

A Study on The Learning Facilities Readiness and The Independence Learning Relates to The Skill Competence of Student at The Industrial Automation Department in Vocational High School

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Abstract— Achievement of the skills competency of students in vocational secondary schools is influenced by school and student factors. Learning practices aimed at improving skills competence are determined by the availability of adequate learning facilities. The independence of learning in practical activities affects the achievement of student skills competencies. This study aims to determine the relationship between the learning facilities readiness and the independence learning on student skills competencies. The study was conducted since the decreasing level of student learning independence and the study of learning facilities that were considered inadequate. Measurement of independent variables is done using questionnaires while dependent variables measured through student grade of subjects that hold practical learning. The research was conducted with a quantitative approach descriptive expost facto method. The population were students of Industrial Automation Engineering Department at SMK Negeri 1 Singosari Malang Regency. The study resulted that the relationship between the availability of learning facilities and skills competencies of 45.50%, between learning independence and skill competencies as big as 19.32%, and the relationship between both independent variables to the dependent variable is 64,82%. It is concluded that the availability of learning facilities and independence study have a significant contributions to students' skills competencies.

Keywords:

I. INTRODUCTION

Education is a basic capital for the development of a country. Education is positioned as a process of changing a person caused by a stimulus or stimulus that produces a response, due to the experience that has been lived. Vocational Middle School (SMK) was formed with the aim of developing further abilities. Vocational students who have readiness and competence or expertise will more easily enter the workforce after graduating from school. Improving the competence of vocational graduates can be done by optimizing the factors that influence

student competence. Internal factors can be in the form of learning independence and external factors can be in the form of availability of learning infrastructure.

Infrastructure means one of the contributors that influences student competency externally. Means are everything that can be used as a tool in achieving the purpose or objective, and infrastructure is everything that is the main support of the occurrence of a process (Indonesian Dictionary). In helping students improve their competencies, Vocational Schools need to need state-of-the-art infrastructure for practice in order to create a learning environment that is consistent with the characteristics of vocational schools[1]. The availability of adequate infrastructure can help the continuity of the teaching and learning process carried out by teachers and students. If the teaching and learning process can be carried out optimally, it is expected that the quality of the competency of students will increase[2].

In addition to being influenced by the availability of facilities and infrastructure, there are internal factors in the form of learning independence that will affect students' skills competencies[3]. Learning independence is the ability of students to master competencies by actively learning[4]. This desire fosters self-initiative to change learning habits by regulating and organizing themselves to determine learning goals, learning needs and strategies that will be carried out in achieving its goals[5]. Student learning independence has a significant contribution to the achievement of vocational competence[6].

The balance between the availability of infrastructure and high learning independence is expected to improve the skills competencies needed by students. Therefore, there is a need for research on the competence of vocational students who are potential contributors in the workforce after graduating from vocational schools. Good competence is considered to have been able to deal with the world of work, because it has been equipped with the competencies needed in the world of work. Based on this description, this study will examine matters relating to

skills competencies and factors that influence, in this case the availability of learning infrastructure and student learning independence.

Previous research has been conducted by Etikasari[7], Anjari[8], Tresnorumawan[9], and Prihatin[2] showed that the variable availability of infrastructure influences the competencies possessed by students. Then from the research conducted by Mustofa[10], Palerang[6], and Elmasari[11] shows that learning independence influences the competencies possessed by students. From the existing research, there is a positive relationship between the availability of infrastructure, and the learning independence of students with student skills competencies.

Although a lot of research has been done on these variables, the importance of research is for infrastructure facilities, learning independence, and skill competencies, that is, due to differences in the research subjects used, the time for conducting different studies also affects the results to be obtained, data taken from the vice principal of the infrastructure and infrastructure section, the research will better illustrate the actual situation in the field. The research conducted is expected to be complementary to previous studies.

II. METHODS

This study uses a descriptive quantitative approach with ex post facto method. The study will analyze the relationship between the learning infrastructure readiness (X1) and the skill competence (Y), the relationship between the independence learning (X2) and Y, and between X1 and X2 simultaneously with Y. The research is designed using double paradigm, as shown in Figure 1.

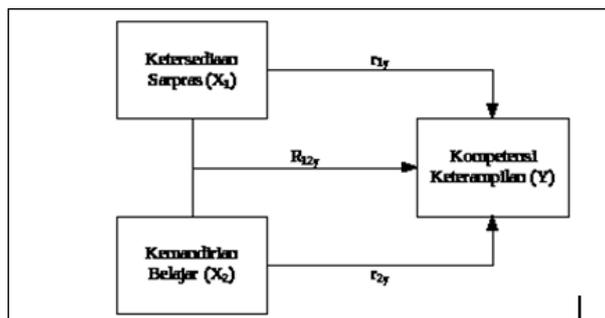


Figure 1: Research design using double paradigms

The sample used in the study were 131 respondents with simple random sampling method based on the determination of the number of samples by Isaac and Michael. The X1 measurement instrument uses a questionnaire with 44 questions consisting of 8 indicators, namely furniture, equipment, media, other equipment, classrooms, electronic control laboratories, technical drawing laboratories and industrial electrical basic laboratories. The X2 measurement instrument uses a questionnaire with 21 questions consisting of 8 indicators, namely planning the learning process, having long-term goals, having confidence, being able to make decisions, initiatives to overcome problems, be responsible, conduct self-assessment, and evaluate learning outcomes. The

instrument uses a 4-scale Likert scale. Instrument X1 is only validated by the expert constructor, but X2 is continued by trial to 26 respondents as content validation efforts. the construct validation results of instrument X1 get a value of 93.9% and instrument X2 gets 97.4%. Reliability of the X2 instrument after being tested was 0.887, so that it can be said that the instrument has high reliability. The variable Y is measured by documentation of psychomotor values in subjects of Simulation and Digital Communication, Electromechanical Basic Work, Basic Electricity and Electronics, and Electrical Engineering Images.

III. RESULTS AND DISCUSSION

The smallest data obtained from the study of the learning facilities readiness variables is 78, the largest data is 176 with an average of 136 data. Table 1 illustrates that the level of availability of learning infrastructure in schools in the very high category is 43 respondents (32.82%), high in number 70 respondents (53.44%), a low number of 18 respondents (13.74%), very low 0 respondents (0%). So the level of availability of learning infrastructure facilities for students majoring in TOI can be said to be high.

Table 1 : The learning facilities readiness criterion

Criterion	Interval	Frequency	Percentage
Very high	144 – 176	43	32,82%
High	112 – 143	70	53,44%
Low	78 – 110	18	13,74%
Very low	44 – 77	0	0,00%
Total		131	100%

The smallest data obtained from the study of learning independence is 45, the largest data is 83, with an average of 63 data. Table 2 illustrates that the level of learning independence of TOI majors in the very high category is 34 respondents (25.95%), a high number of 79 respondents (60.31%), a low number of 18 respondents (13.74%), very low 0 respondents (0.00%). So the level of learning independence of TOI majors can be said to be high.

Table 2 : The independence learning criterion

Criterion	Interval	Frequency	Percentage
Very high	21-37	34	25,95%
High	38-53	79	60,31%
Low	54-68	18	13,74%
Very low	69-84	0	0,00%
Total		131	100,00%

The smallest data obtained from skills competency research is 78.90, the largest data is 89.11 with an average data of 84.14. Table 3 illustrates that the level of skill competency of TOI majors in the excellent category is 54 respondents (41.22%), both 77 respondents (58.78%), quite a number of 0 respondents (0%), less 0 respondents

(0%) So the level of competence of students in TOI majors can be said to be good.

Table 3 : The skill competencies criterion

Criterion	Interval	Frequency	Percentage
Very good (A)	86-100	54	41,22%
Good (B)	71-85	77	58,78%
Satisfy (C)	56-70	0	0,00%
Unsatisfied (D)	0-55	0	0,00%
Total		131	100,00%

First Hypothesis Test Results

From testing the partial correlation between the variables of availability of learning infrastructure (X1) with the skill competence variable (Y), the significance value obtained is 0,000 which is smaller than 0.05. This value shows that there is a significant relationship between the availability of learning infrastructure facilities (X1) and the skills competency variable (Y). From Ho who reads that there is no relationship between the availability of learning infrastructure and skill competencies in TOI Department students in Singosari and Ha State 1 Vocational High Schools, there is a relationship between the availability of learning infrastructure and skill competencies in TOI Department students at Singosari 1 State Vocational High School. . This means that there is a relationship between the availability of learning infrastructure and skill competencies in TOI Department students at Singosari 1 State Vocational School.

Second Hypothesis Test Results

From the partial correlation test, between the learning independence variable (X2) and the skill competency variable (Y), the significance value obtained is 0,000 which is smaller than 0.05. This value shows that there is a significant relationship between learning independence variables (X2) and skills competence variables (Y). From Ho, who reads that there is no relationship between learning independence and skills competency in TOI Department students in Singosari and Ha State 1 Vocational Schools, there is a relationship between learning independence and skills competency in TOI Department students at Singosari 1 State Vocational High School, Ha is accepted. This means that there is a relationship between the availability of learning infrastructure and skill competencies in TOI Department students at Singosari 1 State Vocational School.

Third Hypothesis Test Results

In Table 4 is shown the significance value between the variable the learning facilities readiness (X1) and learning independence (X2) to the skill competency variable (Y) of 0.000 which is smaller than 0.05. This value shows that there is a significant relationship between the variables of the learning facilities readiness (X1) and learning independence (X2) with skill competence variables (Y).

Table 4 : Regression analysis

Sig F	Coefficients		
	Const	X ₁	X ₂
0,000	67,679	0,078	0,96

From H0, who reads that there is no relationship between the availability of infrastructure and the independence of learning on skill competencies in TOI Department students in Singosari and Ha State 1 Vocational High Schools, there is a relationship between the availability of infrastructure and the independence of learning on skill competencies in TOI Department students at Singosari 1 State Vocational School , then Ha is accepted. This means that there is a relationship between the availability of infrastructure and the independence of learning on the skills competency of the TOI Department students at Singosari State Vocational High School 1.

Based on the results of the regression analysis in Table 4 obtained the regression equation as follows: $Y = 67,679 + 0,078 X_1 + 0,96 X_2$. Regression equation can be interpreted that the value of student skills competencies will be worth 67,679 when not influenced by the value of the learning facilities readiness and learning independence. Simultaneously between the availability of infrastructure and the independence of learning will affect the value of skills competencies with an increase in the value of 0.078 for each increase of 1 unit of availability of learning infrastructure and an increase in the value of 0.96 per increase of 1 unit of student learning independence.

Predictor Contributions

Based on Table 5, the percentage of effective contribution of the learning facilities readiness (X1) to skill competency (Y) is 45.50% and the percentage of effective contribution to learning independence (X2) towards skill competence (Y) is 19.32%. The learning facilities readiness variable (X1) has a more dominant influence on skill competence (Y). Skill competence variable (Y) can still be influenced by other variables by 35.18% but not examined this time.

Table 5 : The Effective and relative contribution of variables

Variable	Regression Coef.	Correlation Coef.	R ²	SE%	SR%
X ₁	0,594	0,766	0,648	45,50%	70%
X ₂	0,301	0,642	0,648	19,32%	30%
Total				64,82%	100%

In Table 5 is also explained that the percentage of the relative contribution of the learning facilities readiness (X1) to skill competency (Y) was 70.22% and the percentage of relative contribution to learning independence (X2) towards skill competence (Y) was 29.82%. So, the relative contribution of both variables is 100%.

IV. CONCLUSION

Based on the results of data analysis and discussion that has been described, it can be concluded as follows. The level of availability of learning infrastructure, student learning independence and student skills competency in a good range. There is a relationship between the availability of learning infrastructure and skills competencies in TOI Department students at Singosari 1 State Vocational School, as well as the relationship

between learning independence and skill. Both the learning infrastructure readiness and the independence of learning on skill competencies in TOI Department students at Singosari 1 State Vocational School.

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