

The Contribution of the Vocational Teachers' Professional Competence toward Vocational High Schools' Performance

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Abstract - This research aims to determine the contribution of the vocational teachers' professional competence toward the Vocational High Schools' performance. This research is ex-post facto. Statistically, based on the data and analysis techniques, this research is descriptive quantitative. The population was all vocational teachers at Vocational High Schools in Surakarta. The sampling used proportional random sampling technique. The data collecting used questionnaires. While the data analysis technique used regression analysis between the independent and dependent variables. The calculation process and data analysis was performed by using Microsoft Excel and SPSS 15.0 for Windows. Conclusions of this study are: the level of the vocational high schools' performance is 74.29%, it's included in the high category; the vocational teachers' professional competence level is 77.39%, it's included in the high category; there is a positive contribution of the vocational teachers' professional competence toward the schools' performance with a correlation coefficient of 0.827, and the contribution was 68.50 % with the regression equation $Y = 79.803 + 0.497 X$.

Index Terms - vocational teachers, professional competence, schools' performance, national education standards

1. Introduction

In the field of adult education, some recent studies use field experiments to analyze the impact of training on wages [1]. Reference [2] mentioned that one of the vocational education characteristics is preparing the learners to enter the job field. Vocational and Technical education is for people youth and adults interested in preparing for and progressing in career in some type of satisfying and productive work.

Reference [3] while the Prosser theory stated that the effective vocational education can be done by giving assignment using the same methods, tools, and machines applied in the work place. Reference [4] said that schools must make them up in the following ways: first, the conducive work environment in doing the activities; second, the good relationship dynamic between internal institution and the external; third, the good leadership and coverage all parties; and fourth, the optimum usage of the technology, information, and communication in working.

Reference [5] the professional development of teachers is studied and presented in the relevant literature in many different ways. But always at the core of such endeavours is the understanding that professional development is about teachers learning, learning how to learn and transforming their knowledge into practice for the benefit of their students' growth. Good teachers according to reference [6] "the teacher must exhibit the authority of law, and this is

never arbitrary, but always calm and equitable. Rigid as maintainer of law, his judgements, and still more his penalties must yet lean to mercy's side. His manner must be direct, candid, sincere and friendly, yet, withal, suggestive of high purpose and unbending law. He must dominate his school as its presiding genius, its spiritual standard, its type of culture; and yet he must be a child among children, a boy among boys, a youth among youths".

Study about teachers' professional competence deal in general with how teachers learn and change by developing theory or applying theory to the discussion of teacher change [7], [8], [9], [10], [11]. They examine the personal processes that are involved in the various formats used for teacher learning, how teacher learning is researched and propose or discuss models of teacher professional learning [12], [13], [14], [15]. The main idea of these studies is to understand the processes whereby teachers change. While some are centred on conceptual analysis, others describe the approach with both qualitative and quantitative research examples. Teachers are the smart professionals, who can control class in every condition and adjust the students background, wise, obey the law, discipline, strict but loving. Good teachers will lead to the students successfulness, school and enhance the national education quality. In the reality, many teachers have lack of professionalism. According to several students' statements, they say that some teachers can not be open minded and welcome the students opinion, only few teachers give questionnaire to students related to the reflection of the teaching and learning quality. This is confirmed in what was earlier researched and reported: the new ways of teaching and learning are very demanding, because the teachers have no or very little experience in this field and more often than not are they unable to reflect on their own often outdated training [16].

The general director of Quality Improvement of Teachers and Education Personnel, The Indonesian Ministry of National Education in the speech of the Professor inaugural in Sebelas Maret University, March quoted by Kompas.com 12th November 2009 said that up to now there has been around 500.000 teachers passed the sertification, whereas the target should cover 2,7 million teachers [17]. It was said that the teachers motivation to join the sertification program was not only to identify their competence, however especially for the financial motivation.

Reference [18] being teacher is a profession, which means that the the teacher position needs special expertize as a teacher and it can not be done by anyone out of the education field. While reference [19] pointed to a job which require expertize, responsibility, loyalty to the profession.

Professionalism requires attitude, expertise or quality and someone professional. According to Law of the Republic of Indonesia, No. 14 Year 2005 on teachers and lecturers, teachers are profession and the professionals [20].

Reference [21] stated that a profession is skill and an authority in a certain position which requires certain competences (knowledge, behavior, and skill) specifically gotten from academic education intensively. According to Kunandar, at least there are three main pillar for a profession: knowledge, skill, and academic preparation.

A teacher profession is a profession which needs knowledge, skill, ability, expertise, and the seriousness to create learners to have such attitude expected [22]. A profession closes to someone's earn living in fulfilling the life need. That is why the teacher profession is an expertise and a special authority in education, teaching and training which is done to be the livelihood in fulfilling the life need. Based on the article 8 Law of the Republic of Indonesia, No. 14 Year 2005 on teachers and lecturers, a teacher must have the academic qualification, competence, teaching certificate, healthy in spiritual and physical and have ability to accomplish the objective of the national education [20].

According to reference [23] the term profession is a symbol from a job and become the job itself. Reference [24] concluded that effective teachers: have a positive attitude, develop a pleasant social and psychological climate in the classroom, have high expectations of what pupils can achieve, communicate lesson clarity, practise effective time management, employ strong lesson structuring, use a variety of teaching methods, use and incorporate pupil ideas, use appropriate and varied questioning.

While the unprofessional teachers described by Parry in reference [24] a teacher may demonstrate under-performance in a number of ways: inability to control the class, poor planning and preparation, poor subject knowledge, poor teaching, low expectations of pupils, poor relationships with pupils, poor relationships with colleagues, poor quality pupil learning and progress, lack of commitment to the work, inability or unwillingness to respond to change.

According to reference [25] in running the function and the role as the education facilitator, teacher needs to master the broaden knowledge, teaching strategy which meets the students need and situation, evaluate the learning process and the teacher and the students relationship as partner which build the knowledge.

Law of the Republic of Indonesia, No. 14 Year 2005 on teachers and lecturers, it is explained that a competence is a tool of knowledge, skill, and behavior that must be owned, contemplated and mastered by teachers or lecturers in running the professional task [20]. One of the competences is professional competence. The teacher professional competence is explained by National Education Standards Agency as "ability, capability, proficiency, qualification, eligibility, skill, and adequacy" which has meaning ability, proficiency, eligibility, skill, fulfill the requirement, smartness and expertise. According to reference [26] "the word competences ordinally defined as adequacy for a task or as possession of require knowledge, skills and abilities. In the broad sense it is clear that any mode of instructions aims".

According to reference [27] competence is an effort to do an action as a result from talent and training. Teacher's competency is "the ability of a teacher responsible to perform his or her duties appropriately" competence is a

teacher ability in running the responsibility properly. Based on reference [28] someone has competence in his/her field if he/she masters the capability and the work skill related to the required job. He/she has authority in the social service in society. The work skill is accomplished in a meaningful action, has social value and meets certain standard confessed by the professional group or the society serviced.

The teacher competence in teaching is very important because teacher is main component in determining the learning succeed at school. Reference [29] said "Competencies are spelled out in term of behavioral objectives before the student begins the teacher preparatory process. A student does not become a graduate until he or she can demonstrate all the required competencies. Competencies may range from recall and understanding of fact and concept, to advanced motor skill, to teaching behaviors and professional values".

Human of teacher candidates have not owned yet the expected behavior before the teacher candidates have a number of needed ability to be a teacher. Teacher candidates have not passed until they have a number of competence required. The competencies started from remembering and understanding the facts and the concepts until the advanced teaching skill and the teaching behaviour professionally. Like what is stated by reference [30] "in the competencies for teaching system, competency is used to describe professional ability, including both the ability to demonstrate acquired knowledge and higher level conceptualization".

The description of competence factor of professional teacher based on Government Regulation number 19 year 2005 about the National Education Standards [31] developed by National Education Standards Agency and determined by Regulation of the National Education Minister number 16 year 2007 about the academic qualification standards and teachers' competencies [32]. Professional teacher competencies are as follows: 1) mastering the material related to the field; 2) mastering the standart competence of the lesson taught; 3) being able to develop the teaching material; 4) being able to develop the professionalism continuity; 5) being able to use the technology and information.

Performance is ability measured based on the assignment done related to the job description. Reference [33] stated that performance is a succesful sign of an organization and the people inside the organization. Performance also can be said as the work achievement, work ability, and work productivity. Related to the work productivity, reference [34] said that the work productivity is the comparison between output and input. In other word, productivity has two dimensions. The first dimension is the effectivity lead to the optimum work achievement, it is the target reach related to the quality, quantity and time. The second dimension is the efficiency related to the effort of comparing input with the usage application or how the work done.

According to reference [35] productivity of organisation was effected by many factors, such as the opportunity of having education and additional training, the fair assessment of work achievement, rational dan objective, reward system and many factors. According to this opinion, basically the organization productivity effected by the work productivity of the organization member.

Talking about school, Indonesian Ministry of National Education made a definition about the school performance, school performance is school achievement produced by the

process/behavior of the school members. School performance can be measured from the quality, the effectiveness, the efficiency, the innovation, the work life quality and the moral work, in the relation with the output, it can be explained that the school output has high quality if the school achievement, especially the students learning achievement is high in the academic achievement such as the score of national exam and also the non academic achievement such as good behavior, honesty, politeness, sport, art, and other extracurricular activities [36].

Related to high school performance, reference [37] stated that “High-performance schools are those that continually improve their level of performance and efficiency with which they consume resources”.

A number of evaluation approaches have been traditionally used for performance measurement. Some of the common are management by objectives, graphic rating scales and narratives [38]. School performance assessment is an effort of capturing the headmaster leadership succeed and describing the profile objective condition at once holistically. School performance is the combination of performance from the school members and the assignment from the headmaster in the effort of increasing the school based education standard.

According to reference [39] “One reason for using multiple indicators of school performance is that some schools may perform better on one type of outcomes than another. This maybe especially true if the resources and practices required to raise performance in one area are different from those required in another area. For example, if teacher resources are more critical in raising test scores, but other resources are more critical in keeping students from dropping out, then school may have to choose where to focus scarce resources. Other contributors to school performance, such as academic climate, maybe effective in improving performance in all areas”.

Reference [39] believed that assessing the school performance needs not only one indicator, because it often happens that a school has high performance compared with others if it was assessed using certain indicator, whereas such indicator was not recognized by other schools in certain areas. So that it is necessary to measure the school performance using several indicators, called quantitative and qualitative measurement described the level achievement of target or objective mentioned, by calculating the input indicators, outputs, outcomes, benefits and impacts.

Reference [40] stated that performance appraisal basically is one of key factor to develop the organization effectively and efficiently. The appraisal must be based on the certain standart. Determining the succeed of a program is determined by the evaluation process done, because it becomes the integral part of the whole education program which can not be separated to reach the education objective.

Reference [41] revealed that “program evaluation is the process of systematically determining the quality of a program and how it can be improved” which can be said that the program evaluation is the systemic effort to determine the quality of a program and how the program can be increased.

Then reference [42] mentioned that “evaluation as a study designed and conducted to assist some audience to assess an object’s merit and worth”. This meaning is focussed on the four classification of evaluation program approach: 1) pseudo evaluations; 2) questions/Methods-

oriented approaches; 3) improvement/accountability-oriented; and 4) evaluations social agenda/directed models.

The questions of this research are as follows:

1. How is the schools’ performance degree of the Vocational High Schools?
2. How is the vocational teachers’ professional competence degree?
3. How is the contribution of vocational teachers’ professional competence toward the Vocational High Schools’ performance?

2. Methods

This study used a quantitative descriptive statistical analysis technique. The data was collected using questionnaires. The data has been collected and then tested using analysis requirements test. After having tested using the requirements analysis and then the data processed using regression analysis between the independent and dependent variables to determine the effect and the regression equation. The population of the study was all vocational teachers at the State Vocational High Schools in Surakarta. The dependent variable in this study was schools’ performance (Y). While the independent variable in this study is a vocational teachers’ professional competence (X).

Schools’ performance was assessed by the Indonesian Government Regulation, number 19 year 2005 on National Education Standards [31]. Professional competence was also assessed by the Indonesian Government Regulation number 19 year 2005 on National Education Standards [31] which was developed by National Education Standards Agency (BSNP) and determined by National Education Minister Regulation, number 16 year 2007 [32].

Sampling in this study was done by using proportional random sampling technique, which is the number of sampling was taken proportionally in each number of elements per unit of sample selection, then the selection of the sample units were selected random randomly. The sample selection was done by lottery.

The questionnaire instrument used the technique developed by Rensis Likert called Likert scale which contains five possible answers that are closed-ended questionnaire or enclosed questionnaire. Using the Likert scale, the variables measured were translated into an indicator variable, the indicator then used as a starting point to construct the instrument items which can be a statement or question. The instrument has been validated by several validators were then tested on 30 respondents. After the construct testing from the experts and based on empirical experience in the field was completed, it is continued by having the instrument test on a sample drawn from a population where the number of about 30 people.

To test the validity used product moment. And the reliability testing use split-half reliability. Instrument reliability test was done by internal consistency with the technique of split-half were analyzed with Spearman Brown formula [43]. Prior to the calculation of the Spearman Brown formula, firstly is finding a total score between odd and even groups and finding the correlation, then the correlation coefficient was included in the Spearman Brown formula as follows:

$$r_i = \frac{2.r_b}{1 + r_b} \quad (1)$$

- ri = internal reliability of all instruments
- rb = product moment correlation between the odd and even

Inferential statistics in the study was carried out by analyzing the data samples was taken randomly and the results were applied to the population. Reference [43] stated that on inferential statistics there were parametric and non parametric statistics, parametric statistics were used to test the population parameters statistically, while non parametric statistic were used to test the distribution. In this study the data analysis used parametric statistics which firstly held prior test requirements analysis, among others, normality, linearity and multi co linearity.

To test the hypothesis the researcher used the formula of product moment correlation from reference [44].

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}} \quad (2)$$

Where as:

- rx y = correlation coefficient between x and y
- $\sum xy$ = total product of x and y
- $\sum x^2$ = total squared of deviation x
- $\sum y^2$ = total squared deviation y

Then the score of rxy was matched with the table of product moment value and it can be concluded as follows:

- r count > r tab = there is effect between X and Y so that Ho was accepted
- r count < r tab = there is no effect between X and Y so that Ho was rejected

3. Results and Discussion

A. Description of Schools' Performance

The number of the questions/statements questionnaire were 32 pieces. Schools' performance criterion (100%) is the score of (32x5=160). Total criterion (100%) from all the respondent is (160x251=40160). The value of schools' performance is 29837 or 74,29%. The data on the schools' performance was presented in the form of a frequency distribution of the schools' performance scores in table 1 which shows that 8 respondent or 3.19% of respondents stated the schools' performance was low, 53 respondents or 21.12% of respondents said the schools' performance was average, 105 respondents or 41.83% of the respondents stated that the schools' performance was high, and 85 respondents or 33.86% of the respondents stated that the schools' performance was very high.

TABLE 1. CATEGORY OF SCHOOLS' PERFORMANCE SCORE

Category	Range score	Freq	Percentage (%)
Very low	≤ 64.00	0	0.00
Low	64.01 - 85.33	8	3.2
Average	85.34 - 106.67	53	21,1
High	106.68 - 128.00	105	41,8
Very high	> 128.00	85	33,9
Total		251	100.00

Source : the result of data analysis

The percentage of schools' performance category in table 1 above can be interpreted that most respondents

stated that the performance of Vocational High School in Surakarta was in the high category.

B. Teachers' Professional Competence

Teachers' Professional Competence variable data was obtained from the questionnaire distributed to the respondents with the number of items was 23 pieces (23x5=115). Total criterion (100%) from all the respondent is (115x251=28865). The value of schools' performance is 22338 or 77,39%. Based on the results of data tabulation and data analysis it can be seen that the highest value was 115 and the lowest score was 23. The Median was 69 and a deviation standard was 15.33. Then, the data on teachers' professional competence was presented in the frequency distribution score of the vocational teacher empowerment as follows:

TABLE 2. QUESTIONNAIRE CATEGORY SCORE OF VOCATIONAL TEACHERS' PROFESSIONAL COMPETENCE

Category	Range score	Freq	Percentage (%)
Very low	≤ 46.00	0	0.00
Low	46.01 - 61.33	3	1,20
Average	61.01 - 76.67	46	18,3
High	76.68 - 92.00	111	44,2
Very high	> 92.00	91	36,3
Total		251	100.00

Data Source: the result of data analysis

Table 2 above showed that 3 respondents or 1.2% of the respondents said the teachers' professional competence was low, 46 respondents or 18.3% of the respondents reported that the teachers' professional competence was average, 111 respondents or 44.2% of the respondents reported the teachers' professional competence was high, and 91 respondents or 36.3% of the respondents stated that the teachers' professional competence was very high.

C. Test of Analysis Requirements

Test of normality data, Triton PB (2006: 46) stated that the ratio value of skewness lied between -2 to 2, the data was assumed to be normally distributed.

TABLE 3. THE SUMMARY OF NORMALITY TEST RESULT

No	Variable	Skewness	Curtosis	Conclusion
1	Y	0.265	0.430	Normal
2	X	0.132	-0.320	Normal

Based on the results obtained in the table above, it appears that the variables Y and X, respectively have skewness ratio of 0.265 and 0.534. While the curtosis ratio value of 0.132 and -0.320 curtosis. Thus it can be concluded that the schools' performance data (Y), and teachers' professional competence (X) is normally distributed for each ratio value between -2 to 2. So that, the method used is the parametric statistics.

The linearity test was done by looking at the analysis results on the deviation from linearity line. If the significance value on the deviation from linearity lane was > 0.05 then it can be concluded that the relationship between independent variables and the dependent variable was linear.

Conversely, if the significance value on the deviation from linearity was <0.05 , it can be said that the relationship between independent variables and the dependent variable was not linear. Based on the linearity test result with the help of the SPSS computer program version 15.0, it showed that the relationship between the independent variable X to Y as the dependent variable had a linear relationship. The summary of linearity test results were presented in Table 4.

TABLE 4. THE SUMMARY OF TEST LINEARITY RESULT

No	Variable	F Deviation from Linearity	P>0,05	Conclusion
1	X - Y	1,320	0,133	Linear

From the table above it appeared that the relationship between Y and X variable had a value of F (deviation from linearity) 1.320, F value is smaller than 1.9. While the relationship between (Y) - (X) has a p-value greater than 0.05 ($p>0.05$) was 0.133.

D. Analysis of the Research Data

Data analysis was aimed to examine the effect of independent variables of vocational teachers' professional competence (X) toward the schools' performance (Y) as the dependent variable. After testing analysis requirements for statistical parametric fulfilled, then the research data will be tested using analysis techniques of hypothesis testing using regression analysis.

Linear regression analysis was performed to determine the effect of the independent variable toward the dependent variable. The criteria used was based on the probability value (p value). If the value of $p < 0.05$ it means there was influence between independent variables and the dependent variable. Conversely, if the value of $p > 0.05$, we conclude there was no influence between independent variables and the dependent variable. Besides, the decision may be made by comparing the value of counting statistic (t) with values of Table Statistics (t table). If the counting statistics $t < t$ Statistics Table, as a result H_0 was accepted and conversely, if the t statistics $>$ Statistics Table, it means that H_0 was rejected.

The results of simple linear regression analysis between independent variables and the dependent variable was presented in table 5 below.

TABLE 5. SUMMARY OF REGRESSION ANALYSIS

No.	Variable	r-partial	Effective contribution (%)	t counting	p<0,05
1.	X	0,827	68,5	23,25	0,000

Based on the table above it can be concluded that the correlation coefficient of vocational teachers' professional competence (X) $r = 0.827$ is positive, $0.000 p < 0.05$, while $t = 23.250 > t$ table 1.97 it can be concluded that teachers' professional competence variables influence positively to the schools' performance variables. The determination coefficient or the effective contribution of teachers' professional competence variables on the performance of schools is 68.50%, which means that 13.5% of the schools'

performance is determined by other factors beyond the vocational teachers' professional competence factors.

Based on the results of the regression analysis and hypothesis testing it can be concluded that vocational teachers' professional competence variables (X) gives a positive and significant contribution to the performance of Vocational High Schools. This is proven by the number probability of 0.000, or below 0.05 and a correlation coefficient of $r = 0.827$ is positive, which means that there are positive and real influence of vocational teachers' professional competence toward the performance of Vocational High School. The determination coefficient or effective contribution variables of vocational teachers' professional competence toward school performance is 68.50%, which means that 13.5% of the schools' performance is determined by other factors than the factor of teachers' professional competence. From the description of the research data, it can also be explained that scores of teachers' professional competence is high enough 22338 or 77,39% with a very high distribution score = 36,3%, high = 44.2%, Average = 18.3%, Low = 1.20 %. Teachers' professional competence is the conclusion of the knowledge, skills, and basic values held by teachers and are reflected in the habits of thinking, attitude, acting in his work, in accordance with the performance standards required in the field.

TABLE 6. SUMMARY OF REGRESSION ANALYSIS COEFFICIENTS

Model	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	79.803	1.499		41.440	0.000
X	0.497	0.021	0.827	23.247	0.000

From the table above it is clear that there is a positive influence of vocational teachers' professional competence toward the vocational high schools' performance based on the Education National Standards of Indonesia with a correlation coefficient of 0,827, and a contribution of 68.5 %. And from the analysis, can be conclude that the regression equation is $Y = 79.803 + 0.497 X$.

4. Conclusion

At the end of this study so much that has been studied and written on teacher professional competence based on Indonesian Government Regulation number 19 year 2005 on National Education Standards, on the results and discussion of the data analysis, it can be concluded that: The vocational high school performance level was 74.29% including in the high category, with a score of 119 from the high range category between 106.68 to 128.00.; The vocational teachers' professional competence level was 77,39% including in the high category, with a score of 89 from the high range category between 76.68 to 92.00.; There was a positive contribution between vocational teachers' professional competence and vocational school performance, evidenced by the number probability of 0.000, far below 0.05, while $t = 23.247 > t$ table 1.97 and a

coefficient correlation of 0.827 is positive, the effective contribution of 68.50%.

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