The influence of work knowledge and industrial practice experience to learning motivation

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Abstract. This study aimed to find out the influence of work knowledge and industrial practice experience to students’ learning motivation. This study was an associativ e research with quantitative approach. The samples were decided by cluster random sampling technique. Closed-questionnaires were used to collecting the datas. Then by descriptive analysis and regression analysis technique the data were processed. The results showed there was no positive and significant influence between work knowledge and learning motivation, shown by $t_{count}=0.081 < t_{table}=2.069$ with regression equation $Y = 45.926 - 0.010X_1$. There was no positive and significant influence between students’ industrial practice experience and learning motivation shown by $t_{count}=1.056 < t_{table}=2.069$ with regression equation $Y = 37.464 + 0.151X_2$. The world of work knowledge and industrial practice experience also did not influence positively dan significantly to students’ learning motivation simultaneously, shown by $F_{count}=0.618 < F_{table}=3.39$ and the regression equation $Y = 38.171 - 0.080X_1 + 0.191X_2$.

1. Introduction
The current condition of the world of work that is full of uncertainty, a person is required to be able to construct and adapt knowledge, attitudes, and skills in accordance with preaching and the context at hand becomes very vital [1]. This is a challenge for vocational education to be able to prepare human resources who have the ability to work and develop in the future.

Reality shows the results of Vocational High Schools graduates are not as expected. Apart from many who are unemployed, it turns out there are still many graduates who do not reach the competency standards required by employment. The Open Unemployment Rate in Indonesia as of February 2018 amounts to 6.87 million people or 5.13%. The percentage of unemployed graduates of Vocational High Schools is 8.92%.

Student success in learning is determined by many factors, one of which is learning motivation. Motivation is a complex part of human psychology and behavior that influences how individuals choose to invest their time, how much energy they exert in any given task, how they think and feel about the task, and how long they persist at the task. It reflects in students’ choices of learning tasks, in the time and effort they devote to them, in their persistence on learning tasks, in their coping with the obstacles they encounter in the learning process [2]. High and low motivation to learn can be seen from the attitudes shown by students during the implementation of teaching and learning activities such as interest, enthusiasm, responsibility, pleasure in doing assignments and reactions shown by students to the stimulus given by the teacher [3]. The students’ high learning motivation creates a conductive learning environment which influences on the acquisition value (achievement) [4].
Many Vocational High Schools students have not yet found a compelling reason to study at a Vocational School. The majority only answered so that after graduating from school they could work easily. This shows that students have not yet found motivation to study at Vocational High Schools. Student enthusiasm and student initiative to explore knowledge about the world of work are also still low. Not many students know what kind of work the expertise program can do.

Learning is a set of cognitive processes that change the nature of environmental stimulation, passing information processing and become the new capabilities [5]. Industrial Practice Activities for vocational students only take place when students are already in class XI, after students have taken a total of 3 semesters of learning. During that time students also did not get real working experience and did not know the real world of work. Therefore, it is not surprising if the student still imagines that what happens in the world of work is what he experiences in the practice workshop activities at school.

In addition, students have a low attendance rate. Classroom learning activities are not conducive. Furthermore, some teachers complained of students who were quickly discouraged in facing difficulties and were not eager to follow the lesson. Student responsibility for assignments or homework is also low. This problem also occurs in practicum activities in the workshop. In teaching and learning process, students need learning motivation for their spirit in their study [6]. Motivation to learn is a competence acquired through general experience that is predominantly stimulated through modeling, communication of expectations, and direct instruction or socialization by significant others [7].

Suggests learning activities, motivation can be said as the overall driving force in individuals who cause learning activities, which ensures the continuity of learning activities, and which gives direction to learning activities, so that the desired goals will be achieved [8]. The cognitive flow of motivation theory states that motivation is the hope and belief of individuals and their efforts to understand how the environment works. Within the scope of vocational education, it can be related that the motivation of vocational students is an effort in understanding the world of work, as vocational students are educated and trained to be part of the workforce as human resources/workers.

On the other hand, the flow of behaviorism states that motivation is focused on changes in behavior that are the result of experience with the environment. The link with vocational education is that vocational student motivation can be seen from changes in behavior and mindset after experiencing an event or vocational event. Based on the explanation above, it is necessary to conduct research in order to determine the effect of working world knowledge and experience of industrial practice on student motivation.

2. Methods
This research uses a quantitative methodological approach. The study population was 54 students. The sample is determined by the Cluster Random Sampling technique with a sample of 50% students per class. This research begins with observation to find the problem. Then arrange the theoretical basis, determine the sample, determine the time of research, and make instruments. Retrieval of data used was a closed questionnaire with 51 question items. This instrument answer option uses a Likert Scale with four alternative answers.

Validity testing uses the expert judgment method then the instrument is tested on a sample from which the population is taken. The data that has been obtained is then processed using descriptive analysis techniques to provide an overview of the object under study through the presentation of data. Hypothesis testing is performed using regression analysis techniques with prerequisite tests of normality test analysis, linearity test, multicollinearity test, and heteroscedasticity test.

3. Results and Discussion
With the number of respondents as many as 27 children, we obtained data with a maximum score = 63 and a minimum score = 41. Data distribution of the working world knowledge variables are presented in table 1. Based on the analysis of the description, it is obtained an average = 48.52, median = 48.00, and mode = 42, and standard deviation = 6.091. The categorization of histograms of work knowledge
variables is shown in figure 1. Figure 1 shows the tendency knowledge of the work from 27 students 51.85% of them, or as many as 14 students, already have high knowledge of the work. Meanwhile, 48.15%, or as many as 13 students, are still relatively low.

**Table 1. Frequency distribution of the world of work knowledge**

| Interval | Lower limit | Upper limit | Freq. |
|----------|-------------|-------------|-------|
| 41 – 44  | 40.5        | 44.5        | 9     |
| 45 – 48  | 44.5        | 48.5        | 5     |
| 49 – 52  | 48.5        | 52.5        | 8     |
| 53 – 56  | 52.5        | 56.5        | 1     |
| 57 – 60  | 56.5        | 60.5        | 2     |
| 61 – 64  | 60.5        | 64.5        | 2     |
| **Sum**  |             |             | **27**|

**Figure 1.** Histogram categorizing work knowledge variables.

With the number of respondents as many as 27 students it is obtained that the maximum score is 66 and minimum score is 46. Data on the spread of industry experience variables is shown table 2. Based on the analysis of descriptions, it is obtained that the average score is 56.53, median score is 53, mode score is 50 and standard deviation is 4.877. The histogram for categorizing knowledge variables in the world of work is shown in figure 2. The figure shows the trend level of industry practice experience variables of 27 students is 88.89% of them, or as many as 24 students, are classified as high. Then, 11.11%, or as many as 3 students, already have very high working knowledge.

**Table 2. Frequency distribution of industrial practice experience.**

| Interval | Lower limit | Upper limit | Freq. |
|----------|-------------|-------------|-------|
| 46 – 49  | 45.5        | 49.5        | 4     |
| 50 – 53  | 49.5        | 53.5        | 11    |
| 54 – 57  | 53.5        | 57.5        | 7     |
| 58 – 61  | 57.5        | 61.5        | 2     |
| 62 – 65  | 61.5        | 65.5        | 2     |
| 66 – 68  | 65.5        | 68.5        | 1     |
| **Sum**  |             |             | **27**|
Figure 2. Histogram for categorizing industry practice experience variables.

With the number of respondents as many as 27 children it is obtained that the maximum score is 62 and the minimum score is 40. Data distribution of learning motivation variables are shown in table 3. Analysis of the data description showed an average = 46.63, median = 45, mode = 45, and standard deviation = 5.138. The categorization of learning motivation histograms is shown in figure 3.

Table 3. Frequency distribution of learning motivation.

| Interval | Lower limit | Upper limit | Freq. |
|----------|-------------|-------------|-------|
| 40 – 43  | 40.5        | 43.5        | 5     |
| 44 – 47  | 43.5        | 47.5        | 13    |
| 48 – 51  | 47.5        | 51.5        | 6     |
| 52 – 55  | 51.5        | 55.5        | 1     |
| 56 – 59  | 55.5        | 59.5        | 0     |
| 60 – 63  | 59.5        | 53.5        | 2     |
| Sum      |             |             | 27    |

Figure 3. Histogram categorizing learning motivation variables.

The figure shows the tendency of learning motivation of 27 students is 7.41% of them, or as many as 2 students, are still low. Meanwhile, 85.18%, or as many as 23 students, already have high working knowledge. Then, by 7.41%, or as many as 2 students, are already in the very high category.

Normality test is done twice because in the first test found outlier data or extreme value data that is data numbers 14 and 20. Data on these numbers are omitted and not used for further tests. A summary of the results of the linearity test is shown in table 4. Asymp.Sig value test is greater than the value of $\alpha = 0.05$ then the data distribution is stated to meet the assumption of normality.
Table 4. Normality test results

| Variable                     | Asymp.Sig | Sig (a=5%) | Result   |
|------------------------------|-----------|------------|----------|
| Work of knowledge            | 0.200     | 0.05       | Normal   |
| Experience of industrial practice | 0.200     | 0.05       | Normal   |
| Learning motivation          | 0.101     | 0.05       | Normal   |

Linearity test is done by comparing the price $F$. The correlation between the independent variables with the dependent variable in this study is linear with the price $F_{\text{count}} \leq F_{\text{table}}$ as shown in table 5.

Table 5. Linearity test results.

| Variabel                        | $F_{\text{count}}$ | $F_{\text{table}}(0.05)$ | Result   |
|---------------------------------|---------------------|---------------------------|----------|
| Work of knowledge               | 1.642               | 2.82                      | Linear   |
| Experience of industrial practice | 1.481               | 2.65                      | Linear   |

Multicollinearity test is done by calculating the value of $r$ Product Moment the relationship between independent variables. Regression analysis can be continued if there is no multicollinearity between independent variables with the condition that the price of intercoleration between independent variables < 0.60. Obtained correlation coefficient between independent variables is 0.427 < 0.600, so that conclusions can’t be drawn multicollinearity of variables.

The Hypothesis I test was conducted to prove the influence of working world knowledge on learning motivation using simple linear regression analysis. The summary of the results of the regression analysis is shown in table 6.

Table 6. Results of linear regression $X_1$-$Y$.

| Data Name                        | Score   |
|----------------------------------|---------|
| $r$                              | 0.017   |
| $r^2$                            | 0.000   |
| Constant Coefficient             | 45.926  |
| Coefficient of Work Knowledge    | -0.010  |
| $t_{\text{hitung}}$              | -0.081  |
| $p$-value (a = 5%)               | 0.936   |

From the table, it is known that the correlation coefficient ($r_{X_1,Y}$) is 0.017. The price of $r_{X_1,Y} > 0$ shows that between the working world knowledge variable and learning motivation a positive relationship occurs. The coefficient of determination ($r^2_{X_1,Y}$) is obtained at 0.00 or 0.0%, which means the work knowledge variable does not have an influence contribution to learning motivation. Significance testing shows the influence of the work knowledge on student motivation is not significant, evidenced by the value of $t_{\text{count}} = -0.081 < t_{\text{table}} = 2.069$. Therefore, Ho who stated "There is no positive and significant influence between the work knowledge and the learning motivation in students" was accepted and Ha was rejected. The regression line equation obtained is $Y = 45.926 - 0.010X_1$, which means that when each variable of the working world knowledge ($X_1$) = 0, the learning motivation variable (Y) will be at a score of 45.926. Then, when $X_1$ increases by 1 unit, the variable Y will decrease by -0.010 units.

The Hypothesis II Test was conducted to prove the influence of industry practice experience on learning motivation using simple linear regression analysis. The summary of the results of the regression analysis is shown in table 7.
Table 7. Results of linear regression $X_2$-$Y$.

| Data Name                    | Score   |
|------------------------------|---------|
| $r$                          | 0.215   |
| $r^2$                        | 0.046   |
| Constant Coefficient         | 37.464  |
| Coefficient of Industrial Practice Experience | 0.151   |
| $t_{\text{hitung}}$         | 1.056   |
| $p$-value ($a = 5\%$)        | 0.302   |

The value of $r_{X_2Y} > 0$ shows the relationship between the variables of industry practice experience and positive learning motivation. The coefficient of determination ($r^2_{X_2Y}$) obtained is 0.046, which means that the variable of industry practice experience has an influence contribution of 4.6% with the remaining 95.4% determined by other variables. Significance testing shows the effect of industry practice experience variables on student learning motivation is not significant, as evidenced by the $t_{\text{hitung}} = 1.056 < t_{\text{table}} = 2.069$. Therefore, Ho who stated "There is no positive and significant influence between the experience of industrial practice and learning motivation in students" was accepted and Ha was rejected. The regression line equation obtained is $Y = 37.464 + 0.151X$, which means that if the variable of industry practice experience ($X_2$) = 0, student motivation ($Y$) is at 37.464 units. Then, when each variable $X_2$ increases by 1 unit, the $Y$ variable will increase by 0.151 units.

The hypothesis III test was conducted to prove the influence of work knowledge and experience of industrial practice on learning motivation using multiple regression analysis. The summary of the results of the regression analysis is shown in table 8.

Table 8. Results of linear regression $X_1X_2$-$Y$.

| Data Name                  | Score   |
|----------------------------|---------|
| $R$                       | 0.246   |
| $R^2$                     | 0.061   |
| Constant Coefficient      | 38.171  |
| Coefficient of Work Knowledge | -0.080 |
| Coefficient of Industrial Practice Experience | 0.191   |
| $F_{\text{hitung}}$       | 1.711   |
| $p$-value ($a = 5\%$)     | 0.302   |

From the known relationship between the work knowledge and industry practice experience on learning motivation, the value of the correlation coefficient ($R$) = 0.246 is positive because $R > 0$. The coefficient of determination ($R^2$) obtained is 0.061, which means the variable of the work knowledge and experience of industry practice in together have an influence contribution of 6.1% with the remaining 93.9% determined by other variables. Significance testing shows the effect of the work knowledge variable and experience of industrial practice on student learning motivation is not significant, evidenced by the value of $F_{\text{count}} = 0.711 < F_{\text{table}} = 2.069$. Therefore, Ho who stated "There is no positive and significant influence between the work knowledge and the experience of industrial practice on the motivation of students" was accepted and Ha was rejected. The regression line equation obtained is $Y = 38.171 - 0.080X_1 + 0.191X_2$. The equation can be interpreted that if the work knowledge variable ($X_1$) and the industry practice experience variable ($X_2$) are both assumed = 0, then student motivation ($Y$) is at a value of 38.171 units. When variable $X_1$ increases by 1 unit and assumes $X_2 = 0$, variable $Y$ will decrease by -0.080 units. Then when variable $X_2$ increases by 1 unit and assumes $X_1 = 0$, $Y$ variable will experience an increase of 0.191 units. 
In testing hypotheses 1, 2, and 3 there is a type II error where the decision taken is to accept Ho and reject Ha through the significance test. Significance test error to prove the hypothesis can be influenced by several factors including factors from the subject and research methods. The error factor of the subject can be caused by the dishonesty of the respondents in filling in the research instruments, respondents who do not understand the purpose of the question, and the psychological condition of the respondents during the study.

The error factor of the research method can be in the form of sampling error. This study only took subjects with a sample of 27 students. The case of too few samples according to some experts may not be able to represent the population because it does not provide diverse data variants. The next factor that might influence research is that there are other variables that are much more influential on student motivation, which should be a control variable. In addition, there are no previous studies on populations that explain what dominant variables affect student learning motivation.

4. Conclusion
The conclusions that can be drawn from this research are, first, there is no positive and significant influence between work knowledge and student motivation. Secondly, there is no positive and significant influence between the experience of industry practice and student learning motivation. Third, there is no positive and significant influence between work knowledge and industry practice experience on student motivation. It is hoped that further research can find and study other variables that influence student learning motivation, looking at the variables of work knowledge and industry practice experience is not a dominant factor.

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