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Professional Competence of Vocational Teachers from the Graduates of Vocational Education Building Engineering Study Program UNNES

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Abstract: The fundamental factor that must be considered to face the competitiveness and productivity of labour in the era of globalization is the quality of human resources. Education is an effort to improve the quality of human resources. Teacher competency is one of the factors that influence the quality of students' human resources. This research aims to know the professional competence of teachers vocational building engineering. The subject of this research is a teacher building engineering graduates study program engineering education UNNES building in SMK in Central Java. The method of collecting data in this study is a questionnaire and documentation. The data analysis technique used is descriptive quantitative. The results of the technical study on the development of professional competence teachers SMK that has spread in some Vocational Schools in Central Java this is the peresentase 85.41%, is the result of a percentage of the average on each indicator the professional competence of teachers. The result of the indicator of mastery of the material is of 83.92%, an indicator of the ability of open lessons of 86.27%, an indicator of the ability to ask of 83.78%, an indicator of the ability of holding material in any kind of variation of 89.63%, the indicator clarity and presentation of material of 82.87%, an indicator of the ability to manage a class of 86.56%, an indicator of the ability to shut the lessons of 86.77, and and the accuracy between time and subject matter was 83.47%.

1 INTRODUCTION

The fundamental factor that must be considered to face the competitiveness and productivity of the world of work in the era of globalization is the quality of human resources. Education is an effort to improve the quality of human resources, so education is required to continue to improve quality and develop learning concepts that can provide significant results in improving skills or competencies.

The teacher is one component that must be considered in improving the quality of education, because in the context of teacher education has a very large role as described in Law number 14 of 2005 concerning teachers and lecturers, the understanding of teachers is professional educators who have the main task of educating, teaching, guiding, directing, training, evaluating and evaluating students in early childhood education through formal channels of primary and secondary education.

Teacher professional competence is the ability and special expertise that must be possessed by a teacher so that he is able to perform his duties and functions as a teacher with maximum abilities. Professional teacher productive competence. Based on this condition, this research was conducted with the aim of knowing the Professional Competence of Productive Teachers of Building Engineering Graduates of the UNNES PTB Study Program.

2. METHOD

The type of research used is descriptive quantitative. Research on Professional Competence of Productive Teachers on Building Engineering Study Program graduates at PTB UNNES to find out how much the

level of professional competence of technical teachers graduated from the UNNES PTB study program.

The method used is the method used is a questionnaire / questionnaire and documentation. The research was conducted at several vocational schools in Central Java including the SMK N 1 Kedungwuni, SMK N 1 Adiwerna Tegal, SMK N 1 Blora, SMK 2 Cilacap, SMK N 2 Kebumen, SMK N 2 Sragen, SMK Ganeshatama Boyolali, SMK Sunan Kalijaga, SMK N 1 Blora. The non-probability. The sampling technique in this study was carried out by nonprobability sampling technique, there is a saturated sampling technique, which is a sampling technique if all members of the population are sampled (Sugiyono, 2010: 124). This sampling technique is used when facing a relatively small population. The number of respondents in this study were 20 people who were alumni of the PTB UNNES study program from 2008 to 2011 with a total of 14 questionnaire questions, with the following assessment criteria:

Table 1. The Descriptive Criteria of the professional competence percentage

No	Interval	Relevance Level
1	84 % - 100%	Really understand
2	68 % - 67 %	Understand
3	52 % - 52 %	Slightly understand
4	36 % - 51%	Don't understand
5	20 % - 35%	Really understand

2.1 Test of Validity

Validity test in this study was performed by using item analysis that correlated the score of each item with a total score which is the sum of each item' score. If any item is not valid, then the item was not be further investigated. The criteria of validity according to Sugiyono (2010: 134) are as follows:

a. If $r \geq 0.30$, then the item of the questionnaire is valid,
b. If $r \leq 0.30$, then the item of the questionnaire is invalid.

Instrument validity test was performed using Pearson Product Moment according to Sugiyono (2010: 183) as follows:

$$r_{XY} = \frac{N\sum XY - (\sum X)(\sum Y)}{N\sum X^2 - (\sum X^2) \quad N\sum Y^2 - (\sum Y^2)} \quad (1)$$

where:
r_{xy} = Correlation Coefficient
N = Number of Sample
$\sum X$ = Total score of items for X variable
$\sum Y$ = Total score of items for Y variable
X = The score of each item
Y = Total score of items

Table 2. Instrument Validity Test Results

Variable	Indicator	Validity
Professional competence	The mastery of the subjects	Valid
		Valid
		Valid
	The ability to open the lesson in the class	Valid
		Valid
		Valid
	The questioning ability	Invalid
		Valid
		Valid
	The ability in creating variation in the class	Valid
		Invalid
		Invalid
	The clarity of explanation	Invalid
		Invalid
		Valid
	Classroom management	Valid
		Invalid
		Valid
	The ability to close the class	Valid
		Invalid
		Invalid
	The punctuality of the time and subjects	Invalid
		Valid
		Invalid

2.2 Reliability Test of the Instruments

Reliability test according to Riyadi 2000 (in Faisal Amri 2009: 35) is conducted to find out how consistent the results of the measurement are when measured twice or more against the same symptoms using the same instrument. Reliability

test was conducted using *Alpha Cronbach* (α) which was quoted from Ety Rochaety (2007: 54) with the following formula:

$$\alpha = \left(\frac{K}{K-1}\right)\left(\frac{s_r^2 - \Sigma s_i^2}{s_x^2}\right) \quad (2)$$

Where:
α = *Alpha Cronbach* Reliability Coefficient
K = Number of items
$\sum S^2 i$ = Number of variance score items
SX^2 = Variance test score

An instrument has a high degree of reliability if the value obtained is ≥0.60 (Imam Ghozali, 2002: 133). Therefore, the purpose of validity and reliability test of the questionnaire is to make sure that the questionnaire could really measure measuring symptoms and generate valid data.

Table 3. Instrument Reliability Test Results

Variable	Cronbach's criteria	Cronbach's Alpha	Information
Professional Competence	1.44	0.6	Reliable

3. RESULTS AND DISCUSSION

These results can be seen in the recapitulation of research results based on indicators of professional competency variables

Table 4. Professional Competence Variable Indicators

No	Variable	Indicator
1	The mastery of the subjects	Mastering the subjects of the study Developing the material for the learning process Explaining the aim of the learning process at the beginning of the class
2	The ability to open the lesson in the class	Greeting and praying before the class begins Motivating the class at the beginning of the class Reviewing the material to the students
3	The questioning ability	Giving explanation about the validity of students' answer Asking the students clearly by using proper language
	The ability in creating variation in the class	Using variation of the teaching method
4	The clarity of explanation	Conducting learning process outside the class
5	Classroom management	Creative conducive learning process Communicating effectively with the students
6	The ability to close the class	Conducting evaluation (written or oral) when closing the class
7	The punctuality of the time and subjects	Conducting the class as the time allotment

The recapitulation of the results of this study are as follows:

Table 5. The percentage of Professional Competence

No	Indicator	Percentage	Category
1	The mastery of the subjects	83.92%	Good mastery
2	The ability to open the lesson in the class	86.27%	Really good mastery
3	The questioning ability	83.78%	Good mastery
4	The ability in creating variation in the class	89.63%	Really good mastery
5	The clarity of explanation	82.87%	good mastery
6	Classroom management	86.56%	Really good mastery
7	The ability to close the class	86.77%	Really good mastery
8	The punctuality of the time and subjects	83.47%	Good mastery

Based on the results of research on Professional Competence of Building Engineering Productive Teachers, graduates of the State University of National Examination Study Program showed an average percentage level of 85.41%, meaning that the

professional competencies of PTB UNNES Study Program graduates could be said to be very mastering.

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