Principal Leadership, Teacher Competency, Excellent Service and Learning Innovation in The Teaching and Learning Process

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Abstract—**This study aimed to describe: (1) the principal's leadership at SMK Negeri western Sumatra (2) competence of teachers TKJ SMK Negeri (3) Excellent service teacher in SMK (4) learning innovations teachers of SMK Negeri (5) Teaching and Learning at SMK (6) a significant relationship between the variables of school leadership to the variable teaching and learning process (7) the relationship between the variables of teacher competence TKJ with variable learning innovations (8) is a significant relationship between the variables excellent service teachers with variable learning process, through innovation learning (9) Relationship variables with variable principal leadership learning process through learning innovation. The approach used to address the problems in this peneilitian expost Pacto use the type of research that aims to determine the relationship between two or more variables that can be measured quantitatively. This study examines the relationship between school leadership as (X1), the competence of teachers TKJ as (X2), Excellent service as a teacher (X3) learning innovation as (X4) and the process of learning as (Y).**

Keywords—principal leadershi; teacher competency; excellent service; learning innovation; teaching and learning process

I. INTRODUCTION

Phenomena that occur in Vocational Schools, especially in Electronics Engineering (Computer and Network) study programs, should be seen from the point of view of learning that is already fulfilling the expected cafeteria, but the tendency is still far from what students should get, in other words the desires obtained far from expected [1]. For example in the implementation of the Teaching and Learning Process in Electronic Engineering (Computer and Network) study programs, and in relation to Learning Innovation, how teachers can collaborate by utilizing the existing internet network, can be implemented in the Teaching and Learning Process.

Researchers, in this case want to update, the teaching and learning process in the study program of computer and network engineering there is a Learning Innovation, namely the Electronics Engineering teachers (TKJ) can make interactive teaching materials online, so that students (students) get the maximum learning every time learning. Electronic Engineering (Computers and Networks) is a skill program that aims to equip students with the skills, knowledge and attitude to be competent in assembling hardware, installing software programs, maintaining and repairing computers and networks. Students of the Electronics Engineering Study Program (TKJ), although not yet graduated, are able to work as computer technicians and network administrators in computer / office, hotel, bank or ISP stores / services at the local (national) and overseas levels. Electronics Engineering (TKJ) is a new expertise program in Vocational High Schools (SMK), both Public and Private since 2004. Computer and network techniques are a blend of science between Electronics Engineering and Computer Science that learns everything about computers hardware and software with an emphasis on functional architecture and computer system performance. Computer Engineering places special emphasis on computer systems in terms of improving system performance, which of course is related to the design of a computer system which includes the economic aspects of the system along with the evaluation of system performance on a computer.

II. LITERATURE STUDY

Based on the researchers' preliminary survey, on November 12, 2017 in one of the state vocational high schools specialized in computer and network engineering study programs, the teaching and learning process in state vocational high schools (SMK) in West Sumatra indicated a phenomenon such as:

A. *School Environment, In a school environment, students throw trash carelessly. To prevent this, it can be done through environmental management education, especially in the school environment. This can be done by making slogans whose contents are to keep the school environment clean, but based on observations the appeal is ignored. It all happens due to lack of and decreasing awareness of students to keep the school environment clean. For this reason, efforts are needed to increase awareness and quality of a clean school environment, through the learning process in schools, so as to be able to instill awareness in itself, so that it can be disseminated.*

B. *The Social Environment, the process of forming deviant behavior, despicable behavior is the result of an imperfect socialization process on the internalization of values and norms. There is someone who is able to socialize well and some are unable to process properly. Thus, the formation of deviant behavior is a process that can be viewed from various angles.*

C. *Psychological environment, environment related to the teaching and learning process that refers to the cumulative effects of individual responses to individual environmental stimuli in his life. Environmental psychology can reach various problems. This field does not merely examine the effects that had previously been thought of by humans, but also the consequences that were previously calculated.*

Historically vocational / vocational education was born from human needs to improve technical competence and increase its economic position in society [2] [3]. There are many notions of vocational / vocational education. Vocational education experienced a peak of popularity when Smith-Hughes (1917) defined "vocational education was training less than college grade to fit for useful employment (Thompson, 1973, p. 107).

In the United States in 1963 vocational education was defined as "vocational or technical training or given in schools or classes under public supervision and control or under contract with a State Board or local education agency, and is conducted as part of program designed to fit individuals for gainful employment as semi-skilled or skilled workers or technicians in recognized occupations "(Thompson, 1973, p. 109).

Then in 1968 the notion of vocational education in the United States was amended with a new formulation: "vocational or technical training or training which is given in schools or classes under public supervision and control or under contract with a State Board or local education agency and part of the program is designed to prepare individuals for gainful employment as semi-skilled or skilled workers or technicians or sub-professionals recognized occupations and in new and emerging occupation or to prepare individuals for employment in occupation which the Commissioner determines ... "(Thompson, 1973 , p.110).

Good and Harris (1960) define "vocational education is education for work-all kinds of work which individually finds congenial and for which society has need". The American

Vocational Association defines "vocational education as education designed to develop skills, abilities, understandings, attitudes, work habits, and appreciations needed by workers to enter and make progress in employment on useful and productive bases" (Thompson, 1973, p. 111) .

Vocational / vocational education emphasizes preparing students to enter the workforce. Vocational / vocational education must prepare the formation of skills / skills, skills, behaviors, attitudes, work habits, and appreciation of the jobs needed in the community. In the socio-economic perspective, vocational education is an economic education because it is derived from the needs of the labor market, contributing to economic power. Whatever the difference is the various definitions of vocational education, all of them have in common that vocational education is education to prepare students to enter employment. Vocational education must always be close to the world of work (Wardiman, 1998, p. 35).

III. DISCUSSION AND RESEARCH RESULT

The population is an area of generalization consisting of subjects that have certain characteristics and have the same opportunity to be selected as samples. The population in this study are: the target population of all West Sumatra Vocational Schools while the affordable population are all teachers of State Vocational Electronics Engineering Study Program (Computers and Network) in West Sumatra.

TABLE I. POPULATION OF STATE VOCATIONAL SCHOOL OF ELECTRONICS ENGINEERING (COMPUTER AND NETWORK) STUDY PROGRAM IN WEST SUMATRA

NO	NAMA SEKOLAH	PRODI SMKN	JUM_ GURU	LOKASI/KOTA
01	S M K NEGERI 2	T.E (TKJ)	30 Orang	PADANGPANJANG
02	S M K NEGERI 3	T.E (TKJ)	30 Orang	PARIAMAN
03	S M K NEGERI 5	T.E (TKJ)	40 Orang	PADANG
04	S M K NEGERI 1	T.E (TKJ)	40 Orang	PADANG
05	S M K NEGERI 4	T.E (TKJ)	40 Orang	PADANG
06	S M K NEGERI 2	T.E (TKJ)	20 Orang	PARIAMAN
07	S M K NEGERI 2	T.E (TKJ)	20 Orang	PAYAKUMBUH
08	S M K NEGERI 2	T.E (TKJ)	20 Orang	PARIAMAN
09	S M K NEGERI 6	T.E (TKJ)	30 Orang	PADANG
10	S M K NEGERI 1	T.E (TKJ)	30 Orang	PARIAMAN
11	SMKN SUMBAR	T.E (TKJ)	40 Orang	PADANG
12	SMK NEGERI 4	T.E (TKJ)	30 Orang	PARIAMAN
13	SMK NEGERI 1	T.E (TKJ)	30 Orang	LB BASUNG
14	SMK NEGERI 1	T.E (TKJ)	30 Orang	SOLOK
15	SMK NEGEI 1	T.E (TKJ)	40 Orang	BIKTTINGGI
16	SMK NEGERI 2	T.E (TKJ)	10 Orang	PADANG
17	SMK NEGERI 1	T.E (TKJ)	30 Orang	UJUNGGADING PAS.
18	SMK NEGERI 1	T.E (TKJ)	10 Orang	BU BATU SANGKAR
19	SMK NEGERI	T.E(TKJ)	10 Orang	PASAMAN TIMUR
20	Jumlah	SMKN	500 Orang	SMKN SUMBAR

Source: data from the education department of the province of West Sumatra

Description: T K J = Computer and Network Engineering

The formula used to determine the sample:

Slovin formula:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = Number of samples (number of samples)

N = Total population (number of all population members)

e = Error tolerance (tolerance of errors; level of significance; for social and education is usually 0.05)

A. Validity Test Analysis

The criteria taken based on the ratio of r count with r table. The criteria that will be used in determining the test is referring to the formula df = n-2 with sig 5%. The final result is if r count> r table, then the data is declared valid and vice versa if r count <r table then the data is declared invalid. Known n = 20, a = 5% in table r product moment = 0.444.

TABLE II.   VALIDITY TEST RESULTS (X1) PRINCIPALS

Soal	Pertanyaan	r$_{hitung}$	Keputusan	Keterangan
1	P1	.066	r$_{hitung}$>r$_{tabel}$	Valid
2	P2	.743	r$_{hitung}$>r$_{tabel}$	Valid
3	P3	.825	r$_{hitung}$>r$_{tabel}$	Valid
4	P4	.679	r$_{hitung}$>r$_{tabel}$	Valid
5	P5	.715	r$_{hitung}$>r$_{tabel}$	Valid
6	P6	.641	r$_{hitung}$>r$_{tabel}$	Valid
7	P7	.748	r$_{hitung}$>r$_{tabel}$	Valid
8	P8	.722	r$_{hitung}$>r$_{tabel}$	Valid
9	P9	.755	r$_{hitung}$>r$_{tabel}$	Valid
10	P10	.677	r$_{hitung}$>r$_{tabel}$	Valid
11	P11	.636	r$_{hitung}$>r$_{tabel}$	Valid
12	P12	.593	r$_{hitung}$>r$_{tabel}$	Valid
13	P13	.620	r$_{hitung}$>r$_{tabel}$	Valid
14	P14	.533	r$_{hitung}$>r$_{tabel}$	Valid
15	P15	.674	r$_{hitung}$>r$_{tabel}$	Valid
16	P16	.716	r$_{hitung}$>r$_{tabel}$	Valid
17	P17	.637	r$_{hitung}$>r$_{tabel}$	Valid
18	P18	.611	r$_{hitung}$>r$_{tabel}$	Valid
19	P19	.703	r$_{hitung}$>r$_{tabel}$	Valid
20	P20	.509	r$_{hitung}$>r$_{tabel}$	Valid

Cont. Table II.

21	P21	.740	r$_{hitung}$>r$_{tabel}$	Valid
22	P22	.596	r$_{hitung}$>r$_{tabel}$	Valid
23	P23	.637	r$_{hitung}$>r$_{tabel}$	Valid
24	P24	.672	r$_{hitung}$>r$_{tabel}$	Valid
25	P25	.759	r$_{hitung}$>r$_{tabel}$	Valid
26	P26	.738	r$_{hitung}$>r$_{tabel}$	Valid
27	P26	.769	r$_{hitung}$>r$_{tabel}$	Valid
28	P28	.729	r$_{hitung}$>r$_{tabel}$	Valid
29	P29	.636	r$_{hitung}$>r$_{tabel}$	Valid
30	P30	.755	r$_{hitung}$>r$_{tabel}$	Valid

Case Processing Summary

		N	%
Cases	Valid	50	100,0
	Excluded^a	0	,0
	Total	50	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,756	,964	30

TABLE III.   ITEM STATITICS

Item Statistics

	Mean	Std. Deviation	N
item_1	4,520	,8628	50
item_2	4,120	,7183	50
item_3	4,080	,8533	50
item_4	4,180	,7475	50
item_5	4,180	,9624	50
item_6	4,100	,9949	50
item_7	4,040	,9026	50
item_8	4,100	,8391	50
item_9	4,060	,8901	50
item_10	4,240	,8221	50
item_11	4,100	1,0351	50
item_12	4,040	,9467	50
item_13	3,980	,8919	50
item_14	3,980	,8449	50
item_15	3,980	,9581	50
item_16	4,020	,9998	50
item_17	4,100	,7890	50
item_18	4,400	,7825	50
item_19	4,120	,7990	50
item_20	4,060	,7669	50
item_21	4,000	,7825	50
item_22	4,100	,8391	50
item_23	4,240	,8466	50
item_24	4,360	,8271	50
item_25	4,180	,9624	50
item_26	4,220	,8401	50
item_27	4,160	1,0373	50
item_28	3,980	,9145	50
item_29	4,080	,9442	50
item_30	4,120	,8485	50
skor_total	123,840	17,9026	50

TABLE IV.   ITEM TOTAL STATISTICS

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
item_1	243.160	1241.607	.652		.749
item_2	243.560	1244.333	.733		.749
item_3	243.600	1232.327	.617		.747
item_4	243.500	1246.214	.668		.750
item_5	243.500	1233.684	.701		.747
item_6	243.580	1237.310	.625		.748
item_7	243.640	1234.480	.737		.747
item_8	243.580	1239.310	.711		.748
item_9	243.620	1234.689	.744		.747
item_10	243.440	1242.864	.664		.749
item_11	243.580	1235.922	.619		.748
item_12	243.640	1242.725	.575		.749
item_13	243.700	1243.235	.604		.749
item_14	243.700	1250.500	.515		.751
item_15	243.700	1236.663	.659		.748
item_16	243.660	1231.739	.702		.747
item_17	243.580	1246.657	.624		.750
item_18	243.280	1248.410	.597		.750
item_19	243.560	1242.616	.692		.749
item_20	243.620	1254.649	.493		.752
item_21	243.680	1241.161	.730		.749
item_22	243.580	1246.902	.581		.750
item_23	243.440	1244.129	.622		.749
item_24	243.320	1242.875	.659		.749
item_25	243.500	1230.663	.747		.746
item_26	243.460	1238.335	.727		.748
item_27	243.520	1226.010	.756		.745
item_28	243.700	1235.112	.717		.747
item_29	243.600	1239.918	.620		.748
item_30	243.560	1236.864	.744		.748
skor_total	123.840	320.504	1.000		.960

The results above in the Case Processing Summary table can be seen that the Cases are valid for all respondents (50) or 100%, meaning all are valid, so nothing is issued (Excluded a) so that the total is 50 or 100%.

The Reliability Statistics table in the Cronbach's Aplha column is obtained with many items 30 per questionnaire and the number of respondents 50 people obtained a correlation value of 0.652. This value is really very good or very strong.

So it can be concluded that the questionnaire can be distributed to respondents, because the measurement results can be trusted based on the correlation value obtained for 0.652

Product Moment correlation formula as follows:

$$r_{xy} = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{\left[n(\sum X^2) - (\sum X)^2 \middle| n(\sum Y^2) - (\sum Y)^2\right]}}$$

Where: rxy = correlation coefficient of an item / item

N = number of subjects

X = score of an item / item

Y = total score (Arikunto, 2005: 72)

The value of r is then consulted with r table (critical). If r counts from the formula above is greater than r table then the item is valid, and vice versa.

The Cronbach Alpha formula is as follows.

$$r_{11} = \left[\frac{k}{k-1}\right]\left[1 - \frac{\sum \sigma_b^2}{V_t^2}\right]$$

The criteria of a research instrument are said to be reliable by using this technique, if the reliability coefficient (r11)> 0.6.

B. Regression Analysis

The linear regression feasibility model is based on the following:

1) The regression model is said to be feasible if the number of significance in ANOVA is <0.05

2) Predictors used as independent variables must be feasible. This feasibility is known if the Standard Error of Estimate <Standard Deviation

3) The regression coefficient must be significant. Testing is done by Test T. The regression coefficient is significant if T counts> T table (critical value)

4) Multicollinearity should not occur, meaning that there should not be very high or very low correlations between independent variables. This requirement applies only to multiple linear regression with more than one independent variable.

5) No autocorrelation. Autocorrelation occurs if the Durbin and Watson (DB) numbers are <1 and> 3

6) The relaxation of the regression model can be explained by using the value of r2 the greater the value, the better the model. If the value approaches 1 then the regression model gets better. The value of R2 has characteristics such as: 1) always positive, 2) the value of R2 is a maximum of 1. If the value of R2 is 1, it will mean perfect compatibility. This means that all variations in variable Y can be explained by the regression model. Conversely if r2 is equal to 0, there is no linear relationship between X and Y.

7) There is a linear relationship between the independent variable (X) and the dependent variable (Y)

8) Data must be normally distributed

9) Interval or ratio scale data

10) Both variables are dependent, meaning that one variable is an independent variable (also known as a predictor variable) while another variable is a dependent variable (also called a response variable).

C. Regression Test Results

Descriptive Statistics			
	Mean	Std. Deviation	N
Proses_Belajar_Mengajar_Y	127.10	11.840	50
Kep_Sek_X1	123.84	17.903	50

Correlations			
		Proses_Belajar_Mengajar_Y	Kep_Sek_X1
Pearson Correlation	Proses_Belajar_Mengajar_Y	1.000	.715
	Kep_Sek_X1	.715	1.000
Sig. (1-tailed)	Proses_Belajar_Mengajar_Y	.	.000
	Kep_Sek_X1	.000	.
N	Proses_Belajar_Mengajar_Y	50	50
	Kep_Sek_X1	50	50

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Kep_Sek_X1[a]		Enter

a. Dependent Variable: Proses_Belajar_Mengajar_Y

b. All requested variables entered.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	69,569	8,213		8,470	,000
	Kep_Sek_X1	,465	,066	,715	7,076	,000

a. Dependent Variable: Proses_Belajar_Mengajar_Y

TABLE V. CORRELLATIONS

Correlations

		Proses_Belajar_Mengajar_Y	Kep_Sek_X1	Kopetensi_Guru_X2	Pelayanan_Prima_X3	Inovasi_Pembelajaran_X4
Pearson Correlation	Proses_Belajar_Mengajar_Y	1.000	,715	,715	,843	,843
	Kep_Sek_X1	,715	1,000	1,000	,841	,841
	Kopetensi_Guru_X2	,715	1,000	1,000	,841	,841
	Pelayanan_Prima_X3	,843	,841	,841	1,000	1,000
	Inovasi_Pembelajaran_X4	,843	,841	,841	1,000	1,000
Sig. (1-tailed)	Proses_Belajar_Mengajar_Y		,000	,000	,000	,000
	Kep_Sek_X1	,000		,000	,000	,000
	Kopetensi_Guru_X2	,000	,000		,000	,000
	Pelayanan_Prima_X3	,000	,000	,000		,000
	Inovasi_Pembelajaran_X4	,000	,000	,000	,000	
N	Proses_Belajar_Mengajar_Y	50	50	50	50	50
	Kep_Sek_X1	50	50	50	50	50
	Kopetensi_Guru_X2	50	50	50	50	50
	Pelayanan_Prima_X3	50	50	50	50	50
	Inovasi_Pembelajaran_X4	50	50	50	50	50

TABLE VI. EXCLUDED VARIABLES

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	Kep_Sek_X1	.[b]	.	.	.	,000
	Pelayanan_Prima_X3	.[b]	.	.	.	,000

a. Dependent Variable: Proses_Belajar_Mengajar_Y

b. Predictors in the Model: (Constant), Inovasi_Pembelajaran_X4, Kopetensi_Guru_X2

TABLE VII. RESIDUALS STATISTICS

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	79,57	138,02	127,10	9,808	50
Residual	-16,866	14,780	,000	6,268	50
Std. Predicted Value	-4,846	1,113	,000	1,000	50
Std. Residual	-2,635	2,309	,000	,979	50

a. Dependent Variable: Proses_Belajar_Mengajar_Y

Diagram Chart

Histogram
Dependent Variable: Proses_Belajar_Mengajar_Y

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Proses_Belajar_Mengajar_Y
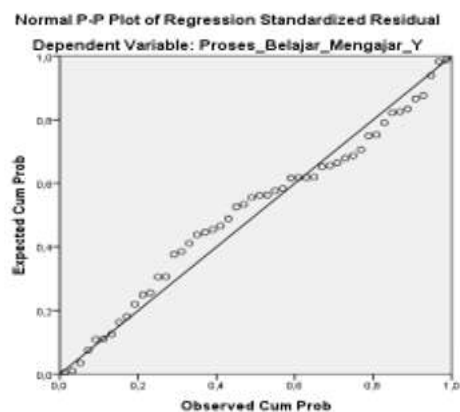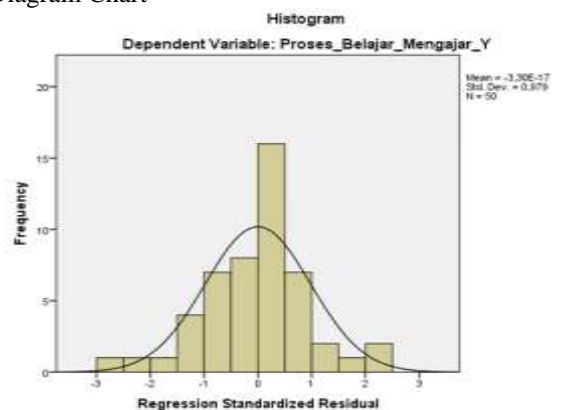
IV. CONCLUSION

Based on the results of testing and hypothesis testing in the previous chapter accompanied by supporting theories regarding the influence of the principal's leadership on the teaching and learning process as well as its influence on teacher competency, excellent service, learning innovation and teaching and learning, the following conclusions are obtained:

A. Principal leadership of West Sumatra State Vocational Schools is included in the high category but is more effective at task oriented. Electronics Engineering teacher competency (TKJ). And as for the innovation of Electronic Engineering teacher learning is a good category.

B. Principal leadership has a positive effect on the teaching and learning process [4]. This means that the higher the leadership style of the principal, the teaching and learning process, the Electronics Engineering teacher will increase.

C. Principal leadership has a positive effect on the competence of Electronic Engineering teachers. That is, when the leadership of the principal is high, the teaching and learning process of the teacher will be high, but if the leadership of the principal is low, the teaching and learning process of the teacher will be low.

D. There is an influence of teacher competency and excellent service together influence on. Mastery of teacher competencies should be improved by holding skills training to hone pedagogical skills and other abilities. The principal as the highest leader in the process is expected to be able to assess teacher service fairly and transparently. Management of interaction and assessment of service of teachers is not based on subjectivity alone.

E. Teacher competency, can affect the process of teaching and learning or management of education so as to produce quality forms of education. Qualified graduates can be seen in stakeholders, education in the form of values achieved by students and can also be seen through national examination test results.

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