THE LEARNING EFFECTIVENESS OF THE STUDENTS IN SMK 2 NEGERI WONOSARI GUNUNG KIDUL YOGYAKARTA

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ABSTRACT

This study aims to identify the effect of the teacher professionalism and the students' learning motivation on the learning effectiveness of the students in Vocational High School (SMK) Negeri 2 Wonosari. The study used a survey method with ex post facto approach. The population consists of 420 students of SMK 2 Wonosari from the Program of Civil Engineering, Electronic Engineering, Electrical Engineering, Mechanical Engineering, and Automotive Engineering. The sample was selected using random sampling technique. The data is analyzed using Multiple Linear Regression analysis. The results point out that most students' perceptions on the level of teacher professionalism on productive subjects belongs to medium category, student learning motivation is in medium category, and the student learning effectiveness on productive is categorized into medium category. Teacher professionalism and student motivation have positive impact or is significant on the learning effectiveness of the students.

Keywords: learning effectiveness, learning motivation, teacher professionalism

INTRODUCTION

Nowadays, there appear more complaints about the low absorption of vocational schools (SMK) graduates and graduates who work not at their appropriate expertise. From the industry practitioners, not a few of them complain about the low quality of vocational graduates. This condition illustrates that the purposes of the implementation of education at the vocational schools have not been achieved.

Department of National Education in the Regulation of the National Education Ministry Number 22 of 2006 (2006) states that vocational education aims to improve intelligence, knowledge, personality, characters, and skills of students to live independently and to follow further education in accordance with the work program. It is also mentioned in the Government Regulation Number 19 of 2005 concerning to the National Education Standards that vocational education is a secondary education that promotes the development of students' abilities to certain types of work. Improving the quality of SMK, graduates should be supported by the enhancement in various aspects. This is because the school is a system of mutual influence between its components. In order to achieve the goal, as a system, the school has an input management process related to the learning process, which includes: (1) The process of leadership resulted in the participative decision-making that is decision and an agreement between the principal, teachers, students, parents or students guardians and people who concern in education. In addition it is also related to motivating the staff to keep carrying out the task more enthusiastically to produce proud works in the name of the school. (2) Management process creates rules of conduct, institutional management, program processing, coordinating activities, monitoring, and evaluation. It aims to analyze and determine the suitability of the process execution planning and objectives. In addition, the evaluation also turns out to be the consideration and decision making based on the monitoring (Komariah and Triatna, 2008: 5).

One of many components in the spotlight is the effectiveness of learning. The effectiveness can be expressed as the rate of success in achieving its objectives and targets.

Alam and Sutikno (2005: 88) suggest that an effective learning is a learning which enables students to learn easy, fun, and to achieve the learning objectives in accordance with the expectations. Thus, learning is said to be effective when the purposes of such learning can be achieved.

A hope that never disappears and is always demanded by teachers is how the lesson materials presented by teachers can be mastered by students completely. It is a difficult problem perceived by teachers.The difficulty is due to students are not only as an individual with all the uniqueness but they are also social beings with different backgrounds. There are at least three aspects that distinguish students with each other, namely the intellectual, psychological, and biological aspects. These three aspects are recognized as the source that raises to the variety of students' attitudes and behavior at the school. It also becomes quite a heavy task for teachers to manage the classroom effectively. Teachers' complaints are often thrown up just because the difficult problems possessed in handling the class. As a result of the failure of teachers to manage the classroom, the learning objectives are also difficult to be achieved. Applying some of the principles of classroom management is another effort that cannot be ignored.

In modern educational pattern, it is clear that students become the center point of the learning process. Students are as subjects who progress through learning experiences. Teachers act more as a facilitator, mediator and motivator of student learning. Teachers also help and provide convenience so that students get a learning experience that fits the needs and abilities and active in the interaction. Students learn while teachers manage learning resources in order to provide a learning experience to students. In the process of teaching and learning in order to produce results as expected, then both students and teachers need to have the attitude, abilities, and skills that support the learning process to achieve certain goals.

Leaning evaluation is a process for getting information about learning outcomes. Thus the focus is on both the process and the product outcomes. Learning outcomes information is then compared with those that have been set. If the actual results of learning in accordance with the predetermined result, the learning can be said to be effective. On the contrary, if tangible results are not in accordance with the learning outcomes set, the learning is said to be less effective. Teachers use a variety of evaluation tools to reflect the characteristics of competency to be achieved by students.

To meet the future challenges, creativity and innovative power are needed to make a nation not just a consumer of science and technology as well as the recipient of values from outside passively, but rather has a competitive advantage in terms of mastery of science and technology. Therefore the attitude, motivation, and creativity should be developed through a creation of dynamic learning process atmosphere where the teacher encourages the vitality and creativity of the students to develop themselves.

Students can develop the creativity when teaching and learning process is implemented programmatically, systemic, systematic, and is sustained by the availability of adequate facilities and infrastructures. In the process of intellectual maturity development, the students need to be encouraged to be able to think logically and systematically. In the process of teaching and learning, teachers must give a clear direction for students to solve a problem logically and scientifically.

Students should be given the internalization and good model, where they can actively participate in learning activities.This phenomenon, in certain cases, can shape the spirit of loyalty, tolerance, and the ability of high adaptability. In this approach it needs to be aligned with learning activities that provide opportunities for them to be dynamic and creative. Therefore, the supporting teacher

performance on the quality achievement is necessary.

The success of the learning process on service engine (and its components) training can be seen how big the learning achievement achieved by students. The learning achievement can be influenced by several factors, both internal factors such as students 'intelligences, motivation, and interest and external factors such as school environment, family, for goodness' - the society, and government policies. The other crucial factor is teachers' professionalism. This is supported by Junianto (2015) who has pointed out that there is highly significant effect of teachers' teaching performance to the students' achievement motivation.

To obtain a clear picture of the dynamics of productive learning in school which are classified as qualified, the research is conducted at SMK Negeri 2 Wonosari Gunung Kidul, assuming that the vocational schools can generalize other good quality schools. The focus of this study is concerning to factors that support effective learning in productive subjects in SMK covering teacher professionalism and student motivation.

METHODS

This study uses survey method with the approach of ex post facto, a study conducted to examine the events that have occurred and then trace backward to determine the factors that could cause the occurrence (Sugiyono, 2007). The population in this study are students of SMK 2 Wonosari from the Program of Building Engineering, Electronic Engineering, Electrical Engineering, Mechanical Engineering, and Automotive Engineering with the amount of 420 people.

To obtain a large representative sample, probability sampling technique is used based on Nomogram Herry King with an error rate of 5% by using the formula proposed by Slovin (Riduwan, 2005: 65):

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

Where n, N, A are sample, population, and significance level respectively.

Thus obtained $n = \frac{N}{1+N\alpha^2}$

$$n = \frac{420}{1+420(0,05)^2}$$

$$= 190.722 \approx 191$$

The sample determination uses simple random sampling technique by setting a quota for each expertise program. To obtain data or information, questionnaire which reflects specific indicators, is used. The research data is collected through an instrument or questionnaires using a rating scale. Before testing the hypothesis, first it is performed a classical assumption that includes: test for normality, linearity, homogeneity, and homoscedasticity. The data is analyzed using multiple linear regressions. Multiple linear regression analysis is used when the researcher intends to predict how the situation (rise and fall) of the dependent variable (the effectiveness of learning), when two or more independent variables (teacher professionalism and student motivation) play as the manipulated predictor factors (set the value higher and lower).

The prediction to the influence between teacher professionalism (X1) and learning motivation (X2) to learning effectiveness(Y) conveys that the teacher professionalism and student motivation affect the effectiveness of teaching and learning process on productive subjects in SMK Negeri 2 Wonosari Gunung Kidul. Multicollinearity test aims to test whether in the regression model it is found a correlation between independent variables. A good regression model should not reveal a correlation between independent variables. If the independent variables are correlated, these variables are not orthogonal. Orthogonal variable is the independent variable which has zero correlation values within the members (Ghozali, 2009: 95). Multicollinearity can be

seen from the value of tolerance and the opponent as well as the variance inflation factor (VIF). Both of them show that each independent variable is explained by another independent variable. Low tolerance value is equal to high VIF value (for VIF=$\frac{1}{\text{tolerance}}$). The cutoff value which is commonly used to indicate the presence of multicollinearity is the value of tolerance≤0, 10, or equal to the value of VIF≥10 (Ghozali, 2009: 95).

Normality test is aimed to test whether the distribution of data to be analyzed based on the criteria of normality is normal. The normality norm used is if p>0.05 the spread is considered normal. Linearity test is a test to determine the linearity between each independent variable and dependent variable. To test the linearity of items this study utilized a support program IBM SPSS Statistics ver.20.Variant homogeneity test intends to determine the variants used in this study. This homogeneity test uses on-way homogeneity test with p>0.05 and the variant can be said as homogeneous.

Test homoscedasticity aims to test varian cesimilarities from the residuals from one observation to other observations. If the residual variance from one observation to the others remains still this is so-called homoscedasticity and if different it is called as heteroscedasticity. A good regression model is that of homoscedasticity or not heteroscedasticity (Ghozali, 2009: 125). To detect the presence or absence of heteroscedasticity it is done by looking at the plot graph of the predicted value of the dependent variable, namely ZPRED, with its residuals or SRESID. Homoscedasticity can be determined by looking at whether there is a specific pattern on a scatter plot graph between SRESID and ZPRED wherein Y axis is a predicted Y, the X axis is the residual (predicted Y prediction–actual Y) that has been distudentized.

RESULTS AND DISCUSSION

Multicollinearity test reveals an emergence of opportunities between several independent variables to correlate to each other. Inpractice, multicollinearity is unavoidable. Measuring Multicollinearity can be seen from the value of tolerance and Variance Inflation Factor (VIF). Tolerance measures the variability of other independent variables. Hence a low tolerance value equal to high VIF value since VIF=$\frac{1}{\text{tolerance}}$.The cut off value which is commonly used to indicate the absence of multicollinearity is the tolerance value> 0,10 or equal to VIF<10. The result of multicollinearity test is displayed in Table 1.

Table 1. Multicollinearity Test of Tolerance and Variance Inflation Factor (VIF)

	Correlations			Importance	Tolerance	
Teacher	Zero-Order	Partial	Part	-0.231	After Transformation	Before Transformation
Professionalism	0.426	-0.619	-0.310		0.460	0.005
Learning Motivation	0.865	0.900	0.816	1.233	0.460	0.005

Dependent Variable: Learning Effectiveness

Based on Table 1 above, the tolerance value of independent variable teacher professionalism after transformation is 0.460 and learning motivation is 0.460. While the correlation value of teacher professionalism = -0.310 and learning motivation = 0.816. It can be concluded that the regression model is said to be multicollinear due to tolerance value>0.10 and VIF<10.A condition that should be in the regression analysis is data and normal regression distribution. Normality of the data can be viewed from the normality test Kolmogorov-Smirnofon each variable (Santoso 1999:311). The data are analyzed with SPSS

ver.20. The basis of decision making is based on probability. If the probability > 0.05, the research data has normal distribution, while for normal PP plot the points are close to the diagonal line of the regression model with normal distribution. Normality test results can be seen in Table 2.

Table 2. Normality Test Result Using Kolmogorov-Smirnov

		Teacher Professionalism	Learning Motivation	Learning Effectiveness
		191	191	191
Normal Parameters[a, b]	Mean.	107.54	92.32	
	Std Deviation	13.036	11.214	
Most Extreme Differences	Absolute	0.144	0.134	
	Positive	0.144	0.134	
	Negative	-0.117	-0.119	
Kolmogorov-Smirnov Z		1.988	1.584	2.712
Asymp. Sig. (2-tailed)		0.001	0.002	0.000

From Table 2 on ASymp. row. Sig. (2-tailed)for two sides it is gained significance value of teacher professionalism variable at 0.001;learning motivation at 0.002;and 0.000 for learning effectiveness. The significance value of each variable is >0.05 which implies that Ho is accepted or the data of each variable has normal distribution. In addition to using the Kolmogorov-Smirnov test the normality data analysis is also supported by the Plot of Regression Standardized Residual. If the graph obtained from SPSS output turns that the dots approach the diagonal line, it can be concluded that the regression model has normal distribution. To be more details, the result of data normality test is presented in Figure 1.

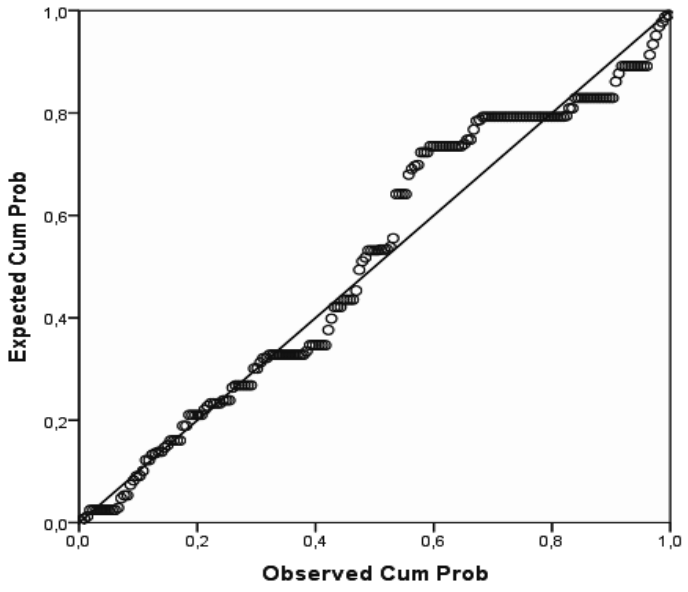

Figure 1. P-P Plot for Regression Model Normality Testing

Based on Figure 1 above, the dots are approaching the horizontal line meaning that the regression model has normal distribution. Meanwhile, the linearity test goal is to determine the relationship between independent variables and the dependent variable is linear or not. Linearity testing criteria is that if the significance value is less than 0.05 then the

relationship between independent and dependent variable is linear. Linearity test results can be seen in Table 3.

Table 3. Hasil Uji Linieritas

Variable	Sig.	Information
X1 → Y	0.000	Linear
X2 → Y	0.000	Linear

Furthermore, variance homogeneity test is done to the variance of teacher professionalism and learning motivation scores. Each homogeneity test on each school level variance uses Lavene test school level. The calculation is displayed in Table 4.

Table 4. Homogenity Test Result

Variable	Levene Statistics	df1	df2	Sig.
Teacher Professionalism	4.453	14	165	0.000
Learning Motivation	8.378	13	171	0.000

The result of Lavene test on Table 4 the significance number of each level is under 0.005. This means the whole have unidentical variants, or in other words the data is heterogeneous. Homoscedastity test is a condition in which all residualor error has a permanent variant. To identify whether the data is homoscedasticity or not, it is necessary to have a test. Testing homoscedasticity in this study uses the method of graphic analysis scatter-plot. Figure 2 presents a scatterplot display for the Regression Model Normality.

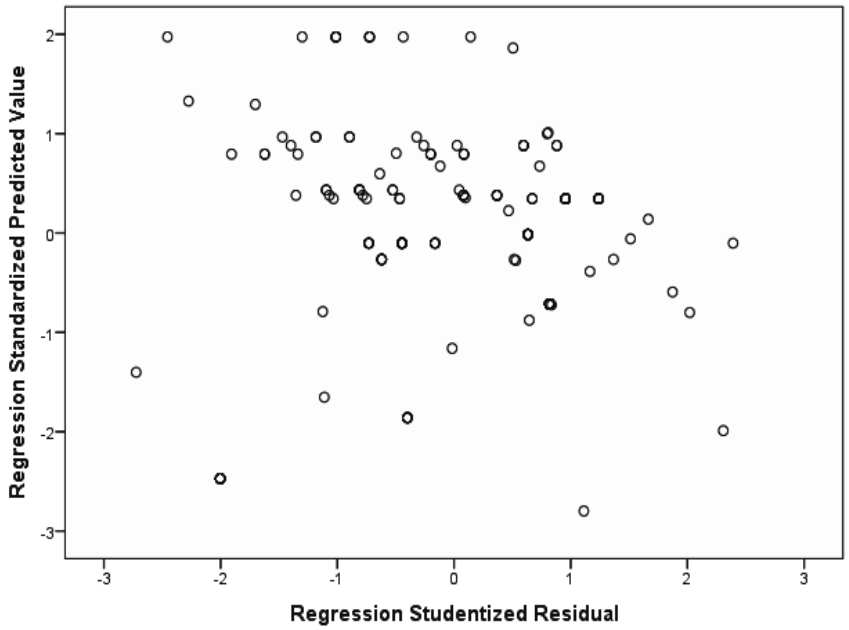

Figure 2. P-P Plot for Regression Model Normality Testing

Based on Scatterplot displayed in Figure 2 it can be concluded that the plot spreads randomly above and below the zero axis at Regression Studentized Residual axis. Therefore, the established regression model is stated that all residual or error has a permanent variant. Teacher professionalism plays a very essential role on the effectiveness of learning, where the higher the professionalism of the teachers, the higher the effectiveness of the learning. In this study, the professionalism of teachers are assessed based on the student perceptions by distributing questionnaires to 191 students. The questionnaire consists of

three indicators which include planning, implementation, and evaluation. The student perceptions about teacher professionalism can be seen in Table 5.

Table 5.Frequency Distribution of Discipline Learning

No.	Criteria	Frequency	Percentage
1	High	66	34.55%
2	medium	107	56.02%
3	Low	18	9.42%

Table 5 shows most of the students or 56.02% (107 respondents) categorize the level of teacher professionalism on the productive subjects as medium category. A total of 66 students or 34.55% assess the teacher professionalism on the productive subjects as high category, and 18 students (9.42%) have the perception that the teacher professionalism belongs to the low category. In more details, it can be seen in Figure 3.

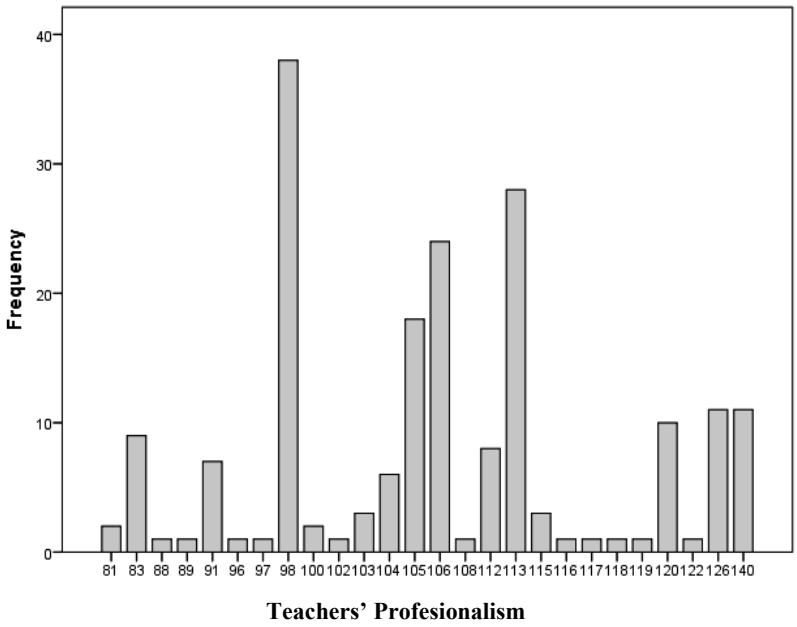

Figure 3. The Level of Teacher Professionalism in SMK Negeri 2 Wonosari

Motivation is necessarily needed in the implementation of human activities because the motivation is something that leads, distributes, and supports human behaviors in order to work diligently and enthusiastically to achieve optimal results (Hasibuan, 2001:141). The description of the student's motivation in SMK Negeri 2 Wonosari can be seen from the descriptive analysis in Table 6.

Table 6. Frequency Distribution of Student Learning Motivation

No.	Criteria	Frequency	Percentage
1	High	35	18.32%
2	Medium	96	50.26%
3	Low	60	31.41%
	Total	191	100.00%

Based on the calculation it is revealed that a total of 35 students (18.32%) have very

high motivation, 96 students (50.26%) have medium – level motivation, and 60 students (31.41%) have low motivation. The distribution of motivation is presented in Figure 4.

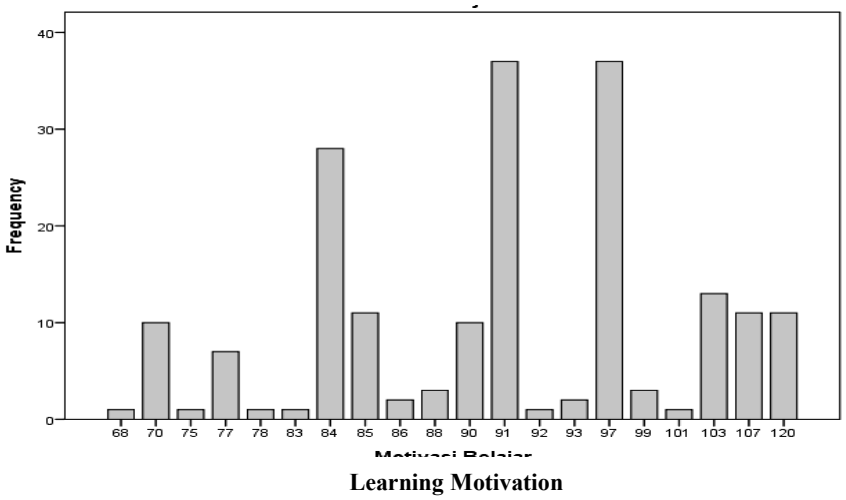

Figure 4. The Level of Student Motivation in SMK Negeri 2 Wonosari

The learning effectiveness in SMK Negeri 2 Wonosari is categorized as medium with the percentage of 50.26%. It is indicated by the students' learning outcomes. The detailed data is presented in the following Table 7.

Table 7. Distribution of Frequency of Learning Effectiveness

No	Criteria	Frequency	Percentage
1	High	35	18.32%
2	Medium	96	50.26%
3	Low	60	31.41%
	Total	191	100.00%

From Table 7, approximately 96 students (50.26%) indicate that the effectiveness of learning on the productive subjects belong to medium-level criteria. A total of 60 students (31.41%) indicate that the effectiveness of learning on productive subjects belong to low-level criteria and 35 students (18.32%) show the effectiveness of learning on the productive subjects belong to high-level criteria. The details can be seen in Figure 5.

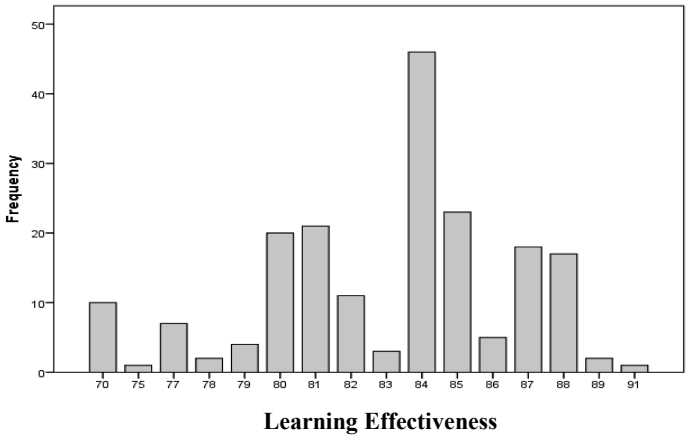

Figure 5. The Level of Learning Effectiveness in SMK Negeri 2 Wonosari

After the overall regression coefficient test, the next step is to calculate the regression coefficient individually or t-test. T-test is used to identify whether there are influences on each independent variable individually (partially) on the dependent variable tested at the significance level of 0.05, this means the independent affects the dependent variable. Here are the results of testing a hypothesis with t-test as presented in the following Table 8.

Table 8. T-test Output

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	66.214	2.130		31.088	0.000
	Teacher Professionalism	-1.270	0.286	-3.903	-4.435	0.000
	Learning Motivation	1.659	0.333	4.386	4.984	0.000

Dependent Variable: Learning Effectiveness

From the calculation result obtained at Table 8, teacher professionalism variable statistically shows that the significant results on the value of t-test for teacher professionalism is smaller than α (0.000 <0.05). While the t-test value X_1 = -4.435 and t-table is 1.65322 (df (n - k) 191-3 = 188, α = 0.05), so t-test<t-table (-4.435 <1.65322). Accordingly Ho is rejected, so it can be concluded that the variable negatively affect the effectiveness of learning.

The calculation result obtained at Table 8 shows that learning motivation variable has statistically significant result on a t-test value which is smaller than α (0.000> 0.05).While the t-test value X_2 = 4.984 and t-table is 1.65322 (df (n - k) 191-3 = 183, α = 0.05), so t-test> t-table (4.984> 1 , 65 322). Thus, Ho is accepted and it can be concluded that the variable hasa positive and significant impact on learning motivation. From Table 8 above, it is obtained a regression model as follows: Effectiveness of Learning = 66.214 - 1.270 Teacher Professionalism + 1.659 Learning Motivation.

Based on the linear regression above, if teacher professionalism (X_1) and learning motivation (X_2) is 0, the learning motivation (Y) is 66.214.That is, if it is not associated with the teacher professionalism and learning motivation, the effectiveness of learning in the classroom in productive subjects will be obtained at 66.214%.

Based on the linear regression equation above, teacher professionalism (X_1) = -1.270. That means every increase of 1% on teacher professionalism (X_1) will cause a decline on the learning motivation (Y) at 12.7%. Thus, it can be concluded that the influence of teacher professionalism is in inverse proportion to the effectiveness of learning.

Next, learning motivation (X_2) = 1.659 meaning that if every increase of 1% of learning motivation will lead to the increased of learning effectiveness (Y) at 16.59%.Based on the significance, t-test, and t-table value, it can be concluded that learning motivation has influence on the effectiveness of learning. F-test count is used to test the effect of simultaneous independent variables on the dependent variable or to test the accuracy of the model (goodness of fit).

If the independent variables have a simultaneous effect on the dependent variable, the regression model belongs to criteria 'fit'. Conversely, if there is no simultaneous influence then it falls into category 'not fit'. A form of testing in this F-test is using a table called Analysis of Variance (ANOVA) table to see the significance value (Sig< 0.05 or 5%). If the significance value > 0,05, H1 is rejected, conversely if the significance value <0.05, H1 is accepted. The ANOVA table is presented in Table 9.

Table 9. F-test Output

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1073.757	2	536.879	43.008	0.000[b]
	Residual	2346.829	188	12.483		
	Total	3420.586	190			

Dependent Variable: Learning effectiveness
Predictors: (Constant), Learning Motivation, Teacher Professionalism

Based Table 9 above the value of F obtains 43.008 with 0,000 level, because the significance level is less than 0.05 meaning that H0 is rejected or Ha is accepted and F-value > F-table (43.008> 3.04) with the value of F-table df: α, (k-1), (nk) or 0.05, (3-1), (191-3) = 3.04. It can be concluded that teacher professionalism and learning motivation have positive and significant impact on the learning motivation.

Determination coefficient or R square (R2) is the number of contribution of independent variables on its dependent variables. The higher the coefficient of determination, the higher the ability of independent variables in explaining the variation changes in the dependent variable. The coefficient of determination has a weakness, which is biased against the number of independent variables inserted in the regression model in which each additional independent variable and the number of observations in the model will increase the value of R2 although the inserted variables have no significant effect on the dependent variable. To diminish these weaknesses, adjusted R Square (R2 adj) will be applied.

The adjusted coefficient of determination means that the coefficient is corrected by inserting a number of variables and the size of sample. By using the adjusted coefficient of determination it can go up or down by the addition of new variables in the model. The detail of the test result of Adj. R2 is displayed in Table 10.

Table 10. Adjusted R Square Test (R2 adj)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.560[a]	0.314	0.307	3.533

The magnitude of Adjusted R Square is 0.307 or 30.7%. It means the influence of teacher professionalism and learning motivation toward the effectiveness of leaning is 30.7%, while the rest at 69.3% (100% - 30.7%) is influenced by other variables that are not included in this study. As for the number of correlation coefficient (R) shows a value of 0.560 or 56%, which indicate that the relationship between the independent variables and the dependent variable is strong since it has a value of more than 0.5 (R> 0.5) or 0.560> 0.5.

The coefficient of determination has a flaw that is biased against the number of independent variables included in the regression model in which each additional independent variable and the number of observations in the model will accelerate R2 value although the variable does not have a significant effect on the dependent variable. To diminish these weaknesses the adjusted coefficient of determination will be applied, adjusted R Square (R2 adj). The adjusted coefficient of determination means that the coefficient is corrected by inserting a number of variables and the size of sample. By using the adjusted coefficient of determination it can go up or down by the addition of new variables in the model (Suliyanto, 2011: 59).

CONCLUSION

In accordance with the results, it can be concluded that the teacher professionalism in

SMK Negeri 2 Wonosari is categorized as medium revealed from students' voices at 56.02% (107 respondents). The student learning motivation is also in the category of medium revealed from 96 students (50.26%). The learning effectiveness of the students belongs to medium category gained from 96 students (50.26%). The result of linear multiple regression test shows that F value is greater than F-table value (43.003> 3.04). It interprets that teacher professionalism (x_1) and student motivation (x_2) have positive impact or is significant. Partially, teacher professionalism has a negative impact and is significant to the learning effectiveness. It is proved by the t-value at -4.435. While, student motivation impact is confirmed as positive and is significant to learning effectiveness shown in t-value at 4.4984. Based on the significance value and t- value and also t-table value above it can be concluded that learning motivation is the influential factor to learning effectiveness.

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