staff toward the new era of digital schools. 4.0. Encourage educational leaders to adapt by implementing a digital-based school management system to deliver high-quality instruction. Principal leadership is the formal authority of a school principal to empower teachers and education staff through collaboration or cooperation, offering them chances to advance their careers, and promoting the participation of all teachers and education staff in the strategic implementation of digital-based school management using the Spensapacak LMS.

According to research findings (Susanto, 2021) leaders can strategically use their influencing abilities to communicate their vision, align the efforts of others in the organization, and build commitment to work, including having an impact on raising the competence of those he leads, a leader's influence is defined as their capacity to persuade, convince, motivate, inspire, and wisely guide.

(Musfah, 2015) summarizes the leadership influence of school principals in the company in terms of their two primary positions as manager and leader. Because a leader, the head of an educational unit, would struggle to determine operational work steps that are founded on theoretical principles of organizational development, it should be like two currencies that cannot be separated. This situation can result in a deadlock; however, if a manager lacks leadership abilities, the organization will gradually lose its reputation, direction, and goals because there will be no one to serve as a resource or decision-maker, inspire employees, or decide the organization's course of action.

The principal has a significant primary function as a good leader and manager, in addition to his other position as a strong entrepreneur, in efforts to improve the quality of education, as mentioned by (Nurhasyim et al., 2021) in his research. According to research (Herry et al., 2020), organizational culture and the leadership style of the principal have a partial or simultaneous impact on the performance of junior high school teachers in the Sako Palembang sub-districts 13 junior high schools. According to Sofyan Tsauri's research, 1) Principal leadership (X1) has a positive effect on teacher work motivation (Y), and 2) pedagogical competence (X2) has a positive and significant effect on teacher work motivation (Y). The findings of this study indicate that improving school principal leadership, followed by pedagogical competence, is good for boosting teaching staff work motivation. Teachers and school principals are both employed as variables in this research's equation.

### **Efforts to Increase Teacher Pedagogical Competence by increasing Principal Leadership through Strategic Implementation of Digital-Based School Management**

The theory of Riyadi (2010) in (Raharja et al., 2011) explaining that LMS (Learning Management System) is software used to create web-based online learning materials and manage learning activities, along with coverage of the results of the research, states that traditional education methods that are transformed into digital schools in the 4.0 era can benefit from the strategic implementation of digital-based school management using the Spensapacak LMS. All school staff members, starting with the head of the education unit, teaching staff, and students skilled in using information technology and followed by appropriate critical, creative, collaborative, and communicative thinking skills, can see the positive and significant impact of implementing digitally based school management using the Spensapacak school LMS. requirements for education in the 4.0 era.

LMS, or learning management system, is a program used for administrative tasks, documentation, activity reports, teaching and learning activities, online (connected to the internet) activities, e-learning, and other resources, according to (Ellis, 2009). The LMS system is used for all aspects of training in a digitally-based school management system.

Learning management systems (LMS) are used as an online learning medium in the COVID-19 pandemic era, according to research (Rumiyati, 2021). This study was conducted as a result of a change in the method for converting in-person instruction into online instruction using technology as an online learning medium.

### **Efforts to Increase Teacher Pedagogical Competence by improving Principal Leadership and Strategic Implementation of Digital-Based School Management**

The findings from the observations indicate that the strategic implementation of digital-based school management using the Spensapacak LMS, along with the leadership of the school principal exercised by the head of the education unit, has a significant and positive impact on raising the pedagogical competence of teaching staff.

This study supports the findings of Jijen Mustafah, who claimed that in an era of pandemics, effective school administrators are those who can stop the coronavirus from spreading inside buildings while fostering engaging online and off-campus learning. (Musfah, 2015) As managers, school principals must make sure that their institutions don't grow into new COVID-19 transmission clusters, that their faculty members are trained in digital-based learning, that distance learning is successful and enjoyable, and that both online and offline learning evaluations are done correctly, as evidenced by improvements in the learning process (Patabang &

Murniarti, 2021) recommends research next. This study demonstrates that all of the teaching staff at SMKN 2 Toraja had high average scores for their pedagogical competency, indicating that they have excellent pedagogical competence. This study and the research that will be conducted both look at teachers' pedagogical competency, which is where they have a lot in common.

The presence of a leader in the educational unit where the teacher performs his duties, along with another variable in the form of the strategically implemented digital-based school management using the Spensapacak LMS, can affect a teacher's competence in carrying out his primary duties and functions. The teaching staff has higher pedagogical competency the better the leadership of the education unit head is, combined with the strategic application of digital-based school management.

#### **D. Conclusion**

The study's findings indicate that the principal's leadership at SMP Negeri 1 Koba, Koba District, Central Bangka Regency, Bangka Belitung Islands Province, significantly and favorably affects teachers' pedagogical ability. At SMP Negeri 1 Koba, Koba sub-district, Central Bangka Regency, Bangka Belitung Islands Province, the strategic deployment of digital-based school management using the Spensapacak LMS has had a significant and beneficial impact on raising the pedagogical competence of teachers. At SMP Negeri 1 Koba, Koba sub-district, Central Bangka district, Bangka Belitung Islands Province, the strategic implementation of digital-based school management using the Spensapacak LMS and the leadership of the school principal has a significant and positive impact on raising the pedagogical competence of teachers.

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