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The Contribution of Teacher's Digital Competency to Teacher's Professionalism at Vocational High School

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Teacher professionalism is the ability of teachers to perform basic tasks as educators. The teaching profession as educators faces challenges that require a new set of competencies and broader competencies. The development of science and technology has changed many things and in various fields are switching in digital technology. The study aimed to analyze the contribution of teacher's digital competency to teacher's professionalism at vocational high school. This study was ex-post facto research, and The data were collected using a questionnaire with the content validity testing used construct validity. The research subjects were 33 teachers from 3 vocational high schools in Sleman Regency. Samples were determined using proportional random sampling. Data analysis techniques used in this study are descriptive analysis techniques and regression methods. The result of this study showed that the digital competency and professionalism of teachers were in the high category. Teacher's digital competency had a positive and significant contribution to teacher's professionalism, with the value of contribution was 16,5%, while 83,5% was explained by the other variables that do not investigate.

Keywords **:** ***Teacher's digital competency, teacher's professionalism, vocational high school.***

I. INTRODUCTION

The competitiveness ability of Indonesian human resource take the position in the rank 36 in the world. This position under Thailand in rank 32, Malaysian in rank 23, and Singapore in the third position [1]. Based on this data, show that the quality of human resource of Indonesian people under the Malaysian, Thai, and Singapore people, so it must be improved in order to be competitive in the international rivalry. The improvement of competitiveness ability at the international level need to do because the increase of the ability to compete will raise the economic field.

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This economic strengthening will create Indonesia more fair, wealth, and prosperous. The Indonesian competitiveness ability rank in the global level that under some countries in the ASEAN community is caused by some factors. One of them is the problem in the education field in Indonesia. Education as an essential component in a country and education quality will determine the quality of human resource of the country. The better quality of education will determine the level of the quality of human resources. Based on the measurement of the quality of human resource development or Indonesian's education quality that was conducted by Asian Development Bank (ADB), in the 2013, the quality of human resource development in the 108 position [2]. The position shows that the quality of education in Indonesia still low and need to enhance. The result of measurement to the Indonesian student ability in a measurement program of international student showed that the ability of Indonesian student took place in the 38 position on Mathematic subject and in the 40 position on the International Science test from 45 countries, and took place in the 42 position from 45 countries in the International Improvement Reading Study. The 15 years student in Indonesia also got the value under the standard in that measurement program of international student. [3]. The less quality of Indonesian student caused by the problem in the private and public school in the primary and secondary level in Indonesia that left behind in the some accomplishment in some minimum attendance standard, including the size of class, textbook and learning resource, science laboratory, learning tools, and specialization teacher [3].

Indonesia's education problems do not only occur in the quality of primary education and general education but also vocational education. Vocational education graduates in Indonesia who entered the world of work only have little practical skill. Based on the survey data that was conducted to the entrepreneur in Indonesia showed that only 10% of labor has excellent performance in their work, while 77% labor, the performance needs to be improved. In the vocational education, the quality of private school in Indonesia low and need to be strengthened [3]. From that survey showed that the quality of vocational education in Indonesia has not capable yet of producing competitive labor to fill the industry need to the expert labor force. Based on the measurement before, the cause Indonesian labor force had skill under the skill of labor force from some countries was teacher in Indonesia was not completed with the skill to help them more progressive (thejakartapost.com).

In the new observation about education policy, Organization for Economic Cooperation and Development (OECD) explain that the quality of teacher who less competence in Indonesia was the critical reason which caused the less education quality in Indonesia. Based on the general secretary of OECD opinion, Angel Gurria, the low skill level must obstruct the establishment and the development of science and technology [4].

The teacher's quality and professionalism did not work maximally. Many teachers have low quality and explain the wrong learning material, so they did not feel capable yet to present and arrange the education process with their quality [5].

In Sleman Regency, the teacher's digital competency has not been yet be the priority in the teacher's professional development. The teacher development just conducted in pedagogic competence, professional competency, social competency, and personality competency. Whereas, the challenge in education developed, so its need for the development of teacher's professionalism during the globalization challenges.

Teacher as a profession to educate students in the education field face the different requirements that change fast. This condition needs new, comprehensive, and more advance competency from the former. The development of science and technology have changed many things. Some many devices and applications change to digital technology.

The role of teacher as an educator that teaches student to prepare the qualified human resource must contribute in the digital era development and change. So this era need educators who can enhance their digital competency.

The teacher's digital competency is a scientific framework that describes the meaning of a teacher to be competence digitally [6]. The teacher's digital competency not only be oriented to the teacher in the formal education but also in every education degree from primary education until the higher and adult education, including general and vocational training education, special needs education, and non-formal education context.

Digital competency as one of eight main competencies that have determined by European Commission [7]. In this research, the digital competency was underlined in the base competence of digital technology use.

This competency can be broadly defined as a confident, critical, and creative of ICT use to reach the goal that related to the work, work worthiness, learning, recreation, inclusion and the participation in the society [7].

II. METHOD

A. Research Type

The research used a quantitative approach with ex post facto research type. The research was conducted in three vocational high schools located in Sleman Regency. The subject of this research was the vocational high school teachers from three schools in which its number was 33 teachers.

This research was conducted by a dependent variable and an independent variable. The dependent variable was the teacher's digital competency, and the independent variable was the teacher's professionalism. The research framework can be seen in the following picture.

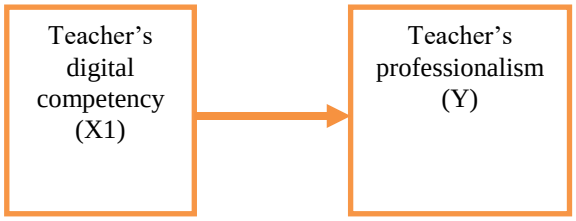

Figure 1. Research Framework

B. Data, Instrument, and Data Collection

Data was collected by questionnaire. This instrument was used to collect data about the teacher's professional competence and teacher's professionalism.

Instrument validity showed how the instrument capable of measuring the research variable correctly. Instrument validity that have been used in this research was to construct validity. The got the result of construct validity; this research used empirical test through factor analysis. This analysis correlated instrument's item with the research variable, then calculate t value. When tvalue > ttable so the items in the instrument were valid. On the contrary, when ttable > tvalue so the instrument's item were not valid [8].

C. Data Analysis

Data analysis used descriptive and regression analysis. Descriptive analysis was used to know the representation of teacher's digital competence and professionalism while the regression analysis was used to know how the contribution of teacher's digital competency to teacher's professionalism.

Before regression analysis has been done, first, we must do a precondition test, that was normality test with One Sample Kolmogorov-Smirnov test and linearity test with Test For Linearity.

Figure 2. Research Framework

III. RESULTS AND DISCUSSION

A. Teacher's Digital Competency

The research instrument on the teacher's digital competency consisted of 15 questions. The result of descriptive analysis were obtained that the score range from 15 until 60, the value of mean (M) was 50,63; the median (Me) value was 51,00, the modus (Mo) was 59,00, ideal mean (Mi) was 37,5, and the value of ideal standard deviation (SBi) was 7,5. Based on that data description can be concluded that the description of the teacher's digital competency can be seen in the following picture.

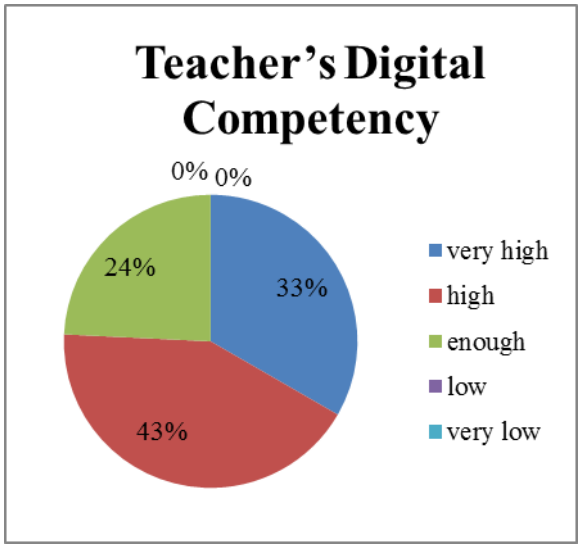

Figure 2. The Distribution Result of Teacher's Digital Competency

B. Teacher's Professionalism

The instrument statement of teacher's professionalism consisted of 10 valid statements. The result of descriptive analysis was gotten in the following data. The mean (M) of data was 32,21, the median (Me) value was 32, the modus (Mo) value was 27, the value of ideal mean (Mi) was 25, the value of ideal standard deviation was (SBi) was 5. Based on that analysis so we can conclude that the description of the teacher's professionalism can be seen in the following picture.

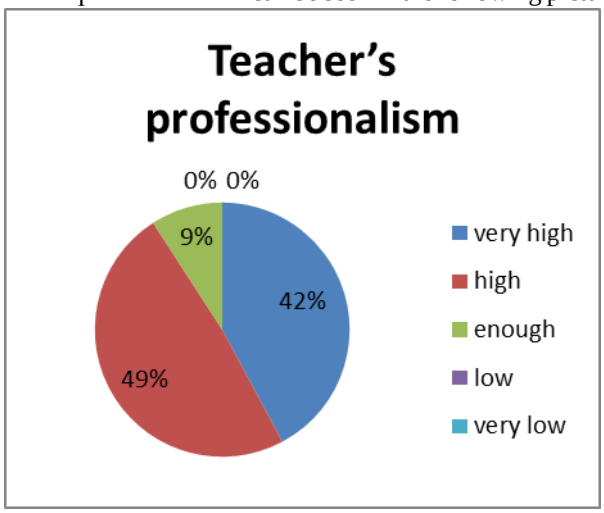

Figure 3. The Distribution Result of Teacher's Professionalism

C. Regression Analysis

Before using regression analysis, first, we used precondition test that consisted of normality test and linearity test. The result can be seen in the following table:

Table 1. Data Normality Test's Result

Variable	Asymp. Sig	Ket
Teacher's digital competency	0,778	Normal
Teacher's professionalism	0,688	Normal

Decision-making criteria were when significance value Asymp. Sig (2tailed) showed the value more than 0,05 so the data can be defined as a normally distributed data.

Table 2. Data Linierity Test's Result

Variable	Defiation from linierity
Teacher's digital competency	0,135
Teacher's professionalism	0,211

Based on the result of the test for linearity in the table above can be seen that the independent table have a linear correlation with deviation value from linearity more than 0,05.

D. Result

The result of the regression analysis teacher's digital competency to their teacher's professionalism was gotten as many as the value of t_{value} was 2,500, with its significant was 0,018. Based on this result can be known that t_{value} (2,500) < t_{table} (1,6924) and the significance value was 0,018, smaller than 0,05. The value of standardized coefficient beta was positive, that was 0,339. It showed that the digital competence of teacher give the positive contribution and significant to the teacher's professionalism. Based on the analysis of the result showed that the R has a positive value, that was 0,191, and adjust R square = 0,165. Based on the value of adjust R square, it can be known that the digital competency can explain 16,5 % of teacher's professionalism, while 83,5% can be explained by the other variables that have not been searched. The regression equation was on the below.:

$$Y= 14,874+0,325$$

IV. CONCLUSION

Based on the result of data analysis and discussion can be concluded that the result of descriptive analysis showed that the teacher's digital competence was high, and the teacher's professionalism was also high.

The regression's result showed that the value of $\beta = 0,437$; $t_{value} = 2,500$ and the significant = 0,018, so can be concluded that there were positive and significant contribution from teacher's digital competency to teacher's professionalism.

The result of this result can give a contribution to the college's student that will do similar research, school, education department, and other related educational institutions. The suggestion that can be shared from this research were: (1) education department and school need to increase the activity about the teacher's digital competency, so it's can help and enhance the teacher's professionalism; (2) Need to do the deeper research about some factors both internal and external that potential to the teacher's professionalism. Location and the number of potential sample can influence the quality of the teacher's professionalism.

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