

THE INFLUENCE OF LEARNING MEDIA AND TEACHER'S PEDAGOGIC COMPETENCE ON LEARNING EFFECTIVENESS

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ABSTRACT

This thesis research aims to determine, identify, and describe Learning Media (X1) and Teacher Pedagogical Competence (X2) on Learning Effectiveness (X3) at State Elementary Schools in Cengkareng Barat Village. The population in this study were teachers in 1 sub-district of Cengkareng Barat, with a random sampling technique and 15 schools and 188 teachers were selected. Then calculated using the slovin formula so that 128 teachers were obtained as research samples.. Data collection techniques using questionnaires, questionnaires and documentation instruments. The results of the study are (1) there is a direct positive effect of Learning Media (X1) on Learning Effectiveness (X3) by 72%. (2) there is a direct positive effect of Teacher Pedagogic Competence (X2) on Learning Effectiveness (X3) by 19,4%. (3) there is a direct effect of Learning Media (X1) on Teacher Pedagogic Competence (X2) by is 42%.

Keywords: *Evaluation; CIPP Model; Covid-19 Pandemic; Curriculum; Implementation.*

INTRODUCTION

In recent years, society has advanced by leaps and bounds, and society's requirements for citizens have also changed. The rapid advancement of information and communication technology (ICT) has led to many changes at the social, economic, and educational levels (Starkey, 2020). In this sense, the 2020 European Digital Agenda approved by the European Parliament contains principles to ensure that all citizens acquire digital skills and literacy (Dur an et al., 2019). In this regard, the "Future Employment Report" prepared by the World Economic Forum (2018) and the OECD (OECD, 2014) predicts that a large number of occupations that exist today and in the coming years will require digital skills to be competent for them work. Therefore, technology is ubiquitous in today's and future society, and it is appropriate to promote digital literacy to provide citizens with the necessary skills needed in today's information society (From, 2017).

If we look at the field of education, ICT has changed from a simple support tool in the classroom to an integral part of today's teaching process (L opez, Pozo, Morales y L opez, 2019b). The emergence of these tools has caused great attention among teachers. Their task is to adapt to the unusual environment for them, and most teachers have not received training before. Therefore, they must face

a training process that includes new method skills and teaching strategies that enable them to integrate these digital tools into their regular teaching (Li et al., 2019). Along these lines, different versions of the Horizon Report outline the need for teachers to develop these types of skills in order to establish a true integration in the teaching and learning process, because a large part of the teaching staff does not realize the potential of these resources in teaching. Limit yourself to their surface use (Adams et al., 2017; Gisbert and Esteve, 2016). In this sense, the future of education shifts to changing the learning ecology (Díez-Gutiérrez and Díaz-Nafria, 2018)) to develop good practices by applying emerging methods that incorporate these tools. According to Goal 4 of the 2030 Agenda to achieve the Sustainable Development Goals, it is necessary to standardize technology in the teaching process. For this reason, it is relevant to promote the initial and continuous training of teachers and improve their digital capabilities (Alonso et al., 2019).

Learning is dynamic. It is affected by time changes, and one of the biggest influencers is the teacher. Teaching ability is the basic practice that teachers must master in order to effectively guide students to maximize knowledge and skills (West, Swanson, & Lipscomb, 2017). The way the teacher used to study the course was different from the way he studied the course now. Today's students think and process information fundamentally different from their predecessors. Some students may need the most intensive method to adapt to teaching—modifying teaching methods (Iris Center, 2019). Shulman believed in 1986 that the usual concept of teaching knowledge is that teachers possess a set of content knowledge specific knowledge about the subject they teach—and a set of teaching knowledge—knowledge about how to teach, including specific teaching methods. He referred to this as teaching content knowledge or PCK (McGraw-Hill, 2019). As a tool, technology in the 21st century plays an important role in helping teachers teach and students learn. The PCK model has been completed, which is technology, teaching content knowledge (TPACK). Context is also an important aspect of educational research and technical teaching content knowledge (TPACK) framework, but it is often missing in TPACK research, or its specific meaning is unclear (Rosenberg & Koehler, 2015).

Learning programs that can be said to be optimal, require an effective and efficient learning process. The effectiveness of learning can be seen in student activities during learning, student responses to learning and student concept domains. Efforts to make the learning process easier and more enjoyable for students to absorb material in class is the goal of learning effectiveness. (Fathurrahman et al., 2019)

The learning process in essence is the process of teaching communication, the learning process and staff development have a significant enough significance to create learning effectiveness. (Zain, 2010) In this condition, the media used has a position as a tool in learning activities, namely teaching and learning for teachers. For example, graphics, photographic or electronic devices for capturing, processing and specifying visual or verbal information.

According to Miftah, students are less enthusiastic and passive in participating in the teaching and learning process in the classical style, there are still many learning participants who like to play who have not been directed, complete tasks that are not optimal and are still dependent on their friends. By paying attention to the above conditions, it is necessary to innovate learning in schools by optimizing the use of media to improve the quality of student learning. (Miftah, 2014)

In addition, the teaching and learning process activities provide an explanation that teachers in the realization of the teaching and learning process must comply with several criteria in the form of planning activities. A teacher must have good competence to design and implement various learning methods that are considered adequate for interests and talents and according to the skill level of students, including the use of various learning resources and means to ensure learning effectiveness.

Based on observations and initial interviews with a number of samples, the effectiveness of learning in 15 SDN Kelurahan Cengkareng Barat has decreased with an indication that teachers lack the ability to create a more varied teaching and learning atmosphere so that the relationship between

teachers and students is created effectively. The teacher still does not use media with a digitalization system, still using conventional systems such as lectures or teaching aids that are less attractive.

In addition, teachers must implement the learning process in accordance with the instructions set by government regulations as described in teacher competence. Pedagogic competence in 15 primary schools in the Cengkareng Barat sub-district shows that this competency is only understood as a theory but is not implemented optimally. There are still teachers who are not able to convey the material properly and do not understand the learning tools well. There are still many teachers who use monologue and single subject conferences.

Meanwhile, the effectiveness of learning can be made if the teacher uses maximum learning media. So, although almost all teachers have received training for each of their skills, they are not necessarily able to use these learning media. With the help of information technology, especially the use of hyperactive multimedia, it is hoped that they will be achieved with a goal called learning effectiveness

METHOD

Types of research

The type of research used is quantitative research. The target population in this study were all public elementary school teachers in Cengkareng Barat Village as many as 188 people, and the research sample as many as 128 people.

Tools and materials

Data collection tools using a questionnaire / questionnaire with a statement of each variable as many as 35 items.

Research design

This study uses a causal survey method with path analysis techniques, from causal relationships to review or analyze the relationship between research variables and measure the effect of variables with other variables.

Data collection technique

The technique used in collecting data is the use of questionnaires for three variables, namely: learning media, teacher pedagogic competence, and learning effectiveness. Scale measurement with Likert scale model. The instrument must be tested, before being given to the respondent completely, that is to measure the level of validity and reliability.

Data analysis

In this research, descriptive analysis is used. Descriptive analysis generally presents certain data such as: number of respondents (N), average price (mean), average standard error (Standard Error of Mean), median, mode (mode), standard deviation (Standard Deviation) , variance, range, lowest score (minimum score), highest score (maximum score) and frequency distribution accompanied by histogram graphs of the five research variables. Next, test the data analysis requirements by calculating the normality test for the estimated regression error, and the regression linearity. Then tested the simple regression analysis on each research variable, and finally tested the hypothesis.

FINDINGS AND DISCUSSION

Data collection

Data collection is an important activity to obtain relevant data for the problem created, so that it can solve the problem. In data collection, they need techniques that are relevant to the problem to be solved.

Validity test

Validity test is used to measure the validity or validity of a questionnaire. The validity test in this study used the IBM SPSS Statistics Version 25 program. So that the validity test was obtained using the Pearson Product Moment Correlation of 35 items on the Learning Media variable with 30 valid items and 5 drop items, and 35 items on the Teacher Pedagogical Competence variable with 31 valid items and 4 drop items, and 35 items on the Learning Media variable with 32 valid items and 3 drop items.

Reliability Test

Reliability testing is that each item in the instrument is valid or not, it can be known by correlating the item score with the total score. To determine the reliability of the instrument using the IBM SPSS Statistics Version 25 program. So that the results of the reliability test using the IBM SPSS Statistics Version 25 program are obtained as follows:

Table 1

Recapitulation of Reliability Test Data for Learning Effectiveness Variables, Learning Media and Teacher Pedagogic Competence

Variabel	r₁₁	Keterangan
Learning Effectiveness	0.605	Reliabel
Instructional Media	0.638	Reliabel
Teacher's Pedagogic Competence	0.708	Reliabel

Data Description

The research data is displayed in the data description of the three variables including the Learning Media variable (X1), the Teacher Pedagogic Competence variable (X2) and Learning Effectiveness (X3). The data obtained from the three variables are then displayed in the range of scores, mode (Mo), frequency distribution, standard deviation (SD), average and median (Me).

mean

The mean result of Learning Effectiveness variable is 146.87 then the mean result of Learning Media variable is 147.40, and the mean result of Teacher Pedagogic Competence variable is 147.14.

median

The median result on the Learning Effectiveness variable is 147, then the median result for the Learning Media variable is 148, and the median result for the Teacher Pedagogic Competence variable is 148.

Modus

It can be obtained with the mode result on the Learning Effectiveness variable of 147, then the mode result on the Learning Media variable of 150, and the mode result on the Teacher's Pedagogic Competence variable of 149.

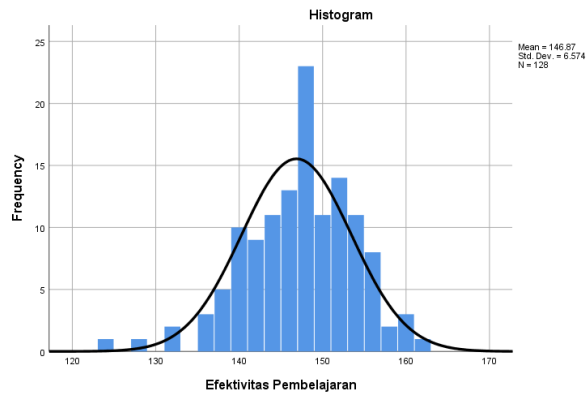


Figure 1
Histogram of Frequency Distribution of Learning Effectiveness Variable Scores (X3)

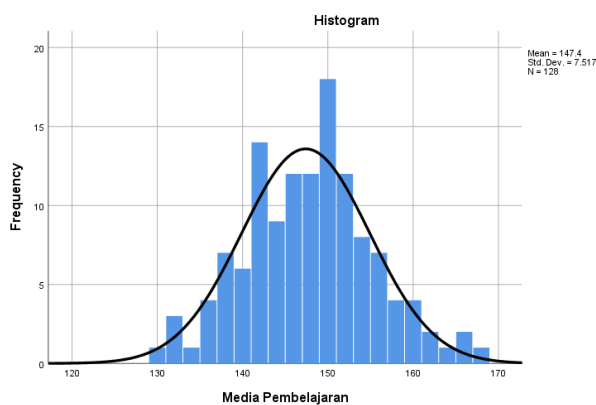


Figure 2
Histogram of Frequency Distribution of Learning Media Variable Scores (X1)

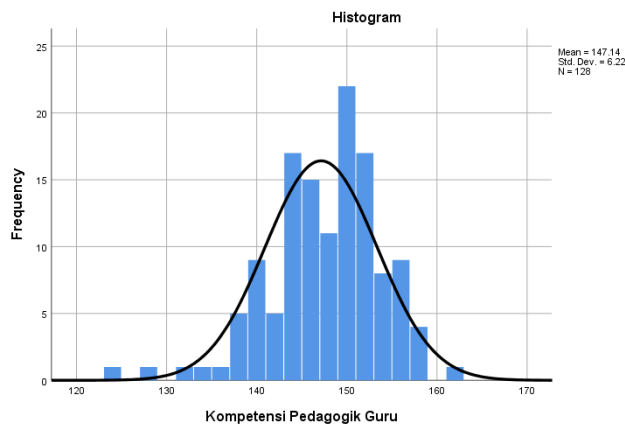


Figure 3
Histogram of Frequency Distribution of Teacher Pedagogical Competency Score Variables (X2)

Testing Requirements Analysis

Normality test

For normality testing using the Liliefors Method:

Table 2
Normality Test Calculation Results with the Liliefors . Method

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Media Pembelajaran	.169	128	.200 [*]	.988	128	.307
Kompetensi Pedagogik Guru	.162	128	.200 [*]	.973	128	.013
Efektivitas Pembelajaran	.179	128	.046	.974	128	.016
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

The results of the calculation of the normality of the learning effectiveness variable can be seen from the table above that 0.179 is smaller than 0.886 at a significance level of 0.05 for n = 128, it can be concluded that the learning effectiveness variable comes from a normally distributed sample. While the results of the normality calculation of the learning media variables can be seen from the table above that 0.169 is smaller than 0.886 at a significance level of 0.05 for n = 128, it can be concluded that the learning media variables come from samples that are normally distributed. And, the results of the normality calculation of the teacher pedagogical competence variable can be seen from the table above that 0.162 is smaller than 0.886 at a significance level of 0.05 for n = 128, it can be concluded that the teacher pedagogical competence variable comes from a sample that is normally distributed.

Hypothesis test

Effect of Learning Media (X1) on Learning Effectiveness (X3)

Table 3
Analysis of Variance for Testing Significance and Regression Linearity

$$\widehat{X}_3 = 125,162 + 0,071 X_1$$

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	125.162	9.144		13.688	.000
	Media Pembelajaran	.071	.072	.087	.975	.331

a. Dependent Variable: Efektivitas Pembelajaran

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Efektivitas Pembelajaran (X3) *	Between Groups	(Combined)	7607,000	41	185,537	3,616	,000
		Linearity	5891,793	1	5891,793	114,836	,000
		Deviation from Linearity	1715,207	40	42,880	,951	,723
	Within Groups	2975,750	58	51,306			
Media Pembelajaran (X1)	Total	10582,750	99				

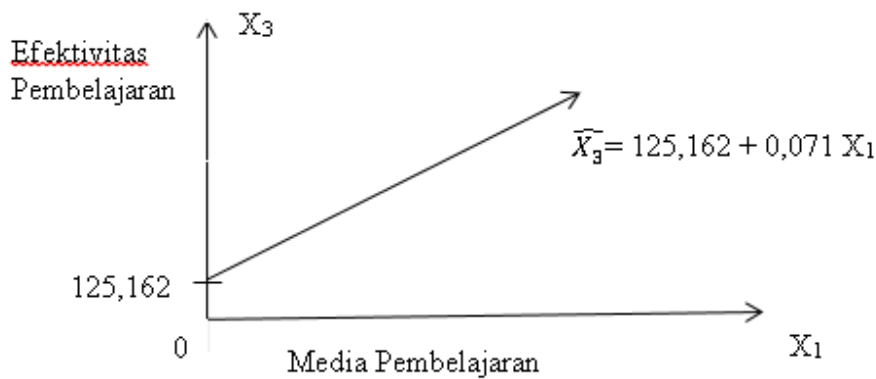


Image 4

Grafik Persamaan $\widehat{X}_3 = 125,162 + 0,071 X_1$

The regression calculation of X3 over X1 in the table above shows that the regression equation $(X_3) = 125,162 + 0,071 X_1$ is significant, $F_{count} = 134,111 > F_{table\alpha=0,05} = 3,08$ and linear because $F_{count} = 0,951 < F_{table\alpha=0,05} = 1,59$. Thus the regression equation $(X_3) = 125,162 + 0,071 X_1$ can be accounted for to draw conclusions about the effect of Learning Media with Learning Effectiveness is positive and fundamental. We can interpret from the above equation that an increase in one score of Learning Media causes an increase in the score of 0.071 Learning Effectiveness at the constant 125,162. This means that the more Learning Media increases, the Learning Effectiveness will increase. From the results of the hypothesis, it is stated that there is a positive and significant direct effect of Learning Media with Learning Effectiveness, meaning that the role of Learning Media plays a very large role in increasing Learning Effectiveness.

Table 4

Correlation Coefficient and Determination of Learning Media (X1) on Learning Effectiveness (X3)

Korelasi	N	r ₁₃	r ²	Dk	t _{hitung}	t _{tabel}	
						α=0,05	α=0,01
X ₁ dengan X ₃	128	0,072	0,007	126	13,688**	1,660	2,360

Berdasarkan uji signifikansi koefisien korelasi yang sudah dilakukan, maka kesimpulan yang dapat diambil adalah bahwa koefisien korelasi Media Pembelajaran (X₁) dengan Efektivitas Pembelajaran (X₃) diperoleh sebesar 0,007 adalah sangat mendasar, yang berarti terdapat pengaruh langsung positif Media Pembelajaran terhadap Efektivitas Pembelajaran, dengan koefisien determinasi sebesar $r^2_{13} = 0,072$. Hal ini berarti sebesar 72% variasi Efektivitas Pembelajaran (X₃) dipengaruhi oleh Media Pembelajaran (X₁).

Pengaruh Kompetensi Pedagogik Guru (X₂) terhadap Efektivitas Pembelajaran (X₃)

Tabel 5

Analisis Varians Untuk Pengujian Signifikansi Dan Linieritas Regresi

$$\widehat{X}_3 = 108,589 + 0,195 X_2$$

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	108.589	11.480		9.459	.000
	Kompetensi Pedagogik guru	.195	.088	.194	2.221	.028

a. Dependent Variable: Efektivitas Pembelajaran

ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.	
Efektivitas Pembelajaran (X ₃)	Between Groups	(Combined)	7713,333	38	202,982	4,315	,000
		Linearity	6114,597	1	6114,597	129,988	,000
		Deviation from Linearity	1598,737	37	43,209	,919	,603
	Within Groups	2869,417	61	47,040			
Total		10582,750	99				

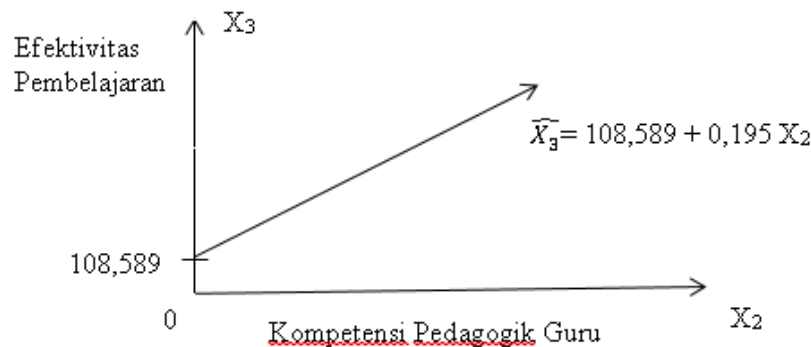


Image 5

Grafik Persamaan $\widehat{X}_3 = 108,589 + 0,195 X_2$

The calculation of the regression X₃ over X₂ in the table above shows that the regression equation $(X_3) = 108,589 + 0.195 X_2$ is significant, $F_{count} = 4.934 > F_{table\alpha=0.05} = 3.08$ and is linear because $F_{count} = 0.919 < F_{table\alpha=0.05} = 1.59$. Thus the regression equation $(X_3) = 108,589 + 0.195 X_2$ can be accounted for to draw conclusions about the effect of Teacher Pedagogic Competence on Learning Effectiveness is directly positive and significant. From this equation, it can be interpreted that an increase in a teacher's Pedagogic Competency score causes an increase of 0.195 in the Learning Effectiveness score at a constant of 108,589. This means that the more the teacher's pedagogical competence increases, the learning effectiveness will increase. From the results of the hypothesis, it is stated that there is a direct positive and significant influence on Teacher Pedagogic Competence with Learning Effectiveness, meaning that the role of Teacher Pedagogic Competence plays a very large role in increasing Learning Effectiveness.

Table 6
Correlation Coefficient and Determination of Teacher Pedagogic Competence (X2) on Learning Effectiveness (X3)

Korelasi	N	r ₁₃	r ²	Dk	t _{hitung}	t _{tabel}	
						α=0,05	α=0,01
X ₂ dengan X ₃	128	0,194	0,038	126	9,459*	1,660	2,360

Based on the significance test of the correlation coefficient, it can be concluded that the correlation coefficient of Teacher Pedagogic Competence (X2) with Learning Effectiveness (X3) is obtained at 0.038 which is very significant, meaning that it can be said that there is a direct positive influence of Teacher Pedagogic Competence on Learning Effectiveness, with a coefficient of determination of $r^2_{23} = 0.194$. This means that 19.4% of the variation in Learning Effectiveness (X3) is influenced by Teacher Pedagogic Competence (X2).

The Effect of Learning Media (X1) on Teacher Pedagogic Competence (X2)

Table 7
Analysis of Variance for Testing Significance and Regression Linearity
 $\hat{X}_2 = 126,187 + 0,034 X_1$

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	126.187	9.116		13.842	.000
	Media Pembelajaran	.034	.072	.042	.468	.641

a. Dependent Variable: Kompetensi Pedagogik Guru

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Media Pembelajaran (X1) * Kompetensi Pedagogik Guru (X2)	Between Groups	(Combined)	8403,190	41	204,956	3,084	,000
		Linearity	6385,621	1	6385,621	96,084	,000
		Deviation from Linearity	2017,569	40	50,439	,759	,820
	Within Groups		3854,600	58	66,459		
	Total		12257,790	99			

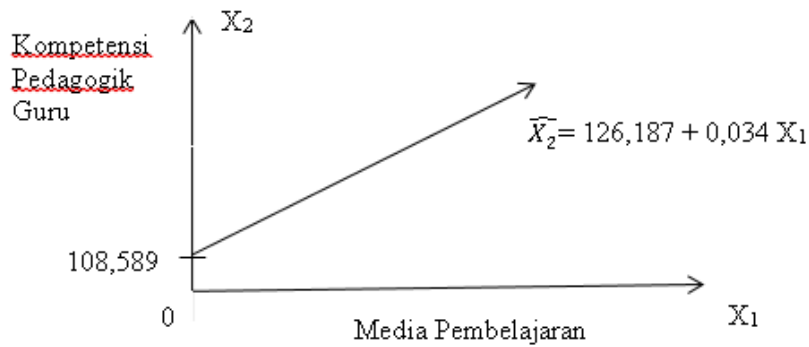


Image 6

Grafik Persamaan $\widehat{X}_2 = 126,187 + 0,034 X_1$

The calculation of the regression X2 over X1 in the table above shows that the regression equation (X_2) = 126.187 + 0.034 X1 is significant, $F_{count} = 4.219 > F_{table\alpha=0.05} = 3.08$ and linear because $F_{count} = 0.759 < F_{table\alpha=0.05} = 1.59$. Thus the regression equation (X_2) = 126.187 + 0.034 X1 can be accounted for to draw conclusions about the effect of Learning Media with Teacher Pedagogic Competence is directly positive and significant. From this equation, it can be interpreted that an increase in one score of Learning Media causes an increase in the score of 0.034 Teacher Pedagogic Competence at a constant of 126,187. This means that the more Learning Media increases, the Teacher's Pedagogic Competence will increase. From the results of the hypothesis, it is stated that there is a positive and significant direct influence of Learning Media with Teacher Pedagogic Competence, meaning that the role of Learning Media plays a very large role in improving Teacher Pedagogic Competence.

Table 8

Correlation Coefficient and Determination of Learning Media (X1) on Teacher Pedagogic Competence (X2)

Korelasi	N	r ₁₂	r ²	Dk	t _{hitung}	t _{tabel}	
						α=0,05	α=0,01
X ₁ dengan X ₂	128	0,042	0,082	126	13,842***	1,660	2,360

Based on the significance test of the correlation coefficient, it can be concluded that the correlation coefficient of Learning Media (X1) with Teacher Pedagogic Competence (X2) is obtained at 0.082 which is very significant, meaning that it can be said that there is a direct positive influence of Learning Media on Teacher Pedagogic Competence, with a coefficient of determination of $r^2_{12} = 0.042$. This means that 42% of the variation of Teacher Pedagogic Competence (X2) is influenced by Learning Media (X1).

Table 9
Path Coefficient Significance Test

Jalur	Koefisien Jalur	t hitung	t tabel	
			$\alpha = 0,05$	$\alpha = 0,01$
p31	0,064	13,688	1,660	2,360
p32	0,191	9,459	1,660	2,360
p21	0,042	13,842	1,660	2,360

CONCLUSIONS

Based on the results of the analysis and discussion, it can be concluded, In the validity test using SPSS 25 as many as 35 items on the Learning Effectiveness variable with 30 valid items and 5 drop items, and 35 items on the Learning Media variable with 31 valid items and 4 drop items, and 35 items on the Teacher Pedagogic Competence variable with 32 valid items and 3 drop items. The first hypothesis states that there is a direct effect of positive path analysis between learning media on the effectiveness of learning at State Elementary Schools in Cengkareng Barat Village of 0.072. Then, the second hypothesis states that there is a direct influence of positive path analysis between teacher pedagogic competence on learning effectiveness at State Elementary Schools in Cengkareng Barat Village of 0.194. And, the third hypothesis states that there is a direct influence of the positive path between learning media on the pedagogic competence of teachers at State Elementary Schools in Cengkareng Barat Village of 0.042.

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