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The Correlation between Self-Efficacy and Pedagogic Competence with Teacher Teaching Effectiveness

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Article Info	ABSTRACT
	The research aimed to find out the variables which related to the teaching effectiveness and strategy of the teacher and how to improve the teaching effectiveness. This research was conducted in private vocational schools in Citeureup district, Bogor in 2014 with a total sample of 81 science teachers in private vocational schools taken proportionally by random sampling. This study uses survey and correlational research methods and data analysis techniques using statistical tests and simple linear regression as well as multiple linear regression correlations and partial correlation tests. The hypothesis testing was carried out at a significant level of 0.01 and 0.05. The results of the study establish three conclusions, namely: First, there is a significant positive relationship between self-efficacy and teacher teaching effectiveness which is expressed in the equation $= 50.350 + 0.627\ X_1$ and the correlation coefficient r_{y1} is 0.982 and the determinant coefficient r_{2y1} is 0.964. Second: there is a significant positive relationship between pedagogic competence and teacher teaching effectiveness which is expressed in the equation $= 102.83 + 1.553\ X2$ and the correlation coefficient r_{y2} is 0.973 and the coefficient of determination r_{2y2} is 0.947. Third: there is a significant positive relationship between self-efficacy and pedagogic competence together with teacher teaching effectiveness which is expressed in the equation $\hat{Y} = 66.070 + 0.436\ X_1 + 0.489\ X_2$ and the correlation coefficient $r_{y1.2}$ is 0.984 and the coefficient of double determination is $r_{2y1.2}$ of 0.964. The conclusion that can be drawn is that the effectiveness of teacher teaching can be increased through increasing self-efficacy and pedagogic competence. *This is an open access article under the <u>CC BY-SA</u> license.*

Introduction

The learning process that takes place in the classroom is an activity that is very much dominated by the teacher. The teacher is one of the important components directly involved in the overall teaching and learning activities. Learning and teaching are two activities that cannot be separated in the whole learning process, because they complement and require each other. Implementation of learning in the classroom, the teacher plays an important role. This is very reasonable, because one of the elements that most determine the quality of learning in schools/classrooms is the teacher. No matter how good the school system,

curriculum, educational facilities and infrastructure are, all of them are meaningless if they are not supported by good teacher performance. In other words, without optimal teacher performance, other elements or components in education will not provide meaningful meaning and benefits.

Many people highlight and reveal the effectiveness of teaching teachers along with the issue of the low quality of education in all types and levels of education. Various studies and research have been conducted with the findings that the effectiveness of teaching teachers is the most influential factor in determining the quality of education. Once the teacher's presence is strategic in the success of education, it is natural for teachers to try to increase the fighting spirit and competence that is carried out as their responsibility in improving the quality of education.

In terms of quantity, the number of teachers in Indonesia is quite adequate. However, in terms of distribution and quality, in general it is still low. This can be proven by the large number of teachers who are not yet undergraduates, but teach in vocational schools, and the number of teachers who teach not in accordance with the disciplines they have. This situation is quite alarming, with a percentage of more than 50% throughout Indonesia. Teacher qualifications Diploma below S-1 is 10.62% even though the vocational competence should have been completed in fulfilling educational qualifications so that the teacher can teach better.

The reality in the field, based on the results of observations and distributing questionnaires to Private Vocational High School teachers throughout the Citeureup District shows a lack of teacher teaching effectiveness including: 70% of teachers are present on time or present 10 minutes before the initial KBM at school, 45% teachers analyze competency standards/basic competencies, 40% of teachers develop syllabus, 47% of teachers use innovative learning models, 35% of teachers record students who are satisfied/dissatisfied with the results that have been achieved by students, 55% of teachers give awards to students who get grades. The highest, 40% of teachers arrange seats when using certain methods, 57% of teachers convey material easily to students, 43% of teachers provide guidance for students who do not understand.

The emerging phenomenon illustrates that what is seen in the field as well as real experiences in schools are often encountered with several problems including low self-efficacy, teacher communication intelligence in teaching, competencies that have not been met. Whereas the success of the teaching and learning process is largely determined by the success of the teacher in managing learning activities. The learning process will experience obstacles if the self-efficacy and competence of teachers in teaching are low. Therefore, to support success in the learning process, teachers must have self-efficacy and competence to realize the quality of learning carried out by effective teaching.

Teaching effectiveness is a problem that is oriented towards the preparation, process and work of a teacher in carrying out duties and responsibilities at school, while the problem of self-efficacy is a psychological aspect that can encourage a teacher to increase morale with high quality work. Teacher pedagogic competence refers to the ability of teachers in the teaching and learning process.

The effectiveness of teacher teaching is one of the benchmarks that can be used as an assessment of whether a teacher has worked optimally with optimal results. One of the effects of teaching effectiveness is the existence of strong self-efficacy, teacher empowerment in decisions at school, there is a system of rewards and punishments. This is based on the idea that self-efficacy is a psychological process that encourages a teacher to

carry out an activity related to its role and function. A teacher who has good self-efficacy will try to improve or increase his ability to improve the quality of the learning carried out.

Teacher competence is a set of knowledge, skills, and behaviors that must be possessed, lived, mastered, and actualized by the teacher in carrying out professional duties. The pedagogic competence of teachers will be able to realize quality learning. An understanding of students includes an understanding of the psychology of child development. While educational learning includes the ability to design learning, implement learning, assess learning processes and outcomes, and make continuous improvements. The average result of the SMK Teacher Competency Examination is 58.36, the Pedagogic Competency score is 54.35, the Professional Competency score is 61.1, while the target score for the teacher competency test set by the government in 2013 is 70.

Based on the thoughts that have been outlined in the previous explanation, in this study it is deemed necessary to study the variables related to the effectiveness of teaching teachers. Starting from the existing data in the field, it is necessary to seek more in-depth research to reveal the effectiveness of teaching teachers seen from the factors related to the effectiveness of teaching teachers.

Theoretically and practically this research has various theoretical and practical benefits. Theoretical Uses, the results of the research can be used as a basis for developing new concepts and strategies for developing skills and insights about the effectiveness of teaching teachers and enriching the repertoire of educational literature, especially regarding the correlation between self-efficacy and pedagogic competence so as to enrich the repertoire of knowledge in the field of education. Practical use, with the results of this study, it is hoped that it can provide input for schools and education offices regarding the effectiveness of teaching teachers from the aspect of self-efficacy and pedagogic competence which can indirectly improve the quality of education. For teachers, this research is expected to provide input for teachers in achieving teaching effectiveness, especially by paying attention to the aspect of self-efficacy and pedagogic competence in order to create a teaching and learning process that is more effective, fun and brings students to success.

Method

Teacher Teaching Effectiveness

According to Daryanto (2009;28) teaching effectiveness is a learning that allows students to learn easily, fun and can achieve learning objectives as expected.

According to Gibson (2012) effectiveness is all forms of assessment of individual work performance, group work and organization.

Mulyasa E (2003;46) Effectiveness of teaching or teaching is the teacher's effort to prepare and learn how to learn by the students themselves, either independently or in groups. The effectiveness of learning is determined by several factors, including: 1) the development of student activities; 2) student creativity; and 3) student motivation in the learning process.

Based on some of the theories above, it can be synthesized, the effectiveness of teacher teaching is targeting accuracy, completeness and the ability to succeed in a learning activity carried out by the teacher according to the goals that have been set. The indicators are 1) punctuality of work, 2) compiling learning administration, 3) suitability of teaching plans in implementation, 4) making the class conducive, 5) conveying information and interpersonal communication well, 6) achieving learning objectives, 7) being able to using varied learning methods, 8) ability to use media and learning resources well.

The Nature of Self-Efficacy

Frank Pajares (2006;339) reveals that self-efficacy is the basis of motivation in doing something and completing an individual task in his life. Roman Poet Virgil in Pajares argues that "They are able who think they are able" namely that someone will be able or can is someone who thinks that he is able or can.

Tschannen-Moran in Woolfolk Hoy (2007;117), states that teacher efficacy is the teacher's belief in his ability to organize and implement programs and actions needed to complete teaching tasks in certain situations.

Wood, R.E. and Locke (1987; 1013-1024) stated that Self-Efficacy refers to belief in its ability to mobilize motivation, cognitive resources and a series of actions needed to deal with demanding situations.

Based on the definitions above, what is meant by self-efficacy is an individual's belief or belief in his abilities in carrying out and completing the tasks at hand, so that he is able to overcome obstacles and achieve the expected goals. The self-efficacy indicators are 1) Handling effectively the tasks at hand; 2) Confidence and persistence in trying to overcome the given task; 3) Belief in one's own ability to complete the task; and 4) The ability to survive in the face of problems.

The Nature of Pedagogic Competence

Uno B. Hamzah (2008;62) Competence comes from English. Competence is the same as being competent, the same as having ability, power, skill, knowledge, attitude, etc.

According to E. Mulyasa (2003;75) suggests that pedagogic competence is the ability to manage student learning which includes understanding students, designing and implementing learning, evaluating learning outcomes, and developing students to actualize their various potentials.

Muhibbin Syah (2008;229) The competence of a teacher in teaching is the main key to the success of teaching and learning activities. The basic understanding of competence (competency) is the ability or skill.

According to Wina Sanjaya (2008;19) suggests that pedagogic competence is the ability of teachers in managing student learning which at least includes; a) understanding of educational insight or foundation, b) understanding of students, c) understanding of curriculum/syllabus, d) learning design, e) educational and dialogical learning implementation, f) utilization of learning technology, g) evaluation of learning outcomes, and h) development of students to actualize their various potentials.

Based on the theoretical description above, it is synthesized that what is meant by pedagogic competence is the ability of a teacher to carry out the duties and functions of his position to achieve success in the learning process. The indicators are 1) the ability to manage learning, 2) the ability to master the foundations of education, 3) understand the characteristics of students to prepare appropriate learning methods, and 4) understand the curriculum and its development.

Relevant Research

1. Research conducted by Gail Van Aernum Barnes (2000) entitled Self-Efficacy and Teaching Effectiveness gave the results that there was a relationship between teacher self-efficacy and teacher teaching effectiveness in winter of r = 0.48 while in autumn it was r = 0 ,68.
2. Research conducted by Sigrid Blömeke (2008) entitled Effectiveness of teacher education gives the result that there is a relationship between teacher competence and teacher teaching effectiveness.

3. Research conducted by Eslami (2008) entitled Teachers' Sense of Self-Efficacy, English Proficiency, and Instructional Strategies: A Study of Nonnative EFL Teachers in Iran showed that there was a relationship between teacher self-efficacy, English teacher competence and strategy teaching with the effectiveness of teaching teachers with a correlation coefficient (r) of 0.30.

In this study, data were collected using a survey method with a correlation technique. The research variable consisted of two independent variables, namely self-efficacy $(X1)$ and pedagogic competence $(X2)$, while the dependent variable was the effectiveness of teacher teaching (Y).

The population of this study were science teachers at private vocational schools in Citeureup District, Bogor. Totaling 101 teachers. The technique used is a simple random sampling technique, with the Slovin formula (Juliansyah Noor, 2011). From the calculation results, the number of research samples was 81 respondents and 20 samples of instrument trials.

The data for each variable from the research instrument is in the form of a questionnaire in a Likert scale model (Sugiyono, 2009). Questionnaire items are made based on an instrument grid composed of indicators for each variable, after conceptual and operational definitions have been made. The number of items for each variable ranges from 40 items. Questionnaires were distributed to 18 private vocational schools in Citeureup District with a total of 81 teachers as respondents. After testing the validity and reliability test. To find out valid and invalid questions. Valid questions will be used for further research, while dropped items will be discarded. The validity of the teacher's teaching effectiveness and self-efficacy instruments were tested using the correlation coefficient between item scores and total scores through the Pearson Product Moment correlation technique. The instrument is said to be valid if the calculated correlation coefficient $(r_{calculate})$ is greater than r_{table}.

While the validity of the pedagogical competence instrument using Biserial Point correlation. Based on the test results of the instrument, it will be known which items are valid and invalid. Invalid items will be discarded and valid items will be tested for reliability. To test the reliability of the teacher's teaching effectiveness instrument and self-efficacy for each variable, Cronbach's Alpha method is used. The instrument is declared to have high reliability if the Cronbach's Alpha coefficient is greater than 0.70. Meanwhile, to test the reliability of the pedagogical competence instrument using KR 21.

Data analysis techniques were carried out to collect data to be analyzed, then to test research hypotheses and determine the level of relationship between Self Efficacy and Pedagogic Competence with Teacher Teaching Effectiveness, both individually and together. Before testing the hypothesis, a requirements analysis test was first carried out, which was carried out at a significance level of 0.05.

Test Data Analysis Requirements
1. Normality Test
   Normality testing is done to determine whether a data distribution is normal or not. The normality test used the Lilliefors $(L0)$ test on the estimated standard error data. The analysis was carried out at a significance level of = 0.05 and = 0.01.

Table 1. Normality Test Results

No	Description	$L_{calculate}$	L_{table}	Precondition	Resume
1	Variable (X_1) with (Y)	0,0372	0,08944	$L_{calculate} < L_{tabel}$	Normal
2	Variable (X_2) with (Y)	0,0742	0,08944	$L_{calculate} < L_{tabel}$	Normal

2. Homogeneity Test
    Homogeneity test was conducted to test the similarity of variance of each data group. The homogeneity test was carried out using the Bartlett test, with the requirements of the homogeneous variance being $X^2_{calculate} < X^2_{table}$.

Table 2. Homogeneous Test Results

No	Description	$\chi^2_{calculate}$	χ^2_{table}	Precondition	Resume
1	Variable (X_1) with (Y)	28,26681	54,57223	$X^2_{calculate} < X^2_{table}$	Homogeneous
2	Variable (X_2) with (Y)	16,90604	77,93052	$X^2_{calculate} < X^2_{table}$	Homogeneous

3. Regression Linearity Test
    The significance test criteria is if $F_{calculate} > F_{table}$. While linear regression is stated to be meaningful if $F_{calculate} < F_{table}$ with a significant level of 0.05. The tests were carried out with the significance test and linearity test using the data table for analysis of variance or abbreviated as ANAVA.

Research Hypothesis Test
1. Simple Correlation Analysis
    The simple correlation technique used is Pearson's Product Moment, with the aim of seeing the relationship between the variables Self Efficacy (X_1) and pedagogic competence (X_2) with teacher teaching effectiveness (Y). This correlation is to test the first and second hypotheses.
2. Multiple Correlation Analysis
    Multiple correlation test to test the third hypothesis, to the extent that the relationship between the variables Self Efficacy (X_1) and pedagogic competence (X_2) together with teacher teaching effectiveness (Y) is strong.
3. Partial Correlation Technique
    Partial correlation tests this calculation is to determine the strength of the correlation between two variables X and Y, where one of the independent variables is considered constant or controlled. Partial correlation test was performed using t-test. The partial correlation coefficient is significant or has meaning if the value of $T_{calculate} > T_{table}$.
4. Coefficient of Determination Technique
    The coefficient of determination test is carried out to see how much the contribution of the independent variables (X_1 and X_2), either individually or jointly to the dependent variable (Y) which is expressed in percentages. For the calculation by squaring the value of the correlation coefficient.

Regression Test
1. Simple Regression Analysis
    Regression test is used to see the functional relationship between the variable Self Efficacy (X_1) and the effectiveness of teaching teachers (Y), the form of the equation is $\hat{Y} = a + bX_1$, and the functional relationship between the variable pedagogic competence (X_2) and the effectiveness of teaching teachers (Y). The equation is $\hat{Y} = a + bX_2$.
2. Multiple Regression Analysis
    Multiple regression test to see the functional relationship between the variables Self Efficacy (X_1) and pedagogic competence (X_2) together or simultaneously with the teacher teaching effectiveness variable (Y). With the model the equation is $\hat{Y} = a + bX_1 + b_2X_2$.

Results and Discussion

Based on the results of research that has been carried out, overall the results of this study indicate a positive relationship between: 1) Self Efficacy with teacher teaching effectiveness, 2) pedagogic competence with teacher teaching effectiveness, and 3) Self Efficacy and pedagogic competence together with effectiveness teaching teacher. Thus, it is proven that the indicators in Self Efficacy and pedagogic competence can increase the effectiveness of teaching teachers.

The Correlation between Self Efficacy and Teacher Teaching Effectiveness

The results of the significance test show that there is a significant positive relationship between the Self Efficacy variable (X_1) and the Teacher Teaching Effectiveness variable (Y). The functional relationship between Self Efficacy and teacher teaching effectiveness is presented in the form of a regression equation $\hat{Y} = 50.350 + 0.627 X_1$. The form of this equation can be interpreted that in every increase of one unit of Self Efficacy will increase the effectiveness of teaching teachers by 0.627 units with a constant of 50.350. This shows that the higher Self Efficacy, the effectiveness of teaching teachers will increase as shown in the following graph:
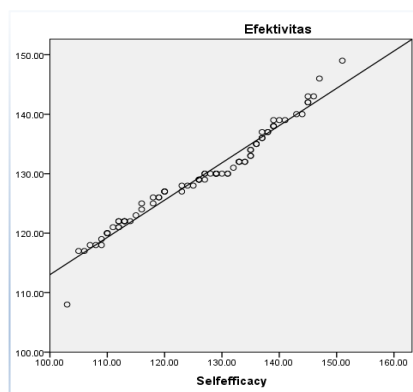

Figure 1. Graph the correlation between Self Efficacy and Teacher Teaching Effectiveness

The correlation is declared significant if the $F_{calculate}$ value is greater than the F_{table} value, while the regression equation is said to be linear if the $F_{calculate}$ value is less than the F_{table} value. Based on the test using analysis of variance (ANAVA), the results are as shown in table 2 below.

Table 3. ANAVA for Significance Test and Simple Linear Regression

Variant Source	dk	JK	RJK	$F_{calculate}$	F_{table}		Resume
					$\alpha = 0,01$	$\alpha = 0,05$	
Total (T)	81	1363697	1363697				
Regression (a)	1	1358779	1358779				
Regression (b|a)	1	1100,664	1100,664	17,67965	3,958852	6,958501	Very Significant
Saldo (S)	79	4918,222	62,25598				
Tuna Cocok (TC)	39	0,002222	0,000057	0,000000463	1,932487	2,520313	Non Significant
Galat (G)	40	4918,22	122,9555				

Based on the results of the significance test above, it was found that the $F_{calculate}$ value was 17.67965 while the F_{table} with dk in the numerator = 1 and dk in the denominator = 79 at level = 0.05 was 3.96 and level = 0.01 = 6.96. Thus the value of $F_{calculate} > F_{table}$, this shows that the equation $\hat{Y} = 50.350 + 0.627X_1$ can be used as a reference to predict the effectiveness of teaching teachers through self-efficacy.

Regression linearity test got the result that $F_{calculate} = 0.000000463$ is smaller than F_{table} at level = 0.05 = 1.93 and level = 0.01 is 2.52. Thus, it can be said that the regression equation $\hat{Y} = 50.350 + 0.627 X_1$ is linear.

The strength of the relationship between the Self Efficacy variable (X1) and teacher teaching effectiveness (Y) is shown from the results of the correlation coefficient calculation, where the correlation coefficient value (r_{y1}) is 0.982, and the determinant coefficient value (r_{2y1}) is 0.964. This means that the contribution of Self Efficacy (X_1) in increasing the effectiveness of teaching teachers (Y) is 96.4%, while 3.6% is caused by the contribution of other factors. This is in accordance with Guskey's statement in Jane Thomas, revealing that teachers who have their self-efficacy are more creative in carrying out work, improve performance and can survive to achieve goals. Thus self-efficacy plays an important role in motivating teacher performance to increase its effectiveness in teaching. To test the significance of the positive relationship between the X_1 variable and the Y variable, it is necessary to test the significance of the correlation coefficient, namely the t-test. If $t_{count} > t_{table}$, then the correlation coefficient is stated to be very significant.

Based on the calculation results obtained $t_{calculate} = 45.976$ while $t_{table} (0.01) = 2.64$ and $t_{table} (0.05) = 1.99$. Because $t_{calculate} > t_{table}$, the correlation coefficient between variable X_1 and variable Y is stated to be very significant. Thus, it can be concluded that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. The results of the significance test of the correlation coefficient between self-efficacy and teacher teaching effectiveness can be seen in table 4.

Table 4. Calculation Results of Significance Test of Correlation Variable X1 with Variable Y

Correlation coefficient $r_{y.1}$	N	$T_{calculate}$	t_{table}		Resume
			$\alpha = 0,01$	$\alpha = 0,05$	
0,982	81	45,976	2,64	1,99	Very Significant

Significance level test requirements: $t_{calculate} > t_{table}$

Self-efficacy is one aspect of self-assessment that is influential in everyday human life, as well as self-efficacy for a teacher greatly influences in determining the actions taken in achieving goals, including estimating the challenges related to his profession as a teacher. Indications of self-efficacy are related to the effectiveness that effectiveness is very synonymous with achievement in the task. This is in line with Albert Bandura's statement that self-efficacy helps a person in making choices, their efforts to move forward, the persistence and perseverance they show in the face of difficulties, and the degree of anxiety or calm they experience when they maintain tasks that cover their lives. The statement confirms that in a difficult situation, a teacher with low self-efficacy will tend to give up easily, while a teacher with high self-efficacy will try harder to overcome the challenges. A teacher with high self-efficacy does not view the task as a threat that they must avoid. In addition, they develop an intrinsic and deep interest in an activity, develop goals, and are committed to achieving those goals (Uno, 2008). They also increase their efforts in preventing failures that may arise. Those who fail to do something, usually quickly regain their self-efficacy after experiencing the failure. This fact illustrates that the effectiveness of teaching teachers is influenced by the level of self-efficacy. The level of self-confidence of teachers that arises from within will affect the effectiveness of teaching teachers in completing each job.

The Relationship between Pedagogic Competence and Teacher Teaching Effectiveness

The results of the significance test show that there is a significant positive relationship between the pedagogical competence variable (X_2) and the teacher teaching effectiveness

variable (Y). The functional relationship between pedagogic competence and teacher teaching effectiveness is presented in the form of a regression equation $\hat{Y} = 102.83 + 1.553 X_2$. The form of this equation can be interpreted that in every increase of one unit of pedagogic competence, the effectiveness of teacher teaching will increase by 1,553 units with a constant of 102.83. This shows that the higher the pedagogic competence, the more effective the teacher's teaching will be as shown in the graph below:
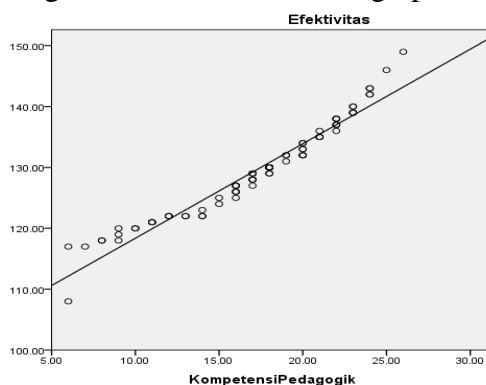

Figure 2. Graph of the Relationship between Pedagogic Competence and Teacher Teaching Effectiveness

Based on the test using analysis of variance (ANAVA), the calculation is obtained as shown in table 4 below.

Table 5. ANAVA for Significance Test and Simple Linear Regression Variable X2 and Y

Variant Source	dk	JK	RJK	F_calculate	F_table		Resume
					$\alpha = 0,01$	$\alpha = 0,05$	
Total (T)	81	1363697	1363697				
Regression (a)	1	1358779	1358779				
Regression (b|a)	1	1165,21	1165,21	24,52739	3,958852	6,958501	Very Significant
Saldo (S)	79	3753,012	47,50648				
Tuna Cocok (TC)	19	1069,693	56,29963	1,25888	1,932487	2,520313	Non significant
Galat (G)	60	2683,319	44,72198				

Based on the results of the significance test above, it was found that the $F_{calculate}$ value was 24.53. Thus, the value of $F_{calculate} > F_{table}$, this indicates that the equation $= 102.83 + 1.553 X_2$ can be used as a reference to predict the effectiveness of teaching teachers through pedagogic competence.

Regression linearity test results $F_{calculate} = 1.26$ which is smaller than $F_{table} (0.05) = 1.93$. Thus, it can be said that the regression equation $\hat{Y} = 102.83 + 1.553 X_2$ is linear.

The strength of the relationship between the pedagogic competence variable (X_2) and teacher teaching effectiveness (Y) is shown by the results of the correlation coefficient calculation, where the correlation coefficient value (r_{y2}) is 0.973, and the coefficient of determination $(r^2_{y.2}) = 0.947$. This means that the contribution of pedagogic competence (X_2) in increasing teacher teaching effectiveness (Y) is 94.7%, while 5.3% is due to the contribution of other factors.

Based on the calculation results obtained $t_{count} = 37.459$ while $t_{table} = 1.99$. Because $t_{calculate} > t_{table}$, the correlation coefficient between X_2 and Y is very significant. Thus, the null hypothesis (H_0) is accepted. The results of the significance test of the correlation coefficient between pedagogic competence and the effectiveness of teaching teachers can be seen in table 6 below:

Table 6. Calculation Results of Significance Test of Correlation Variable X2 with Variable Y

Correlation coefficient $r_{y.2}$	N	$T_{calculate}$	t_{table}		Resume
			$\alpha = 0,1$	$\alpha = 0,05$	
0,973	81	37,459	2,64	1,99	Sangat signifikan

Significance level test requirements: $t_{hitung} > t_{tabel}$

This fact illustrates that the effectiveness of teaching teachers is influenced by the level of pedagogic competence. For this reason, efforts to improve the pedagogic competence of each teacher need to be made to increase the effectiveness of teaching teachers. Someone with high pedagogic competence will be able to prepare, manage and evaluate learning, while someone with low pedagogic competence will not be able to teach effectively. This is in line with the opinion of Sutrisno (2012), there are three components of knowledge that must be possessed by educators, namely, mastery of subject matter, pedagogic competence and mastery of technology.

The Correlation between Self Efficacy and Pedagogic Competence Together with Teacher Teaching Effectiveness

The functional relationship between self-efficacy (X_1) and pedagogic competence (X_2) together with the teacher teaching effectiveness variable (Y) is based on the results of the multiple regression significance test calculation and significant test results, which show that there is a significant positive relationship between the self-variable efficacy (X_1) and pedagogic competence (X_2) together with the teacher teaching effectiveness variable (Y) as indicated by the multiple regression equation, namely $\hat{Y} = 66.070 + 0.436 X1 + 0.489 X2$.

Based on the test using analysis of variance (ANAVA), the calculation is obtained as shown in table 7 below.

Table 7. ANAVA to Test the Significance of Multiple Regression Variables X1 and X2 Together Against Variable Y

Variant Source	dk	JK	RJK	$F_{calculate}$	F_{table}		Resume
					$\alpha = 0,01$	$\alpha = 0,05$	
Total	81	4918,222	4918,2222				
Regression	2	4667,278	2333,6391	734,6556016	4,88	3,44	Significant
Saldo	79	250,9441	3,1765075				

Based on the results of the significance test above, it was found that the $F_{calculate}$ value was 734.66 while the F_{table} with dk in the numerator = 2 and dk in the denominator = 79 at the significance level = 0.01 was 4.884, = 0.05 was 3.438. Thus, the price $F_{calculate} > F_{table}$, this shows that the equation $\hat{Y} = 66.070 + 0.436X_1 + 0.489X_2$ can be used as a reference to predict showing a significant relationship between self-efficacy and pedagogical competence together with teacher teaching effectiveness. $\hat{Y} = 66.070 + 0.436X_1 + 0.489X_2$ can be used as a reference to predict the effectiveness of teaching teachers through self-efficacy and teacher pedagogic competence.

The strength of the relationship between the self-efficacy variable (X1) and the pedagogic competence variable (X_2) and the teacher teaching effectiveness variable (Y) is indicated by the correlation coefficient $r_{y.12} = 0.984$ with a coefficient of determination $r_{2y.12} = 0.968$ or 96.8%. This means that self-efficacy and pedagogic competence together contribute 96.8% to the effectiveness of teaching teachers, while 3.2% of teacher teaching effectiveness is influenced by other factors. Y is required to test the significance of the multiple correlation coefficient, namely the F test. If $F_{calculate} > F_{table}$, then the multiple correlation coefficient is declared significant.

Based on the calculation results obtained $F_{calculate}$ = 734.66 while F_{table} (0.01)(2.79) = 4.884 and F_{table} (0.05)(2.79) = 3.44. Because $F_{calculate} > F_{table}$, the correlation coefficient between variable X_2 and variable X_1 with variable Y is very significant. Thus, it can be concluded that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. The results of the significance test of the correlation coefficient between the variables of self-efficacy and pedagogic competence with the effectiveness of teaching teachers can be seen in the following table.

Table 8. Calculation Results of Significance Test of Correlation of Variable X_1 and Variable X_2 with Variable Y

Correlation coefficient $r_{y.12}$	dk numerator	dk denominator	$F_{calculate}$	F_{table}		Resume
				$\alpha = 0,01$	$\alpha = 0,05$	
0,984	2	79	734,66	4,884	3,438	Very significant

Significance level test requirements: $F_{calculate} > F_{table}$

Partial Correlation Test

Among variables X_1 and X_2, which variable is stronger in contributing to variable Y can be seen from the partial correlation coefficient. The significance test of the partial correlation value was carried out by using the t test.

Based on the calculation results, the partial correlation value between self-efficacy (X_1) and teacher teaching effectiveness (Y) is obtained, if the pedagogic competence (X_2) is controlled at $r_{y1.2} = 0.634$. To test the significance of the partial correlation coefficient with the X_2 variable as a control, the t_{count} value is 7.239 while the t_{table} value = 1.99. The tcount value which is greater than t_{table} indicates that the relationship between self-efficacy (X_1) and teacher teaching effectiveness (Y), where the competency value (X_2) is controlled is significant.

The calculation of the partial correlation between pedagogic competence (X_2) and teacher teaching effectiveness (Y), if self-efficacy (X_1) is controlled, it produces a value of $r_{y2.1} = 0.345$. Calculation of the value of t_{count} produces a value of 3,247 which is greater than the value of t_{table}. This shows that the relationship between pedagogic competence (X_2) and teacher teaching effectiveness (Y), where the value of self-efficacy (X_1) is significantly controlled.

Table 9. Partial Correlation Significance Test Calculation Results

Variable Control	$r_{partial}$	$T_{calculate}$	t_{table}		Resume
			$\alpha = 0,01$	$\alpha = 0,05$	
X_2	0, 634	7,239	2,64	1,99	Very significant
X_1	0, 354	3,247	2,64	1,99	Very significant

Significance level test requirements: $t_{calculate} > t_{table}$

From the table above, it shows that the strength of the relationship between self-efficacy (X_1) and teacher teaching effectiveness (Y) is higher than the relationship between pedagogic competence (X_2) and teacher teaching effectiveness (Y).

Conclusion

Based on empirical data from the field, analysis results, and discussion of research results, it is concluded that there is a positive and significant relationship between the self-efficacy variable (X_1) and the teacher teaching effectiveness variable (Y) with a determination value of $r_{2y.1} = 0.964$. This means that self-efficacy contributes to the effectiveness of teaching teachers by 96.4%. There is a positive and significant relationship

between the pedagogical competence variable (X_2) and the teacher teaching effectiveness variable (Y) with a coefficient of determination $r_{2y.2} = 0.947$. This means that pedagogic competence contributes to the effectiveness of teaching teachers by 94.7%. There is a positive and significant correlation between the self-efficacy variable (X_1) and the pedagogical competence variable (X_2) together with the teacher's work creativity variable (Y) with a coefficient of determination $r_{2y.12} = 0.964$. This means that self-efficacy and pedagogic competence contribute to the creativity of teachers' work by 96.4%. Based on the conclusions and implications above, the suggestions that can be given to improve self-efficacy and pedagogic competence are as follows: Teachers should be able to increase self-confidence in carrying out every job, reflect on the successes that have been achieved and train themselves in controlling emotional stability, especially when facing various obstacles faced. In addition, teachers are advised to actively participate in training and workshops held by schools or on their own initiative and to be actively involved in various educational community forums such as MGMP. Then to Principals are also advised to increase the self-efficacy of teachers by providing support and rewards to teachers who excel and if necessary to provide punishment for teachers who do not work as well as providing flexibility and opportunities for all teachers in their schools to develop various ideas related to improving the quality of education. Principals are advised to facilitate facilities and infrastructure related to improving the quality of teachers in understanding the characteristics of students so that they can prepare appropriate learning media. In addition, the principal should encourage teachers to continue their education to a higher level. Next For the Education Office The education office is advised to have a database related to teacher participation in education and training. The data will be the basis for a teacher's consideration in participating in a training program. For this reason, the education office needs to support improving the quality of teachers by prioritizing the budget for conducting training, especially within the scope of their target areas. Then For advanced researchers who want to conduct research in similar fields or replicate this research, they should pay attention to the limitations encountered in this study. In addition, it is necessary to conduct a more in-depth study of other factors that are more comprehensive related to increasing the effectiveness of teaching teachers

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