

# The effect of principal's managerial competence and teacher discipline on teacher productivity

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## The effect of principal's managerial competence and teacher discipline on teacher productivity

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### Abstract

The importance of the competence of principals and teacher discipline is one of the determinants for increasing teacher productivity and school success. This research aims to determine the effect of principal managerial competence and teacher discipline on teacher productivity. This study uses quantitative analysis with the ex post facto method. The population of this study was 115 teachers spread across 7 State Elementary Schools in Telen District, East Kalimantan Province. By using the cluster random sampling technique, a sample of 68 teachers was obtained. Instruments were used with a questionnaire. The results of data analysis using multiple linear regression concluded that the principal managerial competence had a significant effect on teacher productivity, teaching discipline had a significant effect on teacher productivity, and principal managerial competence and teacher discipline had a significant effect on teacher productivity. This research can increase teacher productivity in the success of the school in achieving its goals.

Keywords: Principal's managerial competence, teacher discipline, teacher productivity.

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## 1. Introduction

Schools as educational institutions have to educate and teach and improve and refine the behavior of good students brought from their families. A school is also a place for learning and teaching as well as for receiving and giving lessons according to the levels of Elementary Schools, High Schools, and Colleges. Students who develop their potential will become strong and able to compete in responding to the challenges of an ever-changing era. (Azainil et al., 2019)

One of the problems faced by the Indonesian people to date is the lack of quality education, which has an impact on the quality of its people. Indonesia's position in 2016 is at the 113th level out of 188 countries. Compared to 2015, Indonesia's position has decreased from 110 to 113 (Wardah, 2015). This fact is a formidable challenge for the Indonesian people to increase human resources, especially in entering the era of competition as a consequence of globalisation.

One of the government's policy strategies in increasing Indonesia's human resources is through improving the quality of education in line with the functions and objectives of national education. The formation of quality human resources is not an easy and fast process, but the right means and time are needed. In this case, educational institutions are considered the most appropriate institutions to prepare quality human resources. (Z. Z. Z. Azainil et al., 2020)

Given the very important role of education in improving human resources and national development, the education sector needs to have an education system that is supported by a professional educational executive by the function, role, and position. Increasing human resources through the education process can certainly involve teachers. Competent and professional teachers in their respective fields are very influential in the formation of human resources. This is stated in article 39 of the Republic of Indonesia Law No. 20 of 2003, which explains the teacher has the task of planning learning, implementing learning, assessing learning outcomes, doing community service (Republik Indonesia, 2003). But in reality, some teachers in Indonesia have even been declared unfit to teach because they have not yet had a bachelor's degree. National Education Research and Development Department data for 2017 shows that teachers who are not qualified to teach (not yet graduated) at the national level or the elementary level are only 14.01%, junior high school teachers 6.84%, high school teachers 2.61%, and vocational school teachers 5.45% (Pendidikan & Kebudayaan, 2017)

The existence of a school principal is a major determinant of the quality of education (Gibson, 2014; Pan et al., 2015; Urick, 2016). Principals must master the skills needed to get along with teachers, especially when they begin to integrate technology into teaching and learning. Principals cannot be effective without interpersonal technology leaders and communication skills (Wong & Daud, 2017). This is needed for principals to have managerial skills. The Principal's managerial ability is an additional ability that must be possessed by the principal because of his position. Six abilities must be possessed by the principal: pedagogical abilities, professional abilities, social abilities, spiritual abilities, and entrepreneurial abilities. Managerial ability is used to empower human resources and resources available in schools to achieve the vision and mission of the school. Some things that are done as a manager are planning, organizing, implementing, and conducting evaluations.

To achieve the vision and mission of the school as a set goal, it is not only the responsibility of the principal but also the school community including teachers. Teachers as the spearhead of the implementation of learning in educating students are required to always be student coaching. One thing that can be taught to students is the attitude of the teacher's discipline. Timely attendance in teaching and other activities largely determines teacher productivity and the achievement of the school's vision and mission.

1 Discipline is obedience or compliance with regulations (rules of conduct). Therefore, teacher discipline is a willingness to comply with all the rules and norms that exist in carrying out their duties as a form of responsibility for the education of their students. Because after all a teacher, is a mirror

<sup>1</sup> for their students in attitude or example, and the teacher's disciplinary attitude will give colour to much better educational outcomes (Purwanto, 2017).

<sup>2</sup> Specifically, work discipline is an attitude of respect, respect, obedience to applicable regulations, both written and unwritten, and able to run and not avoid receiving sanctions if they violate the duties and authority given to the discipline in the work also very important meaning for the teacher. Therefore, discipline must be instilled continuously in the teacher. The problem of discipline is a concern for every human being. Discipline has a very important role in directing human life to achieve its goals and success in work.

Teacher productivity reflects the quality of teachers in carrying out their duties. Teacher productivity is influenced by several factors including infrastructure, funding, training, education, and also self-discipline. Teacher productivity can be better if supported by the good managerial ability of the principal and the discipline of the teacher himself.

Success in work productivity is influenced by several factors including mental attitude, education, skills, management, industrial influence, income levels, nutrition and health, social security, work environment and climate, production facilities, technology, and opportunities for achievement. Indirectly teacher productivity will have an impact on the academic quality and morale of students. If teacher productivity is high, students' learning achievement will increase. When interpreted that teacher productivity has a role in producing quality graduates in academic and moral terms so that they can compete in this globalisation era. To achieve high work productivity, three abilities must be possessed, namely: (1) technical expertise, (2) problem-solving skills (3) decision making and individual expertise.

Several studies discuss the principals' managerial competence of teachers, such as Usman, Murniati, Murziqin and Tabrani (2018) which explains the principals' managerial competencies in preparing planning, implementing, and managing school members to improve school performance, Harahap (2017) discusses the effect of the principal's managerial competence on teacher productivity by mediating citizenship Behaviour and Interpersonal Communication, Hamdani, Nila and Muhammad (2018) describe the influence of work motivation and managerial competence of principals on teacher performance. De Jong, van Tartwijk, Wubbels, Veldman and Verloop (2013) research on the discipline strategies of teachers is well documented when regarding their impact on students and the work climate in the classroom. Wubbels, Creton and Hooymayers (1985) describe the discipline and interactional behaviour of teachers (Astuti et al., 2019) about the principal's leadership style on teacher productivity (Arhipova et al., 2018; Bariroh, 2017; Ginting & Purba, 2019; Jaidie, 2020; Komalasari et al., 2020) discussing the Principal's Supervision Competency on Teacher Performance (A. Azainil et al., 2020) about the Effect of Principal Supervision Competence School and School Culture on Teacher Performance (Akinwumi, 2004), concerning the supervision of teacher productivity, Effects of Principal Managerial Competence on Teacher Performance, and (Faisal, 2013) discusses the Effect of Principal's Managerial Ability on Teacher Performance.

Based on the background described above, it is necessary to establish research that links school principals' managerial competence, teacher discipline, and teacher productivity in primary schools. The formulation of the problem in this study is whether there is an influence between the principal's managerial competence and teacher discipline on the productivity of elementary school teachers? The purpose of this study was to determine the effect of principals' managerial competence and teacher discipline on teacher productivity in primary schools throughout the Telenutai Timur sub-district. This needs to be investigated because the principal as the school manager is an important factor in determining the performance of teachers to carry out their duties and the success of schools in achieving their goals.

<sup>1</sup> Competence is knowledge, attitudes, and skills inherent in the dimensions of personal, managerial, entrepreneurial, supervisory, and social competence (Kementerian Pendidikan Nasional, 2018), competence is a combination of knowledge, skills, values, and attitudes that are reflected in the habits

of thinking and acting (Mulyasa, 2013). Competence can be interpreted as knowledge, skills, and abilities that are controlled by someone who has become a part of himself so that he can perform cognitive, affective, and psychomotor behaviour as well as possible (Yunus et al., 2017) Competence is a set of knowledge, skills, and behaviours that must be possessed, internalized, and mastered by the teacher to be able to carry out their professional tasks. Furthermore, it is said that competence can also be interpreted as knowledge, basic skills, and values that are reflected in the habits of thinking and acting (Susanto, 2016).

Based on the description above, competence can be defined as mastery of a set of knowledge, skills, values, and attitudes that show work and are reflected in the habits of thinking and acting in carrying out their duties.

Principals, in addition to being able to manage education, are also required to understand and apply the whole substance of educational activities. (Mulyasa, 2007) states that the principal's managerial competence is increasingly important to be improved in line with the increasingly complex demands of the principal's duties, which requires performance support to be more effective and efficient.

Managerial competence is the technical ability of principals when carrying out their duties as education managers. In addition to being able to lead and manage education, school principals are also required to understand and apply the whole substance of educational activities. Besides, school principals can develop school plans for various levels of planning, manage and develop school organisations and relationships with the community by the needs optimally, create a conducive and innovative school culture and climate for student learning, and manage students in the context of student acceptance, new, and placement and capacity building for students, as well as managing curriculum development and learning activities according to the direction and objectives of national education.

Managerial competence is the ability to manage resources through planning, organizing, and monitoring to achieve organisational goals effectively and efficiently (Usman et al., 2018).

The principal has five competencies that must be mastered. According to the Ministry of National Education Regulation No. 13 of 2007 concerning Principal Standards, Principals must have competencies or abilities that include dimensions of personality, managerial, entrepreneurship, supervision, and social competence. Managerial competence is the competency of the Principal in managing the school by the planned objectives. This management is related to how the principal manages the school unit system consisting of teachers, administrative staff, students, related institutions, and the community environment. The managerial process by the Principal is also related to school development and school curriculum development. If a principal has good managerial competence, of course, school management will be good according to the goals planned by the school (Perdana, 2018).

Effective school principals must be able to guide teachers and other employees to achieve school goals. Without good managerial competence, the relationship between individual goals and organisational goals can be weak. Therefore, the principal as a school manager is an important factor in determining the performance of teachers in carrying out their duties and the success of the organisation in achieving its goals (Z. Z. Z. Azainil et al., 2020). From the expert opinion above, it can be concluded that the principal is a functional person who has a role in improving the quality of education, besides that the principal is also responsible for the implementation of education, school administration, fostering educators, supervisors at the school he leads and the maintenance of facilities and infrastructure.

This managerial competence must be understood more broadly, for example, in planning a school principal must master the theory of planning and all national education policies as a foundation in school planning, both strategic planning, operational planning, annual planning, planning needs, and school budgets (Usman et al., 2018).

The preparation of this plan also includes operational planning, strategic planning by upholding the principles of good planning. All plans prepared by the principal must be fulfilled first with a special team that usually consists of the principal, treasurer, school committee, and school principal. After that, socialisation was carried out for all teachers and school residents. The socialisation is carried out so that the school community knows about the specific needs and targets to achieve the school's vision and mission, goals, and objectives (Yunus et al., 2017). Principal's managerial ability has standards so that the achievement of educational goals can be implemented well (Harahap, 2017)

Based on some of the above understanding, it can be concluded that the principal has managerial competence is the ability of the principal in managing and developing school resources to create an effective and efficient learning environment. The key to a school's success lies in the efficiency and effectiveness of the principal's appearance. School success is the success of the principal.

Discipline is a word that we often interpret in the form of regulations that explicitly also include sanctions that will be accepted if there is a violation of these provisions. The discipline of elements contained in human resource management that comes from the process of developing human resources.

Discipline is obedience to the rules both written and unwritten and timeliness in working. Specifically provides an understanding of work discipline as follows: 'Work discipline is an attitude of respect, respect, obedience and obedience to applicable regulations, both written and unwritten and able to carry out and not shy away from receiving sanctions if they violate duties and authority given to him' (Siagian, 2011).

The teacher is a professional educator with the main task of educating, teaching, guiding, directing, training, evaluating, and evaluating students in early childhood education through formal education, basic education, and secondary education (Pemerintah RI, 2005). Discipline can be interpreted as correct and regulated action. The purpose of discipline is to form good behaviour and can become habits. Every human being needs the discipline to be able to be obedient, aware, develop obligations, and develop morals (Astuti et al., 2019). The teacher's discipline is obedience to the tasks for which it is responsible and related to the implementation of their duties as educators. In line with the challenges of global life, the roles and responsibilities of teachers in the future will be increasingly complex, thus requiring teachers to always make various improvements and adjust their professional abilities. Based on the description above, it can be concluded that the indicators of teacher discipline are: Attendance, Regularity, Skills, Independence, and Flexibility of teachers.

Based on the description above, it is clear that the discipline of the teacher is obedience to the task which is his responsibility and related to the implementation of his duties as an educator. In line with the challenges of global life, the roles and responsibilities of teachers in the future will be increasingly complex, thus requiring teachers to always make various improvements and adjust their professional abilities.

The teacher must be more dynamic and creative in developing the learning process of students. Teachers in the future are no longer the only people who are the most well-informed of various information and knowledge that are growing, developing, interacting with humans in the universe. In the future, the teacher is not the only person who is smarter in the midst of his students.

Productivity is the ratio of input-output in time with consideration of quality (Najam us Sahar, 2016). Another opinion says Productivity is a concept that describes the relationship between results (number of goods or services), number of sources (number of labor, capital, land, energy, etc.), which are used to produce these results (Elqadri et al., 2015)

Productivity is the quality and quantity of work achieved by someone in carrying out their duties with the responsibilities given to them (Mangkunegara, 2003). From the above opinion, it appears that productivity determines the characteristics and quality of teachers, which can indicate school success or failure. Productivity is performance (performance) that must always be maintained and maintained

so that people or organisations can perform satisfactorily so that the appearance (performance) has a very important meaning in achieving the goals set in an organisation.

Based on the above opinion, it can be concluded that teacher productivity is the work of the teacher in the quality and quantity achieved in carrying out his duties with the responsibilities given to him. Indicators of teacher productivity are 1) ability, 2) reality ability and 3) teacher attitude.

## 2. Methodology

The design of this study is quantitative research with an approach or method *ex post facto* because this research is a systematic empirical study. The object of research is not subject to an action, meaning that the independent variable ( $X$ ) has occurred before and it cannot be manipulated so that this research does not need to provide further treatment, so all that remains is to see the effect on the dependent variable ( $Y$ ). (Stockton & Kerlinger, 1974)

There are three variables in this study, namely two independent variables and one dependent variable. The principal's managerial ( $X_1$ ) and teacher discipline ( $X_2$ ) are independent variables with teacher productivity ( $Y$ ) being the dependent variable. To see the influence of the independent variables on the dependent variable in this study, a research design was designed (Figure 1).

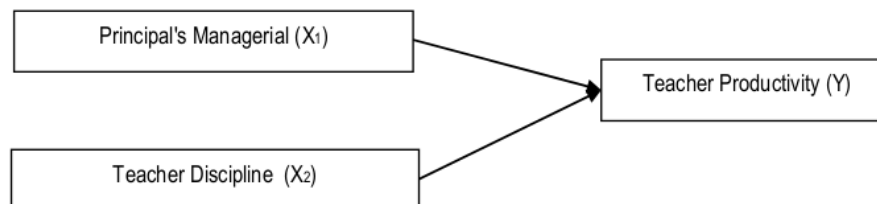


Figure 1. Research design

### 2.1. Place of research

This research was conducted at an elementary school in the area of Telen District, East Kutai Regency, East Kalimantan Province. There are 7 SDN namely SDN 001 Marah Haloq, SDN 002 Marah Kenyah, SDN 003 Long Segar, SDN 004 Long Noran, SDN 005 Rantau Panjang, SDN 006 Batu Redy, and SDN 007 Juk Ayak.

### 2.2. Research approach

This research uses a quantitative approach to the type of research *Ex-Post Facto*. This study tries to uncover facts based on measurements that have been available to respondents. The data used are primary data obtained directly from respondents through a questionnaire.

### 2.3. Population and sample

The population in this study were all elementary school teachers in Telen District, East Kutai Regency, East Kalimantan Province, totalling 115 people, and spread in 7 public elementary schools.

The sample of this study amounted to 68 teachers with cluster random sampling techniques.

### 2.4. Research instrument

The instrument used was a questionnaire about the three variables, namely the Principal Managerial Competency variable, Teacher Discipline and Teacher Productivity.

Conceptual definition in principal's managerial competence is the ability of school principals to organise and develop my school resources to create an effective and efficient learning environment.

Teacher discipline is a teacher's obedience to school rules/regulations in carrying out their duties to create a learning atmosphere and work atmosphere that lasts conducive.

Teacher productivity is the work of the teacher in quality and quantity achieved in carrying out his duties by the responsibilities given to him and is influenced by various factors including ability factors and motivational factors.

Operational definition in Managerial competence of principals is the ability or expertise of principals in the plan, manage, develop school resources and monitor, evaluate, and report on the implementation of school activities programs by established procedures. Indicators of principals' managerial competencies are: 1) planning competencies, 2) leadership competencies, 3) managing competencies, 4) competency in developing resources, 5) monitoring and evaluation competencies and 6) competency in making reports.

Teacher Discipline is the attitude or behaviour of teachers who show obedience to the task of carrying out the duties and functions. Indicators of teacher discipline are: 1) attendance, 2) orderliness, 3) skills, 4) independence and 5) flexibility.

Teacher productivity is the work of the teacher in quality and quantity achieved in carrying out his duties by the responsibilities given to him. Indicators of teacher productivity are 1) ability, 2) ability reality and 3) teacher attitude.

#### 2.5. Data collection and data analysis

Data techniques consist of observation techniques and questionnaire techniques. Observation techniques are used to obtain preliminary data related to the preparation of background and also to broaden insights about various matters concerning the variables being studied. The questionnaire technique was used to find out data about managerial competence, school principal discipline, and teacher productivity. The questionnaire is arranged based on the indicators that have been set. Before being distributed to the research sample the questionnaire was first tested on four elementary schools which were not included in the sample but had the same characteristics as the sample and were randomly selected to find out the validity and reliability of the questionnaire statement.

To find the validity of questionnaire questions, product-moment correlation is used, the basis for decision making on item validity is  $r_{\text{count}} > r_{\text{table}}$ , the questionnaire is said to be valid, and  $r_{\text{count}} < r_{\text{table}}$ , the questionnaire is declared invalid.

The reliability test is used to determine whether the instrument that has been made can be used several times to measure the same object and with the same data. If an instrument is said to be reliable then the instrument can be used several times to measure the same object and produce the same data. Meanwhile, a test has a high level of confidence if the test can give permanent results. To calculate the reliability of the questionnaire questions, a formula was used. *Spearman–Brown*: After the trial calculation, a reliability value of 0.811 was obtained, which means that the instruments for the managerial variables of the principal were reliable and had very high-reliability criteria. The reliability value is 0.719 which means that the instrument for teacher discipline variables has a high-reliability criterion, and when the reliability value is 0.785 it means that the instrument for the teacher productivity variable has a high-reliability criterion.

The data analysis technique uses descriptive statistics and inferential statistics. Descriptive statistics aim to describe the state of the variables in the study of frequency, percentage, average, standard deviation, lowest and highest scores. This is done to reveal the distribution of scores of each variable



both the independent variable and the dependent variable. The frequency distribution in this study was divided into five categories with percentage ranges as shown in Table 1 as follows.

Table 1. Interval criteria questionnaire

Interval	Criteria
$X \leq \mu - 1,5(\sigma)$	Very low
$\mu - 1,5(\sigma) < X \leq \mu - 0,5(\sigma)$	Low
$\mu - 0,5(\sigma) < X \leq \mu + 0,5(\sigma)$	Medium
$\mu + 0,5(\sigma) < X \leq \mu + 1,5(\sigma)$	High
$\mu + 1,5(\sigma) < X$	Very high

The use of score interpretation formulated by Azwar is carried out to reveal the scores and categorisation of principals management, teacher discipline, and productivity teacher.

Inferential statistics are statistical techniques used to analyse sample data and the results are applied to populations; Therefore, it is necessary to test these conditions first consisting of the Normality Test using the *Kolmogorov-Smirnov*, test the Homokeduct Test using the *Breusch-pagan-Godfrey Test*, and the Linearity Test with *deviation from linearity*.

The hypothesis of this study uses multiple linear regression with the following regression model equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

with the estimated regression model is  $\hat{Y} = b_0 + b_1 X_1 + b_2 X_2$

### 3. Results research

#### 3.1. Descriptive statistics results

Descriptive Statistics obtained against the principal managerial variables, discipline teachers, and the productivity of teachers. Data from these three variables are described as follows:

Table 2. Data description of principal managerial variable

Score principal managerial		Frequency	Percent
Interval	Category	(F)	(%)
$X \leq 99.83$	Very low	2	2.90
$99.83 \leq X \leq 143.80$	Low	22	32.40
$143.80 \leq X \leq 187.78$	Medium	24	35.30
$187.78 \leq X \leq 231.75$	High	10	14.70
$X > 231.75$	Very high	10	14.70
Total		68	100.00
Maximum score		244	
Minimum score		95	
Average		165.79	
Standard deviation		43.97	
Variance		1933.62	

Data for the managerial variables of principals in this study were measured using a questionnaire. The description of the data in the appendix obtained an average score of 165.79, a standard deviation

of 43.97, the highest and lowest scores, respectively, 244 and 95. There are five categories in the acquisition of managerial scores for principals that are very low, low, medium, high, and very high.

The complete data description of this variable can be seen in Table 2. Based on Table 2, scores for managerial variables of principals are mostly in the medium category with an average score of 165.79.

Data for teacher discipline variables in this study were measured using a questionnaire. From the description in the attached data obtained an average score of 104.06, a standard deviation of 7.866, the highest and lowest scores respectively 113 and 82. A description of this variable data can be seen in full in Table 3:

Table 3. Data distribution of variable teacher discipline

Score teacher discipline		Frequency	Percent
Interval	Category	(F)	(%)
$X \leq 92.86$	Very low	4	5.90
$92.86 \leq X \leq 100.73$	Low	18	26.50
$100.73 \leq X \leq 108.59$	Medium	12	17.60
$108.59 \leq X \leq 116.46$	High	34	50.00
$X > 116.46$	Very high	-	-
Total		68	100.00
Maximum score		113	
Minimum score		82	
Average		104.06	
Standard deviation		7.866	
Variance		61.75	

Based on Table 3, the score for the teacher discipline variable is higher in the high category with an average score of 104.06.

Data for teacher performance variables in this study were measured using a questionnaire. From the description in the appendix data obtained an average score of 107.26, a standard deviation of 14.77, the highest and lowest scores respectively are 130 and 65. The description of this variable data can be seen in full in Table 4.

Table 4. Description of variable teacher productivity

Score teacher productivity		Frequency	Percent
Interval	Categories	(F)	(%)
$X \leq 85.11$	Very low	4	5.90
$85.11 \leq X \leq 99.88$	Low	10	14.70
$99.88 \leq X \leq 114.65$	Medium	36	52.90
$114.65 \leq X \leq 129.42$	High	16	23.50
$X > High 129.42$	Very high	2	2.90
Total		68	100.00
Maximum score		130	
Minimum score		65	
Average		107.26	
Standard deviation		14.770	
Variance		218,140	

Based on Table 4, the score for the teacher productivity variable is more in the medium category with an average score of 107.26.

### 3.2. Results of inferential

#### 3.2.1. Statistics

The inferential statistics used in this study are multiple linear regression. Multiple linear regression is used to look for the managerial influence of the principal ( $X_1$ ) and teacher discipline ( $X_2$ ) on teacher productivity ( $Y$ ). Before testing hypotheses, assumptions are tested first. The assumption test in question is an assumption that must be met so that the analysis can be done to test the hypothesis.

#### 3.3. Assumptions test

- Test data normality

The data normality test is used to determine whether the analysed data are from populations that are normally distributed. The hypothesis for the data normality test using the *Kolmogorov–Smirnov* one-sample test is as follows.

$H_0$ : Data derived from populations that are normally distributed

$H_1$ : Data are from populations that are not normally distributed.

Based on the results of calculations on data analysis, can be summarized the normality test as shown in Table 5.

Table 5. Results of normality test

Variable	N	Sig.	$\alpha$	Conclusion
Teacher productivity	68	0.167	0.05	Normal

Obtained statistics *Kolmogorov–Smirnov* (KS) of 1.114 with a significant level of 0.167. Therefore, a significant level statistically more significant level KS test, namely  $0.167 > 0.05$ ,  $H_0$  accepted. This means that teacher productivity data come from populations that are normally distributed.

- Homogeneity test

Data homogeneity analysis was carried out by the test *Breusch–Pagan–Godfrey*. The statistical hypothesis of the test *Breusch–Pagan–Godfrey* is:

$H_0: \sigma^2_1 = \dots = \sigma^2_n$  (homogeneity of variance)

$H_1: \sigma^2_i \neq \sigma^2_j$  (homogeneity of variance)

Table 6. Results of the homogeneity test

Variable	N	$x^2_{\text{count}}$	$x^2_{\text{table}}$	Conclusion
$X_1$ and $X_2$	68	2.317	48.602	Homogeneous

If  $x^2_{\text{count}} < x^2_{\text{table}}$  then  $H_{0is}$  accepted, if  $x^2_{\text{count}} > x^2_{\text{table}}$  then  $H_{0is}$  rejected. The BPG test calculation technique is attached to the appendix. Since the value of  $x^2_{\text{count}} < x^2_{\text{table}}$  is  $2.317 < 48.602$  then  $H_{0is}$  accepted, so it can be concluded that the population variance of teacher performance data in each value X is homogeneous.

- Linearity test

To use multiple linear regression analysis, the predetermined model must be linear. Hypothesis testing for linearity test is:

$H_0$  : Linear Regression Model

$H_1$  : Model non-linear regression

test this hypothesis at significance level of 5% or  $\alpha = 0.05$  is  $H_0$  accepted if statistically significant level over a significant level of testing the model's linear regression.

Table 7. Results of linearity test

Variable	N	Sig.	$\alpha$	Conclusion
$X_1$	68	0.839	0.05	Linear
$X_2$	68	0.154	0.05	Linear

Linearity test of managerial relations model to the productivity of teachers principals obtained statistically significant level *deviation from linearity* is 0.839. Therefore, statistically significant level together with a significant level of testing that is  $0.839 \geq 0.05$  then  $H_0$  accepted. It was concluded that the principal's managerial relationship model to teacher productivity is linear.

For the linearity test model of the teacher disciplinary relationship to teacher statistically significant levels of *productivity*, a *deviation from linearity* is obtained, 0.154. Therefore, statistical significance level over a significant level of testing, that is,  $0.154 \geq 0.05$  then  $H_0$  accepted. It was concluded that the model of the relationship between teacher discipline and teacher productivity is linear.

### 3.4. Multiple linear regression analysis

Based on the data analysis of the research results obtained multiple linear regression analysis as in Table 8.

Table 8. Results of multiple linear regression analysis

Variables	Coefficient	$t_{\text{Count}}$	Sig.
konsanta	5326	0210	0835
$X_1$	0.178	4.047	0.000
$X_2$	0.696	2.835	0.003
$X_1$ and $X_2$	0.208	4.788	0.000
$R$		0.696	
$R^2$		0.485	
Probability		0.000	
$F_{\text{count}}$		14.603	

Based on the above-acquired coefficient  $b_0 = 5.326$ ;  $b_1 = 0.178$ ;  $b_2 = 0.696$ , where  $b_1$  is the coefficient of the variable  $X_1$  and  $b_2$  the coefficient of the variable  $X_2$  so that it can be arranged in a presumptive regression equation, namely:

$$\hat{Y} = 5.326 + 0.178X_1 + 0.696X_2$$

Table 8 obtained an  $F_{\text{count}}$  of 14.603 with a significance level of 0.000. so  $\text{Sig.} \leq \alpha$ , then the regression model obtained means or can be used to predict teacher productivity, or it can be said that managerial principals and teacher discipline affect teacher productivity.

The coefficient of determination used to see how well a regression model can explain the allegations of the linear relationship between  $X_1$  and  $X_2$  to  $Y$ .

Based on the calculation results in Table 8 the coefficient of determination ( $R^2$ ) of 0.485 is obtained, which means that 48.5% of the principal managerial variable values and teacher discipline variables affect the teacher productivity variable and the magnitude of other variables is not examined in this study affect teacher productivity performance variable of 51.5%.

The significance of the regression coefficient test is used to determine the significance of the effect of each independent variable on the dependent variable. To determine the effect of each of the managerial principals and teacher disciplines on teacher productivity, the Principal Managerial Analysis Results of Teacher Productivity obtained an  $X_1$  coefficient of 0.178, with a significance  $\alpha$ , which is  $0.000 \leq 0.05$ , there is the managerial influence of the principal on teacher productivity. The Result of Teacher Discipline Analysis on Teacher Productivity in  $X_2$  coefficient of 0.696 with a significance  $\alpha$ , which is  $0.003 \leq 0.05$ , there is an influence of teacher discipline on teacher productivity. Likewise, the Principal Managerial Analysis Results of Teachers and Teacher Discipline Against Teacher Productivity obtained coefficients  $X_1$  and  $X_2$  of 0.208, with a significance  $\alpha$ , which is  $0.003 \leq 0.05$ , it can be concluded that there is an influence of teacher discipline on teacher productivity.

Based on the results of the analysis, it can be concluded that there is a managerial influence of the school principal and teacher discipline on teacher productivity in elementary schools.

#### 4. Discussion

<sup>2</sup> This study aims to determine the effect of principals' managerial competence and teacher discipline on the productivity of elementary school teachers. In general, principals have responsibilities as leaders in teaching, curriculum development, student administration, staff personnel administration, community relations, school plant administration, and school equipment and organisation.

In carrying out their duties, school principals are required to have personal, managerial, entrepreneurial, supervisory, and social competencies. This is by Ministry of Education and Culture Republic of Indonesia Regulation No. 6 of 2018 concerning the Assignment of Teachers as Principals.

##### 4.1. Effect of principal's managerial competence on teacher productivity

<sup>1</sup> Based on the results of the analysis of research data, the managerial competence of elementary school principals by those described in the operational definition is the ability of principals to plan, manage, develop school resources and monitor, evaluate and report on the implementation of school activities by established procedures. Indicators of principals' managerial competencies are: 1) planning competencies, 2) leadership competencies, 3) managing competencies, 4) competency in developing resources, 5) monitoring and evaluation competencies and 6) competency in preparing reports.

Most of the planning and management competencies possessed by elementary school principals are still not maximal. The habit of planning an activity carried out at school does not involve teachers and school residents. Principals tend to make plans based on the needs according to what is needed by the school. This sometimes results in a mismatch between the needs of schools, teachers, and students. For example, in making bathroom facilities and infrastructure, it is not gender-oriented or not yet separate. Likewise, the ablution place is not yet closed to women.

As for leadership competency, it seems that it has been implemented well. Based on research data, it is understood that the principal's leadership can influence for good on teachers and students. The principal gives support every time there is an activity, both activities carried out by students and by the teacher. The granting of facilities and the ease of obtaining permits have been carried out by the school principal.

For competence in developing resources, the principal made several efforts to improve the ability of teachers and administrative staff. Every semester routinely conducted in-house training. As for

administrative staff, this is done by including them in training. In addition to developing human resources, it also develops other resources to maximize its functions. For example, the use of land in schools for parks, creating mini gardens by involving students.

Competencies of monitoring and evaluation are carried out mainly in providing supervision and attention of teachers in teaching. The principal regularly conducts monitoring and evaluation to maintain the quality of learning and some have already been carried out. The results of interviews with teachers, the evaluation is done directly and indirectly. Teacher evaluation is directly done by supervised learning. The principal also participates in the class when the teacher teaches. Whereas the evaluation is not directly carried out by looking at the completeness of the teacher learning kit.

Report compilation competencies are used to make routine reports as a form of accountability for plans and implementation carried out by the principal. Most school principals are already skilled in making reports in collaboration with the school administration. Each activity and development of the learning process, the number of graduations, achievements achieved by schools, improvement of teachers, teacher success, promotion of teachers is a report that must be made by the school principal. Thus, the school principals in Telen Subdistrict have largely carried out their managerial functions.

The positive influence of the principal's managerial competence can be seen from teacher productivity. Elementary teachers in Telen Subdistrict tend to make learning tools as much as possible in preparing themselves to teach. Although the learning tools are not complete, a minimum lesson plan, learning media, and assessment tools. Thus, the principal's managerial competence affects the productivity of public elementary school teachers in Telen District by 48.5%.

The results of this study are consistent with research conducted by (Meidiana et al., 2020) and Faisal (2013) which states that the managerial competence of principals consisting of planning, organising, evaluating, and leadership aspects influence teacher performance.

And also research conducted by Fitriani Harahap and Rusdinal (2017) shows that principal managerial competence has a positive and significant effect on teacher productivity.

Based on the results of this study and previous studies supporting theories of managerial ability is an additional ability that must be possessed by the principal because of his position.

Managerial ability is used to empower human resources (teachers) to improve the quality of education by increasing teacher productivity in carrying out their duties as educators.

#### 4.2. The influence of teacher discipline on teacher performance

Teacher's discipline can be seen from the attitude of respect and obedience to the regulations that are both written and unwritten and able to carry it out and do not shy away from receiving sanctions if he violates the duties and authority given to him.

Teacher discipline is the awareness and willingness of teachers to obey all company regulations and social norms that are applicable in schools. Based on the results of research and analysis of bias data it is said that teacher discipline has less influence on teacher productivity, compared to the managerial competency of school principals.

Teacher discipline does not tend to make teachers immediately carry out their duties in making learning tools if there is no availability of facilities at school. This was dealt with in-depth interviews with several teachers that were enthusiastic about making the tools and participation in various activities due to the facilities provided by the school. The availability of facilities in schools is certainly due to the policy of the principal.

Therefore, it can be concluded that teacher discipline still influences teacher productivity, amounting to 48.5%. This is by the opinion of Purwoko (2018) which says that discipline makes teachers and school residents able to produce high productivity by organisational expectations, both in the short and long term. Likewise, the results of (Bariroh, 2017) teacher discipline influenced the learning achievement of students at SMAN 1 Bumiayu, Brebes Regency. Based on the results of these

studies indicate if the teacher has a sense of discipline, then student achievement will increase, which means teacher productivity in learning also increases.

#### 4.3. Effect of principal's managerial competence, teacher discipline on teacher productivity

Many factors affect teacher productivity starting from the physical ability of the teacher, supporting facilities, work environment, ICT devices, and the atmosphere of the school environment, work ethic, and disciplined life attitude towards their duties and responsibilities as a teacher.

Based on the results of data analysis, it is found that the principal's managerial competence and school discipline together affect the productivity of elementary school teachers.

This research is also in line with several studies related to the managerial competence of school principals, such as that conducted by Ginting and Purba (2019), which shows that there is an effect of the competence of principals on teacher performance. Komalasari et al. (2020) explain the management competence of school principals in improving the quality of education including teachers in schools. Then Jaidie (2020) explains the relationship between principal managerial skills and teacher performance and productivity. Arhipova et al. (2018) also explained the importance of increasing the managerial competence of school principals in improving school management, discipline, and communication with teachers and school members to lead to successful school leadership.

## 5. Conclusion

Based on the results of research and data analysis, the conclusions that can be drawn following the formulation of the problem in this study are: (1) There is an effect of the principal's managerial competence on elementary teacher productivity. With Sig. smaller than the  $\alpha$  value of  $0.000 \leq 0.05$ . (2) There is an influence of teacher discipline on elementary teacher productivity. With significance  $\alpha$   $0.003 \leq 0.05$ . (3) There is an effect of the principal's managerial competence and teacher discipline together on teacher productivity, with significance  $\alpha$   $0.000 \leq 0.05$ .

## 6. Recommendations

Recommendations in this study are: (1) When filling out the questionnaire by teachers it should be given to understanding that this questionnaire is useful to improve the quality of school management, not to assess the principal, (2) A questionnaire filled out by teachers, it is better for teachers that the samples in this study were invited and collected in one room in each school, to obtain the same perception of the purpose of filling out the questionnaire and (3) In addition to filling in the questionnaire, the researcher should conduct in-depth interviews to check the truth of the questionnaire data. This research can increase teacher productivity in the success of the school in achieving its goals.

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# The effect of principal's managerial competence and teacher discipline on teacher productivity

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