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Vocational High School Student's Readiness to Work in Internet Service Provider Enterprise: Based on Mastery Vocational Competence, Internship and Job Interest

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Abstract. Work readiness of graduate students of vocational high school (SMK) can be influenced by successful learning in school and implementation of field industrial practice in business world/ industry world. One of indicators that shows work readiness of graduate students of Expertise Package of Computer Network Engineering (TKJ) in Internet Service Provider (ISP) enterprise can be seen from achievement of vocational competence, implementation of field industrial practice, and students' work interests. This research uses quantitative approach. Sampling technique that is used is proportional random sampling by 205 of 420 students of XI grade of SMK expertise package TKJ as samples. Research data collection for implementation of field industrial practice variable, students' work interests variable, and work readiness in ISP enterprise variable done using questionnaires, while for achievement of competence network server administration skill uses score documentation. Data analysis that is used to the test hypothesis done using path analysis. The result of the research show that the entire path coefficient are significant. Alternativa hypothesis (Ha) submitted are accepted, by explanations as follow: (1) path coefficient X_1 and X_2 to Y simultaneously is 0,242; (2) path coefficient X_1 to Y directly is 0,202; (3) path coefficient X_2 to Y directly is 0,410; (4) path coefficient X_1 , X_2 and Y to Z simultaneously is 0,172; (5) path coefficient X_1 to Z directly is 0,221; (6) path coefficient X_2 to Z directly is 0,152; and (7) path coefficient Y to Z directly is 0,253. Contribution of X_1 to Z through Y is 0,272 and contribution of X_2 to Z through Y is 0,255. Based on the research can be concluded that to increase contributions of achievement competence network server administration skill and implementation of field industrial practice to work readiness in ISP enterprise can be done by increasing students' work interests. School can improve cooperation with industry world, so after graduating from school, students do not work in field that is inappropriate with skills they have.

INTRODUCTION

Substantially, Vocational High School is a post-secondary educational institution which is designed to provide skill for its graduates to enter workplace in specific occupations and to improve their professionalism. The existence of Vocational High School is expected to fulfill the need of skilled and professional manpower. Therefore, Vocational High School students are required to have technical skills and other work preparations. It is associated with the opinion of Clarke [1] that vocational education is an effort to improve human resources as manpower, maintenance, acceleration, and the quality of certain manpower in order to raise the productivity of society.

The government also have made programs to raise the quality of vocational high school with the implementation of certification program for its graduates. It is associated with government rule No. 31/2006 about Competence-Based Shortcourse System. There is also Lembaga Sertifikasi Profesi Pihak Pertama (LSP-P1) SMK to standardize

the competence-based vocational education. The competence of vocational students can be analyzed through the achievement of their skill.

The achievement of competence-based vocational education is affected by two factors, internal and external. Internal factors come from the students, while external one can be from their family, school, and society. School factors include the peer group, educators, teaching-learning facility, and curriculum.

Those factors should help students ready to work after graduating [2]. The research conducted by Nilawati [2] shows that motivation of students in learning must be improved in order to make them ready for having career. It is necessary because of some reasons. (1) the high requirement from workplace about the quality of manpower that is related to the national economy development in term of quantity and quality; (2) the standard of manpower quality needed by industries has risen. They want to have employees who meet their standard including skills, intelligence, and other general knowledge; (3) the occurrence of synchronicity between education and careers by educational institution, formal or nonformal, and industries. The synchronicity is perceived as standardization of material given in school to meet the need in workforce.

Internship for Vocational High School students majoring any field is a program to make the students learn from professionals in workplace. It is also a way to improve the quality of graduates. The importance of internship program should be understood by schools, industries students, and parents. It also must be supported by government and society.

Students internship should be done with the assistance of the teacher or advisor in order to get the maximum result. Without any assistance, this program will not work optimally. As the result, the student will not understand the relationship between internship and the learning process at school and its importance for them after finishing their school. The assistance of the teacher as advisor can help students adapt with the job environment. After all, students will get benefits of internship if the place is relevant with their study.

Based on the observation, not all students in Computer and Networking Department have internship in relevant workplace. The irrelevance of the workplace and the major is caused by some reasons. (1) The distance between the student and the workplace; (2) Agreement between school and industries; (3) school choice; (4) students' competence. Besides those reasons, the internship places should be relevant with the major taken by the students because the right places can help the students to improve their competence and skill. As the result, they will not find any difficulty to make the report for their internship.

Having internship in right place also can raise the students interest in attending workforce. Based on the observation at the same school, there are some problems to making the students interested in working. First problem is how to grow curiosity in the job that is relevant to the student's competence. The more interest the students have to certain job, the more serious they will do their work [3].

The second problem is how to grow the strong feeling to work with special skill in computer and networking field, for example the skill to be technician in computer networking. The main factor that influence the students interest in their major is the passion from the students to upgrade their knowledge about it [3].

The success of competence-based vocational education acquisition can be measured using skill acquisition and quality of the achieved skill as preparation to enter workforce. One of the jobs that vocational high school graduates from computer and networking department can occupy is being networking technician in Internet Service Provider (ISP). Clearly, ISP is related to the internet, so the graduates can apply what they have learned from school or internship program. Some factors that can make the students ready to work in ISP are (1) knowledge about the company; (2) cooperative team leader in the company; (3) competence acquisition about computer, networking, and internet; and (4) global language acquisition used in ISP.

Based on the explanation about background of the problem, students learning process, the contribution of internship program to students interest in having career, and the importance of Vocational High School graduates readiness to enter workplace, it is necessary to conduct observation about the contribution of competence acquisition and internship with students career interest and the impact to students career readiness in Internet Service Provider.

RESEARCH METHOD

The observation uses associative explanation research to know the relationship inter variables. The connection between variables in this research is causal relationship or cause and effect. Linear analysis is used to predict how well is the contribution of dependent variable, if the independent variable is marked up/changed or increased/decreased [4]. Free variable (X), intervening variable (Y) and dependent variable (Z) that will be observed

include : competence – based vocational education acquisition, (X1), internship program (X2), job interest (Y) and readiness to work in ISP (Z)

Descriptive analysis technique is used to describe data taken from the observation. The data is number that will be processed in descriptive statistic calculation and presented in the frequency table and percentage of observation result. The statistic value used in presenting the data : (1) central tendency, taken from mean, median, and mode; and (2) disperse, standard deviation and variances. Hypothesis is made using path analysis to describe and test the causal relationship between variables. Using path analysis, we will know the exact and quick way independent variables reach the last dependent variables [4].

Path analysis is a statistic analysis method to observe certain quantitative interpretation to the connection of numerous variables in analysis model. The connection between independent variable and dependent variable is examined through analyzing the contribution, directly and indirectly among numerous variables. The path analysis technique is used to examine how well is the causal relationship between variables X1 and X2 to Y, and variables X1, X2, and Y to Z.

RESEARCH SAMPLE

Population in this research is students of Vocational High School in Malang academic year 2015/2016 from Computer and Networking Department. Determination of the sample used from the population uses random table with margin of error $\alpha = 5\%$. 205 students out of 420 participants become the sample [4]. The number of the students from each school that will be used as sample can be seen in Table 1. Method of sampling is random sampling proportional technique because the sample of the population is selected randomly without discern stratum in the population [4].

TABLE 1. Research Sample

No	School	Total number of students	Calculation	Sample Number
1.	SMK Negeri 2 Malang	64	$(64/420) \times 205 = 31,2$	32
2.	SMK Negeri 5 Malang	54	$(54/420) \times 205 = 26,3$	26
3.	SMK Negeri 11 Malang	52	$(52/420) \times 205 = 25,3$	25
4.	SMK Industri Al Kaaffah Kapanjen	39	$(39/420) \times 205 = 19,0$	19
5.	SMK Muhammadiyah 1 Kapanjen	95	$(95/420) \times 205 = 46,3$	46
6.	SMK Muhammadiyah 7 Gondanglegi	116	$(116/420) \times 205 = 56,6$	57
	Jumlah	420		205

RESEARCH INSTRUMENT

Research data for variables of internship and career readiness in ISP is drawn using questionnaire instrument. The data for variable competence acquisition is drawn using skill achievement scores. The questionnaire uses Likert Scale five-point scale to get interval data. The statements asked in the questionnaire is based on indicators from research variables.

The validated instruments research is revised and tried out to 64 respondents. They are students of vocational high school from Computer and Networking department that become the member of research population, out of sample used in implementing research. The schools becoming participants in this test are : (1) SMK Negeri 2 Malang (Public Vocational High School 2 Malang) with 27 respondents; (2) SMK Negeri 5 (Public Vocational High School 5 Malang) with 24 respondents; and (3) SMK Al Kaaffah Kapanjen with 13 respondents. Then, items in the questionnaire are validated using SPSS with Pearson Correlation in which every item will be stated valid if coefficient correlation pearson is bigger than the value r_{table} or the value of significance is bigger than 0.05 or 0.01.

An instrument is considered having high reliability if the result of the test has consistency in measuring the indicators in the research. Reliability test is the degree to which an assessment tool produces stable and consistent result from one time to another. The reliability of instrument is measured using coefficient analysis Alpha Cronbach. If the result $r_{measures}$ has the same value or bigger than $r_{measures}$ ($r_{measures} \geq r_{table}$), the item is not reliable.

The reliability test of the instrument uses software SPSS 2.0 version. Reliability test uses SPSS scale Cronbach's Alpha. The result of the test is reliable if Alpha Cronbach ≥ 0.700 .

DATA ANALYSIS

Data analysis uses descriptive and inferential statistic. Descriptive statistic analysis is used to describe the data based on central tendency and dispersion. Central tendency is mean, median, minimum and maximum value. Disperse is standard deviation and range of data. Then, variables of competence acquisition, internship, and readiness to work in ISP are classified into interval data then divided into 5 criteria based on the number of research samples : very low, low, average, high, and very high. Each criteria is determined by frequency, percentage, and diagram.

Data Description

Data is presented descriptively for variable facility of learning process, student's cognitive, and competence in local networking installation as shown in Table 2.

TABLE 2. Description of Data For Each Variable

No	Variable	Min	Max	Mean	Median	Standard Deviation	Range
1	Competence Acquisition (X_1)	63	90	78,51	78,00	4,559	27
2	Internship (X_2)	46	98	80,61	80,00	7,658	52
3	Career Interest (Y)	42	91	70,21	71,00	10,14	49
4	Career Readiness in ISP (Z)	54	99	77,75	77,00	6,977	45

- **“Competence Acquisition”** the distribution frequency variable competence acquisition shows 16 respondents (7.8%) are very low ; 58 respondents (28.3%) are low ; 82 respondents (40%) are medium; 43 respondents (20.9%) are high and 6 respondents (2.9%) are very high.
- **“Internship”** the distribution frequency variable internship shows 3 respondents (1.5%) are very low; 8 respondents (3.9%) are low; 64 respondents (31.2%) are medium; 88 respondents (42.9%) are high, 42 respondents (20.5%) are very high.
- **“Student's Career Interest”** the distribution of frequency variable student's career interest shows 8 respondents (3.9%) are very low; 33 respondents (16.1%) are low; 65 respondents (31.7%) are medium; 68 respondents (33.2%) are high; and 31 respondents (15.1%) are very high.
- **“Career Readiness in ISP”** the distribution of frequency variable career readiness in ISP shows 3 respondents (1.5%) are very low, 7 respondents (3.4%) are low; 52 respondents (25.4%) are medium; 95 respondents (46.3%) are high; 48 respondents (23.4%) are very high.

Classical Assumption Test

Classical assumption test comprises normality test, linearity test, heteroscedasticity test. They will be explained below.

Normality Test

Normality test in this research is conducted to know whether the taken data can distribute normally or not. The purpose of the test is to determine if hypothesis is tested parametric or nonparametric. Normality of sample test uses One-Sample Kolmogorov – Smirnov with SPSS. Normality can be assessed using significant value; if the significant value (asyp.sig) > 0.05 it means data follows normal distribution. The result of the test shows : (1) significant value of variable of competence is 0.167; (2) variable of internship is 0.156; (3) variable of career interest is 0.618; and (4) variable of career readiness in ISP is 0.405, in which significant value for each variable is > 0.05 . Thus, it can be concluded that the data of the research result for each variable follows normal distribution.

Linearity Test

Linearity test aims to determine the relationship between independent variables and dependent variables is linear or not. The research tests linearity with SPSS. If probability (Asymp.sig) < 0.05, the distribution of data is linear. The result of linearity test shows that significant value for each variable correlation is : (1) competence acquisition with career readiness in ISP is 0.00; (2) internship program with career readiness in ISP is 0.00; and (3) career interest with career readiness in ISP is 0.00. The result of linearity test for correlated variables is less than 0.05. Thus, it can be concluded that relation between two variables (free variable and dependent variable) is linear.

Heteroscedasticity Test

Heteroscedasticity test aims to examine if there is heteroscedasticity in each variable or not. The research uses heteroscedasticity test with scatterplot method in SPSS. The result is presented in graphic. The analysis prerequisite is heteroscedasticity shouldn't occur in the scatterplot above and below 0 along Y-axis or there is not clear pattern along horizontal axis. The result of heteroscedasticity is presented in Figure 4. There is no certain pattern displayed in scatterplot graph. Thus, it can be concluded that heteroscedasticity doesn't occur.

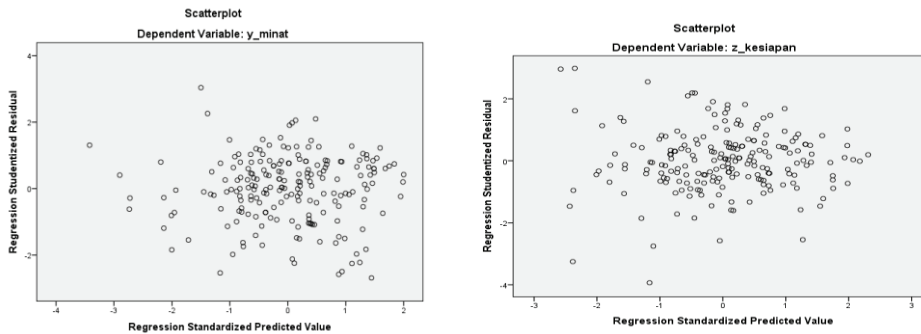


FIGURE 1. Scatterplot Graph with Regression Model Substructure type 1(a) and Regression Model Substructure type 2 (b)

Hypothesis Test Substructure Type 1

Simultaneous test to substructure type 1 aims to examine the contribution of exogenous variables (competence acquisition (X_1) and internship variables (X_2)) to intervening variables (career interest (Y)). The result of the test simultaneously is coefficient correlation (R) is 0.499 and determination coefficient (R^2) is 0.242. Hypothesis test criteria : if the P-value < 0.05, H_0 or null hypothesis is rejected and H_a or alternate hypothesis is accepted; if the P-value is > 0.05, H_0 is accepted and H_a is rejected. Sig. value to simultaneous substructure test type 1 is 0.000, so H_a or alternate hypothesis is accepted and H_0 is rejected. It means simultaneous test can be conducted using individual test. The result of individual test in substructure type 1 is displayed in Table 3 and Figure 2.

TABLE 3. Coefficients of Regression Substructure Type 1

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	20,435	7,032		2,906	0,004
Competence Acquisition (X_1)	0,311	0,097	0,202	3,218	0,002
Internship (X_2)	0,368	0,056	0,410	6,520	0,000

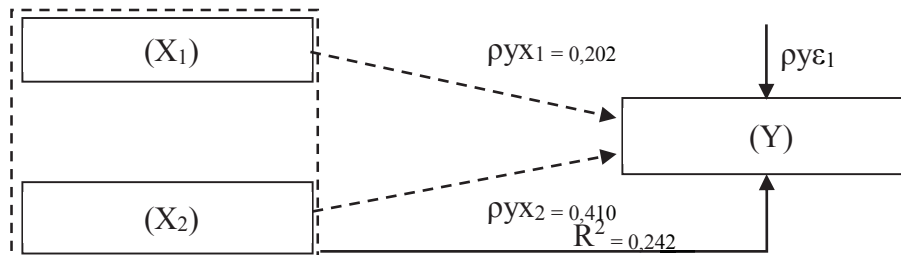


FIGURE 2. Diagram Path Analysis Substructure Type 1

Hypothesis Test Substructure Type 2

Simultaneous test to substructure type 2 aims to know the contribution of exogent variables, competence acquisition (X1), internship program (X2) and intervening variables of career interest (Y) to endogenous variables, namely career readiness in ISP (Z). The result of simultaneous test to substructure type 2 is coefficient correlation (R) is 0.499 and determination coefficient (R²) is 0.242. Criteria of hypothesis test is sig. value < 0.05. It means Ho is rejected and Ha is accepted. While, if sig. > 0.05, Ho is accepted and Ha is rejected. The sig. value of simulatanous test for substructure type 2 is 0.000, so Ha is accepted and Ho is rejected. That's why simultaneous test in substructure type 2 can be conducted using individual test. The result of individual analysis in substructure type 2 is show in Table 4 and Fig. 3.

TABLE 4. Coefficients Regression Substructure Type 2

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	41,083	6,094		6,742	0,000
Competence Acquisition(X ₁)	0,275	0,084	0,221	3,278	0,001
Internship(X ₂)	0,063	0,043	0,152	2,186	0,030
Career Interest (Y)	0,206	0,060	0,253	3,445	0,001

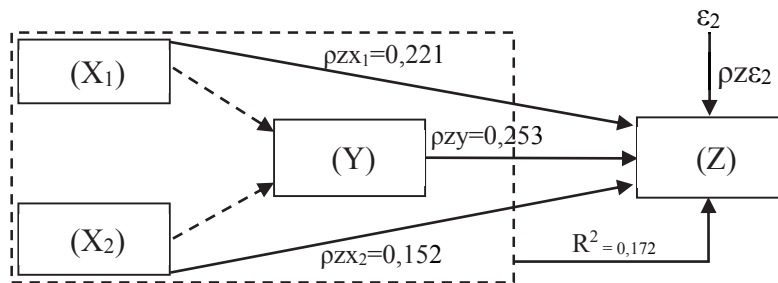


FIGURE 3. Diagram Path Analysis Substructure Type 2

Direct Path Coefficient Test

Direct path coefficient test aims to determine significant value of each exogenous variable (competence acquisition (X₁)) and internship (X₂)) and intervening variable (career interest (Y)) to endogenous variable (career readiness in ISP (Z)). The summary of the direct path coefficient test can be seen in Table 5 below.

TABLE 5. The Summary of Direct Path Coefficient Test

P	Coefficients Variable	P Value	Sig.	P_{parameter}	Interpretation
pyx₁	Path coefficient between X ₁ and Y	0,202	0,002	0,002<0,05	Significant
pyx₂	Path coefficient between X ₂ and Y	0,410	0,000	0,000<0,05	Significant
pzx₁	Path coefficient between X ₁ and Z	0,221	0,001	0,001<0,05	Significant
pzx₂	Path coefficient between X ₂ and Z	0,152	0,030	0,030<0,05	Significant
Pzy	Path coefficient between Y and Z	0,253	0,001	0,001<0,05	Significant

CONCLUSION

The finding result of analysis first sub-structure namely analysis about contribution independent variable competence acquisition (X₁) and internship (X₂) toward intervention variable students' career interest (Y) concludes that there is simultaneous and significant relation between facility of learning and internship to student's career interest. The contribution simultaneously represents the value of contribution 24.2% and the rest is 75.8% is the contribution from other variable besides surveyed variables.

The result of the research shows that all path coefficient is significant so the proposed alternative hypothesis (H_a) is accepted. The explanation is : (1) path coefficient between X₁ and X₂ to Y simultaneously is 0.242; (2) path coefficient between X₁ to Y directly is 0.202; (3) path coefficient between X₂ to Y directly is 0.410; (4) path coefficient between X₁, X₂ and Y to Z simultaneously is 0,172; (5) path coefficient X₁ to Z directly is 0,221; (6) path coefficient X₂ to Z directly is 0.152; and (7) path coefficient Y to Z directly 0.253. Contribution X₁ to Z across Y is 0.272 and contribution X₂ to Y across Y is 0.255.

SUGGESTION

From the result of the research about contribution of competence achievement and internship toward students' career interest and the effects of students' career readiness in ISP, it is suggested :

1. Schools
 - a. Improve the cooperation with industries in order to hire students with relevant study field. Thus, students don't work in the field that is not relevant with their competence.
 - b. Improve the students learning motivation through : (1) giving students opportunity to be more active in practice in the classroom or outside the class in learning networking server administration; and (2) giving evaluation to internship practice in order to make the students interested in having career and become skilled employees to work in informatic and communication technology.
 - c. Develop effective and efficient learning program, upgrade the quality of the program to improve the students competence and evaluate internship practice to produce skilled , professional and qualified vocational graduates. Also, they are ready to enter workforce related with their study field.
2. Students
 - a. Raise students awareness to their academic achievement in vocational class, especially networking server administration, that becomes one of potency indicators to work in Internet Service Provider and grow their career interest
 - b. Encourage the students to be brave to work and make well preparation in their job, through : (1) well preparation; (2) competence and skill acquisition; (3) internship ; (4) strong career motivation; (5) self-upgrade to the development of knowledge and technology.
3. Next researchers :
 - a. make intensive study about factors that can affect students' readiness to have career based on competence acquisition perspective, students' skill and internship
 - b. Add more references related with work field of vocational high school students from Computer and Networking Technology in these programs : (1) communication and information technology; (2) computer and networking industry; (3) electronic and computer program.

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