

ANALYSIS EFFECT OF PEDAGOGIC AND PROFESSIONAL COMPETENCY ON STUDENTS' LEARNING ACHIEVEMENT THROUGH TEACHERS' WORK MOTIVATION

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ABSTRACT

This study aims to analyze 1) the effect of pedagogic competence and professional competence on teachers' work motivation, 2) the effect of pedagogic competence and professional competence on students' learning achievement, 3) the effect of teachers' work motivation on students' learning achievement, and 4) the effect of pedagogic competence and professional competence on students' learning achievement through teachers' work motivation. This study used a survey research method using an online questionnaire as a data collection tool. The sampling technique used in this study is non-probability sampling, the type of total sampling. The sample in this study were all public high school economics teachers in Sukoharjo regency, Central Java, Indonesia, totaling 30 teachers. The research data were analyzed quantitatively using path analysis. Based on the results of the research and discussion, the researcher concluded that 1) pedagogic competence and professional competence have a positive and significant effect on teachers' work motivation; 2) pedagogic competence and professional competence have a positive and significant effect on students' learning achievement; 3) teachers' work motivation has a positive and significant effect on students' learning achievement; and 4) pedagogic competence and professional competence have a significant effect on students' learning achievement through teachers' work motivation.

KEYWORDS: Pedagogic Competence, Professional Competence, Learning Achievement, Work Motivation

INTRODUCTION

Education can be used to generate and improve the quality of human resources. The quality of education of a country will be reflected in the quality of human resources produced. Increasing the quality of human resources will help build a nation. Therefore, investment in education can help economic growth, human resource development, and national development (Amzat, 2017).

Efforts to produce quality human resources through quality education certainly require quality teachers (Jalal, 2007; Majid et al, 2010). This is in line with UNESCO which states that knowledgeable teachers are important to improve the quality of education (2005: 161). Amzat (2017) also states that many factors affect the success of learning in class, but teachers still play a role in this success. The teacher must be able to set goals and rules/ procedures for learning in class, so that learning in class can run well. The teacher will affect the learning activities of their students, because the teacher is the one w

ho guides students, encourages students to learn, guides about what must be learned (Bradea, 2009). Clark, Peterson, Myers (in Amzat, 2017) also stated that successful learning is influenced by the teacher in the classroom and how the teacher manages the class, and a teacher must have knowledge of what he/she is teaching students, have pedagogic knowledge, and skills in managing the class, managing students' expectations, and being able to consider other external factors that can affect students' learning. Therefore, the teacher is one of the factors that can play an important role in the success of the educational process because the teacher determines the learning process.

The ability of teachers is also made clear by Uno (2009), that teachers are people who have the ability to design learning programs and are able to organize and manage classes so that students can learn and, in the end, can reach maturity levels as the ultimate goal of the educational process. Therefore, teachers in carrying out their duties as educators must have teacher competencies and improve their competencies in order to facilitate students in achieving the specified learning objectives.

Pedagogic competence is the competence of teachers in the management of students' learning (Law Number 14 of 2005 on Teachers and Lecturers). Pedagogic competence is the teacher's ability to manage students which includes the ability to understand students, the ability to design and implement the learning process, the ability to evaluate students' learning outcomes, and the ability to develop the potential of students (Mulyasa, 2009; Suyanto and Jihad, 2013).

Law Number 14 of 2005 concerning Teachers and Lecturers explains that professional competence is the ability to master subject matter broadly and deeply. Teacher professional competence is defined as the ability a teacher must have in carrying out his/ her duties and obligations as a teacher (Usman, 2009). Professional competence is a teacher's ability to master learning material broadly and deeply, this ability includes mastery of subject curriculum materials and scientific substances (Suprihatiningrum, 2016).

One of the achievements of educational goals can be reflected in the academic achievement of students. The National Examination is one of the academic achievements obtained after students carry out the learning process at school. Based on information compiled from <https://hasilun.puspendik.kemdikbud.go.id>, the achievement of national exam scores for the 2018/2019 school year for SHS (Senior High School) level in economic subjects in the Central Java province, there is 1 regency/ city in the good category (with criteria ranging from $70 < \text{value} \leq 85$), 31 regencies/ cities were categorized as sufficient (with criteria ranging from $55 < \text{value} \leq 70$), and 3 regencies/ cities were categorized as low (with criteria ranging from $0 < \text{value} \leq 55$). Sukoharjo regency is included in the sufficient category with the average national examination score achievement of economic subjects is 64.2, with details: 3 public SHS are in the good category, 6 public SHS are in the sufficient category, and 1 public SHS is in the low category.

Teacher competence can affect the achievement of learning objectives. The Teacher Competency Tes

It is used to test the competence of teachers in the pedagogic and professional fields. Based on data obtained from <https://npd.kemdikbud.go.id>, the value of the Teacher Competency Test for Senior High Schools in Sukoharjo regency in 2019 ranks 24th out of 35 regencies/ cities in the Central Java province, with average scores 69.77. In the General Guidelines for the Sustainable Professional Development Program (2018: 3), the achievement of the value or Minimum Competency Standard which is targeted nationally for the Teacher Competency Test is 75. Therefore, the Teacher Competency Test score for Senior High Schools in Sukoharjo regency has not reached Minimum Competency Standards that have been targeted by the Ministry of Education and Culture in 2018.

In implementing teacher competencies, teachers have motivation to work, and work motivation will ultimately be able to affect students' learning achievement. Motivation is an encouragement that can move someone to do something in an effort to achieve the desired goal (Uno, 2017; Mc Donald in Hamalik, 2011; Hasibuan, 2018). Teachers' work motivation is needed to implement the competencies they have in order to facilitate students properly in the learning process. Motivation can be seen from a person's behaviour, and the work motivation of a teacher can be seen from the responsibilities carried out, the achievements obtained, the continued self-development, and independence in carrying out their duties and obligations (Uno, 2017). Teachers who have work motivation will be motivated to carry out their duties properly by implementing their competencies.

Based on the results of observations through the Economic Subject Teacher Deliberation (MGMP) forum of Sukoharjo regency, teacher motivation from public schools is still lacking. This is reflected in the lack of responsibility in completing teacher obligations, such as making RPP (Learning Implementation Plan) and reviewing USBN (National Standard School Examination) questions. There is only 1 teacher appointed as the National Instructor in the Learner Teacher program, only 1 teacher who is interested in participating in the OSN question review, and there are still many teachers who are not yet independent because they do not try to complete their own assignments using information and communication technology. The findings in the field are supported by research conducted by Kurniawati (2013) which shows that there are several pedagogic aspects that still need to be considered for improvement, including improvements in utilizing information and communication technology for the benefit of learning, facilitating the development of the potential of students to actualize various potentials owned, and take reflective action to improve the quality of learning. Professional competence still requires continuous professional development and utilizes information and communication technology to develop oneself.

METHODOLOGY

This research is a survey research using non probability sampling with total sampling type for sampling technique. Non-probability sampling is a sampling technique that does not provide same opportunities to all members of the population to be selected as samples, while total sampling is a sampling technique that uses all members of the population to be the research sample (Sugiyono, 2015). The population in this study were all 30 public senior high school economics teachers in Sukoharjo regency. T

he instrument used was a questionnaire distributed online. The questionnaire was used to reveal the variables of pedagogic competence, professional competence, and teachers' work motivation. The validity test of the instrument was carried out on the variables of pedagogic competence, professional competence, and teachers' work motivation, by comparing r table with r count. The research data analysis was carried out quantitatively with path analysis.

RESULT

Data processing in this study uses path analysis. Path analysis is a pattern of causal relationships, used to analyze patterns of relationships between variables which aim to determine the direct and indirect effects of exogenous variables on endogenous variables (Riduwan and Sunarto, 2013).

The results of calculations using path analysis are as follows:

F TEST

In testing the independent (exogenous) variable against the dependent (endogenous) variable, it can be seen from the Anova test results. The F test is also known as the Model Test or Anova Test.

Table 1. F Test Result (Model 1)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1671.553	2	835.777	54.989	.000
Residual	2010.180	27	167.515		
Total	3681.733	29			

Source: Primary data processed, 2020

Based on Table 1, the F Test Results above, Model 1 shows that the results of calculations using SPSS obtained F count of 54.989, a significance level of 0.000. Thus, F count > F table or 54.989 > 3.35 and a significance of 0.000 < 0.05. Therefore, H0 is rejected and H1 is accepted, which means that pedagogic competence and professional competence have a significant effect on teachers' work motivation.

Table 2. F Test Result (Model 2)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	694.353	3	231.451	34.043	.000
Residual	629.666	26	57.242		
Total	1324.018	29			

Source: Primary data processed, 2020

Based on Table 2, the F Test Results above, Model 2 shows that the results of calculations using SPSS obtained F count of 34.043, a significance level of 0.000. Thus, F count > F table or 34.043 > 2.98 and

a significance of $0.000 < 0.05$. Therefore, H_0 is rejected and H_1 is accepted, which means that pedagogic competence and professional competence have a significant effect on student achievement through teachers' work motivation.

Determination Coefficient Test (R^2)

The coefficient of determination (R^2) test is conducted to measure the ability of the independent (exogenous) variable to explain the dependent (endogenous) variable. The following are the results of the Determination Coefficient Test:

Table 3. Determination Coefficient Test (R^2) Result (Model 1)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.674	.454	.363	12.94276

Source: Primary data processed, 2020

Based on Table 3 above, Model 1 shows that the coefficient of determination (R^2) is 0.454 or 45.4%, which means that the variables of pedagogic competence and professional competence affect teachers' work motivation by 45.4%, while the remaining 54.6 % influenced by other factors.

Table 4. Determination Coefficient Test (R^2) Result (Model 2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.724 ^a	.524	.395	7.56587

Source: Primary data processed, 2020

Based on Table 4 above, Model 2 shows that the coefficient of determination (R^2) is 0.524 or 52.4%, which means that the variables of pedagogic competence and professional competence have an effect on student achievement through teachers' work motivation by 52.4%, while the remaining 47.6% is influenced by other factors.

T Test (Partial)

T Test is used to partially test the hypothesis/ determine the effect of exogenous variables individually on endogenous variables.

Table 5. T Test Result (Model 1)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	12.406	34.763		13.012	.000
Pedagogic Competence (X1)	.395	.454	.200	7.430	.000
Professional Competence (X2)	.235	.980	.490	6.056	.000

Source: Primary data processed, 2020

Based on Table 5 above, Model 1 shows that the results of the T test for pedagogic competence, the t count is 7.430 and a significance level (sig.) of 0.000. While t table with $dk = n - 2 = 30 - 2 = 28$ and $\alpha = 0.05$, it is obtained 2.048; thus $t \text{ count} > t \text{ table}$ or $7.430 > 2.048$ and $\text{sig. } 0.000 < 0.05$, then H_0 is rejected and H_1 is accepted, which means that pedagogic competence has a positive and significant effect on teachers' work motivation.

The calculation results for the professional competence variable above show that the t count is 6.056 and the significance level (sig.) is 0.000. While t table with $dk = n - 2 = 30 - 2 = 28$ and $\alpha = 0.05$, it is obtained 2.048; thus $t \text{ count} > t \text{ table}$ or $6,056 > 2,048$ and $\text{sig. } 0.000 < 0.05$, then H_0 is rejected and H_1 is accepted, which means that professional competence has a positive and significant effect on teachers' work motivation.

Table 6. T Test Result (Model 2)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	121.035	20.322		10.956	.000
Pedagogic Competence (X1)	.241	.267	.411	7.901	.000
Professional Competence (X2)	.393	.599	.310	6.656	.000
Work Motivation (Z)	.387	.169	.645	6.293	.000

Source: Primary data processed, 2020

Based on Table 6 above, the results of the T test show that for the pedagogic competence variable, the t count is 7,901 and a significance level (sig.) of 0.000. While t table with $dk = n - 3 = 30 - 3 = 27$ and $\alpha = 0.05$ obtained 2.052; thus $t \text{ count} > t \text{ table}$ or $7.901 > 2.052$ and $\text{sig. } 0.000 < 0.05$, then H_0 is rejected and H_1 is accepted, which means that pedagogic competence has a positive and significant effect on achievement.

The results of the calculations for the professional competence variable above show that the t count is 6.656 and the significance level (sig.) Is 0.000. While t table with $dk = n - 3 = 30 - 3 = 27$ and $\alpha = 0.05$ obtained 2.052; thus $t \text{ count} > t \text{ table}$ or $6.656 > 2.052$ and $\text{sig. } 0.000 < 0.05$, then H_0 is rejected

and H1 is accepted, which means that professional competence has a positive and significant effect on achievement.

The calculation results for the teacher's work motivation above show that the t count is 6.293 and the significance level (sig.) Is 0.000. While t table with $dk = n - 3 = 30 - 3 = 27$ and $\alpha = 0.05$ obtained 2.052; thus, t count > t table or $6.293 > 2.052$ and sig. $0.000 < 0.05$, then H0 is rejected and H1 is accepted, which means that work motivation has a positive and significant effect on students' learning achievement.

Path Analysis

This analysis was performed using 2 multiple regression analysis models. The use of multiple linear regression analysis in this path analysis is used to determine the magnitude and direction of the influence of the relationship between exogenous variables on endogenous variables. The following are the coefficient values:

Table 7. Results of the Multiple Linear Equation Coefficient

	Model 1			Model 2		
	Path Coefficient (a)	T	Sig	Path Coefficient (b)	T	Sig
Pedagogic Competence (X1)	.395	7.430	.000	.241	7.901	.000
Professional Competence (X2)	.235	6.056	.000	.393	6.656	.000
Work Motivation (Z)				.387	6.293	.000
F	54.989		.000	34.043		.000
R ²	.454			.524		

Source: Primary data processed, 2020

Based on Table 7 above, it shows that the regression equation is as follows:

Model 1: $Z = 0.395X1 + 0.235X2$

Model 2: $Y = 0.241X1 + 0.393X2 + 0.387Z$

The variables analyzed in this study can be described in the path analysis as follows:

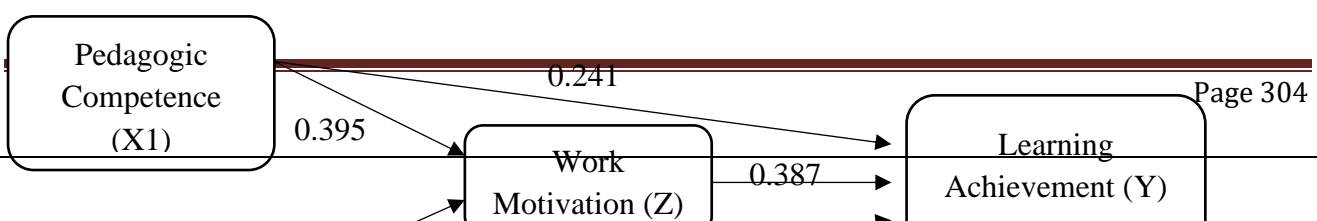


Figure 1. Path Analysis

Based on Figure 1 above, the magnitude of the direct effect of pedagogic competence and professional competence on learning achievement through work motivation is as follows:

Table 8. Direct, Indirect and Total Effect

Exogenous Variable	Direct	Indirect	Total
Pedagogic Competence	$0.241 \times 0.241 = 0.058$	$0.395 \times 0.387 = 0.153$	0.211
Professional Competence	$0.393 \times 0.393 = 0.154$	$0.235 \times 0.387 = 0.091$	0.245

Table 8 above shows the magnitude of the direct effect of pedagogic competence on students' learning achievement is 0.058 or 5.8%, the indirect effect through teachers' work motivation is 0.153 or 15.3%, and the total effect is 0.211 or 21.1%. For professional competence, the direct effect on students' learning achievement is 0.154 or 15.4%, and the indirect effect of professional competence on learning achievement through teachers' work motivation is 0.091 or 9.1%, and the total effect is 0.245 or 24.5%.

DISCUSSION

1. The Effect of Pedagogic Competence and Professional Competence on Teachers' work motivation

Based on the research results, pedagogic competence has a positive and significant effect on teachers' work motivation. The results of this study mean that if a teacher has the ability to manage students, it will be able to motivate the teacher and increase the teacher's motivation in achieving learning objectives. Efforts to achieve learning objectives are by implementing their pedagogic competences, such as understanding students, designing and implementing learning as planned, evaluating students' learning outcomes, and being able to facilitate students in developing their potential (Mulyasa, 2009: 75; Suyanto and Jihad, 2013: 41).

Based on the research results, professional competence has a positive and significant effect on teachers' work motivation. The results of this study mean that if a teacher masters the learning material he/ she teach in depth and has broad insight into issues related to the subject being taught, it will be

able to provide enthusiasm for work/ will be able to increase teacher's motivation in achieving learning goals. Effort to achieve learning objectives is by implementing professional competencies that are owned by the teacher, by using all the teacher's knowledge and insights regarding the subjects that are taught in the learning process so that learning objectives can be achieved (Suprihatiningrum, 2016).

2. The Effect of Pedagogic Competencies and Professional Competencies on Students' Learning Achievement

Based on the research conducted, it was found that pedagogic competence had a positive and significant effect on students' learning achievement, as well as professional competence which had a positive and significant effect on students' learning achievement. The results of this study are in line with the research conducted by Supovitz and Turner; Garet et al.; Huffman et al.; Ingvarson et al.; Smith & Gillespie; Yoon et al. in Golob which shows that when the teacher has more professional knowledge, the higher the achievement of students (2012). Furthermore, Mitkovska and Hristovska (2011) also state that the quality of education is very dependent on professional teacher competence, pedagogic competence, and the desire of teachers to continue to develop themselves. Self-development carried out by teachers as an effort to improve their competence as a teacher does not have a direct impact on the learning process, but this self-development will have an effect on teacher knowledge and insight, which will then have a positive effect on the learning process carried out by the teacher with students (Golob, 2012).

A teacher, who has pedagogic competence and implements it well, will be able to help students achieve good learning achievement. This is because a teacher will have the ability to manage students well, so that students can be facilitated in learning activities at school, and in the end students can achieve good learning achievements and learning objectives can be achieved.

A teacher who has professional competence, means that he/ she has the ability to master the learning material he is teaching, and has a broad insight into issues related to the field/ subject he is teaching. Mastery of deep material and broad insights in his field can be used by teachers to explain the material to students and be able to provide broad views and insights to students, so that students will also have broad insight as to what the teacher provides, and students will get material accompanied by in-depth explanations, and in the end will be able to have an effect on the learning achievement obtained by students. The description above is supported by statements from Sudjana, (2002); You, (2014); Bakar, (2018), which states that professional teachers will be able to carry out the learning process properly and correctly and will have an effect on students' achievement.

3. The Effect of Teachers' Work Motivation on Students' Learning Achievement

Based on the research conducted, it was found that teachers' work motivation had a positive and significant effect on students' learning achievement. The results of this study are supported by the statements of Bjekic, Vucetic, and Zlatic which state that low levels of teacher motivation have a

negative effect on student achievement (2014). The quality of education obtained by students is closely related to the quality of learning, and teachers' work motivation has a high influence on the learning process (Majid et al., 2010; Santisi et al, 2014; Bjekic, Vucetic, and Zlatic, 2014). A teacher who has work motivation will try harder to improve the learning process to be even better (Sharabyan, 2011).

The learning achievement of students is closely related to how the teacher works in the learning process. If a teacher has high motivation to work/ achieve learning goals, the teacher will try to improve his/ her competence in order to carry out good learning activities. If learning activities are carried out well, students will be able to achieve maximum learning achievement.

4. The Effect of Pedagogic Competence and Professional Competence on Students' Learning Achievement through Teachers' Work Motivation

The results showed that pedagogic competence had a significant effect on students' achievement through teachers' work motivation, as well as professional competence which had a significant effect on students' achievement through teachers' work motivation.

Pedagogic competence is the competence of teachers in the management of students' learning (Law Number 14 of 2005 on Teachers and Lecturers). Teachers' pedagogic competence can increase their motivation to work. Teachers' work motivation is also one of the external factors of students that will affect student achievement. Teachers' work motivation will influence teachers in carrying out their duties and obligations to become a teacher. The quality of education obtained by students is closely related to the quality of learning, and teachers' work motivation has a high effect on the learning process (Majid et al., 2010; Santisi et al, 2014; Bjekic, Vucetic, and Zlatic, 2014). If the teachers' motivation is high in learning activities, it will be able to contribute to the maximum learning achievement of students. Therefore, there is an indirect effect of teachers' pedagogic competence on economic learning achievement through teachers' work motivation.

A teacher who has broad insight and masters the subject matter, will be more confident and more prepared when carrying out the learning process with students. Teachers who have good professional competence can increase self-motivation at work. Learning achievement is the result of interaction between students and teachers in the learning process. Teachers' motivation in carrying out the learning process can also affect student achievement. Therefore, there is an indirect effect of teachers' professional competence on students' achievement through teachers' work motivation.

CONCLUSION

Based on the results of research and discussion, it is concluded that there is a positive and significant effect of pedagogic competence and professional competence on teachers' work motivation; there is a positive and significant effect of pedagogic competence and professional competence on students' learning achievement; there is a positive and significant effect of teachers' work motivation on student

achievement; and there is a significant effect of pedagogic competence and professional competence on student achievement through teachers' work motivation.

The results of this study imply that teachers should continue to improve pedagogic competence and professional competence in order to improve self-quality in facilitating students to achieve maximum achievement so that learning objectives can be achieved as determined. Further researchers are expected to be able to study more broadly about the factors that can affect students' learning achievement.

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