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# Contribution of Learning Achievement of Subject Group Compentency Field, Program and Packages Expertise of Vocational School on Job Interests and Interests of Further Studies

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***Abstract*—The background of this research is the existence of subject group on competence structure of building engineering skill. With field data showing that students of Engineering Vocational Schools show many are interested in continuing their studies, and this is demonstrated by the rules that apply even if the initial goal is to work. The method this research is quantitative method. Number of populations in this study 359 students of sample research proportional sampling 247 students referring to the sample used according to Harry King nomogram, data collecting instrument in the form of job interest questionnaire and interest of further study, while for learning achievement of subject group A, subjeck group B, field competence Skill packs are drawn from documentation. The result of quantitative analysis finds $F_{empirik} = 3{,}465 > F_{tabel}$ to variable of interest of work, whereas in variable of study further $F_{empirik} = 0.919 > F_{tabel}$ ($F_{tabel} = 0.138$).Conclution work interest effect the significant of subject B group and program competency about 0.020 and 0.009 with $0.01 < p < 0.05$.**

***Keywords—skill competence, interests, interest in further studies, learning achievement, subject group***

## I. INTRODUCTION

Directorate General of National explained the composition of the number of Vocational High School according to projections in 2013 such as Technology and Industry Group with Expertise Field of BELMO (Building Engineering, Electronic Engineering, Electrical Engineering, Mechanical Engineering and Automotive Engineering), number 1195 from the number of vocational schools in Indonesia. The Building Engineering Program consists of several skill packages including Building Drawing Techniques, Building Construction Techniques, Concrete Construction Techniques, Furniture, Plumbing Techniques, and Survey and Mapping Techniques according to the 2013 edition of the curriculum.

The determinant variable that has contribution to the interest of work and the interest of further study related subjects is composed of Group A Subject, Group B Subject, Competency of Expertise, Skill Program Competence and Skill Package Competency [1]. Group A subjects include Religious and Character, PPKn, History of Indonesia, Indonesian Language, Mathematics and English are available in all areas of expertise in SMK. In the journal Martin Bernard said to train the skills as well as obtain a description of the workforce supported by the competence of skills that will be occupied there are production work lessons that are supported with Real-Life Practice activities.

Outputs and mainset of vocational high school graduates either to enter work or for further study related to new university student selection system, can be based on the writing based on: (a) the existence of subject groups that enter the competence of expertise, (b) the curriculum which is now not based on (c) central and regional contributions to maple whose content from the center of the percentage is unclear, (d) the existence of a paradigm shift in the subject group of knowledge, (e) the implementation of curriculum only in big cities, (f) the number of vocational students who take the academic path, (g) the deregulation of competency level has not run perfectly.

The emergence of several problems, among others, the problematicness of the graduation graduates of the Building Engineering Skill Program related to the interests of work and interest in further study, the main set of students who have interest in work and the interest of further study resulted in the achievement of different competencies, practical learning can accommodate the interests of the industry, the success of learning only on certain competencies alone, less interest of students towards eye groups lessons related to the process of teaching and learning activities.

Complex problems that arise in learning hence required restriction problem in related many problem existing for research can to the point: (1) Contribution competence skill of learning to work interest and interest in further study (2) Contribution of learning achievement of subject group to work interest and interest in further study (3) How much student interest for advanced study that actually prepared for work but basically not ready for work.

The previous research was aimed to study the existence of the influence of the interest and the learning facilities to the learning achievement. The main method used was the observation method with a population of 427 students. Proportional samples random sampling, data collecting instruments in the form of an interest questionnaire to continue to college and student learning facilities. From the result of validity test with product moment correlation and reliability test by split two items technique obtained validation 35 valid

items envelope 30 with reliability index equal to 0.9347 and result of experiment test of facility study from 25 valid item 22 item with index reliability of 0.8934.

The analysis obtained results: $ry_{1.2}$ = 0.6974 and $ry_{2.1}$ = 0.5152 and the coefficient of determination $rx_1x_2y$ = 0.6963 and *F* test results for the coefficient of determination of 34.3537. While *r* criticism (*n* = 75; 5%) = 0.2270 and F table (2; 73; 0.05) = 4,860. Thus $ry_{1.2}$ and $ry_{2.1}$ greater than the critic r as well as F arithmetic is greater than *F* table. Thus, these results can be concluded: the interest to continue to college has a positive influence on learning achievement. Likewise, student learning facilities also have a positive effect on learning achievement. The relative contribution of interest to continue to college and student learning facilities are 66.64% and 33.36% respectively. While effective contribution of each 46.405% and 23.289%. Based on this research, then in improving learning achievement hence need to pay attention interest to continue study to college and student learning facility.

This study aims to determine based on determinant coefficient, describe student achievement and describe how far the role of variable determinants, factors and indicators that exist on the output of vocational hight school graduates. This research is useful both in practical and theoretical, among others, provides an overview of further research will the results obtained from this study through theoretical studies of building engineering education programs in addition to graduates work also bias further study. While the practical benefits of providing information to the general public about its graduates and for the government to issue new policies related to the research results obtained.

The rest of this paper is organized as follow: Section II describes proposed research method of this work. Section III presents the obtained results and following by realbility test in section IV. Finally, Section V concludes this work and suggest future works.

## II. Proposed Methods

This research refers to descriptive research with quantitative approach. Descriptive research is used to describe a real situation. Suharsimi Arikunto in [2] stated that: the quantitative approach undertaken in this study seeks to illustrate, define, and reveal the reality or empirical truth based on an open plan (emergen design) enhanced by data collection from theoretical studies, supportive assumptions. Data collection of work interests and interest in advanced study using a questionnaire that was previously validated by the respondents taking from the respondents' sample. Of the total population of 359 students, 30 students were used to validate the questionnaires of interest and interest questionnaires. The count using the moment product formula proposed [3]:

$$r_{xy} = \frac{n\sum XY - \sum X.\sum Y}{\sqrt{n\sum X^2-(X)^2}.\sqrt{n\sum Y^2-(Y)^2}} \quad (1)$$

The coefficient of determinant or the proportion of variance in the variable *x* that can be associated with the variance of *Y* or *r* ^ 2. The linear equations of linear regression generally follow the formula

$$Y = \beta x + B. \quad (2)$$

The mean arithmetic or mean score can be interpreted as the sum of the value of the data group divided by the number of respondents, which is formulated as follows.

$$\bar{X} = \frac{\sum X}{n} \quad (3)$$

Quantitative development to identify these misconceptions through several stages as follows:

- Planning phase, consists of literature studies and anlisis needs. The study of literature is an activity that includes studying scientific journals and textbooks on misconceptions on the concepts of interest, work and further study. Needs analysis aims to find out how the need of the instrument to detect misconceptions on the concept. This stage is carried out by interviewing the teachers of building techniques and data collection with questionnaire perception instrument for students of SMK N2 Purwokerto, SMK N1 Wanareja Cilacap District, SMK N1 Adiwerna Tegal District.
- At this stage also conducted analysis of preliminary research data to obtain identify students' understanding (prior knowledge) interest in work and interest in further study with the steps as follows:
- The data obtained is tabulated for each component and subcomponent of the grain of assessment available in the scale of qualitative perception is changed to quantitative with the provisions, namely: Very Good = 4, Good = 3, Poor good = 2, Less Good = 1.
- After collecting the data, then calculate the average score with the formula: $\bar{x}$
- Turns the average score into a quantitative score with the ideal scoring criteria asdescribed in Table I below:

TABLE I. SCORE RANGE CATEGORY

| No | Score Range | Category |
|---|---|---|
| 1 | $\bar{x} + 1{,}8\ \text{SDI} < x$ | Very good |
| 3 | $\bar{x} + 0.6\text{SDI} \leq x \leq \bar{x} + 1{,}8\ \text{SDI}$ | Good |
| 3 | $\bar{x} - 0.6\text{SDI} \leq x \leq \bar{x} + 0.6\text{SDI}$ | Poor Good |
| 4 | $x \leq \bar{x} - 0.6\text{SDI}$ | Quite good |

Where:
*x* = actual score (scores obtained)
$\bar{x}$ = ideal average = ½ *x* (ideal highs + ideal lows)
SDI = ideal standard deviation 2 (½ x⅓) × (ideal highs - ideal lows)
Highest ideal value = Σ item criteria × highest score
The lowest ideal value = Σ item criterion × lowest score

This phase aims to gather as much information from several schools on issues related to work interests and interest in further study. This research article is in the form of narrative and creative in depth which contains description, description, systematically according to scientifically researched topic.

- Organizing Phase, including the determination of instrument form and the preparation of the grid problem that will be developed with the reviewer of the supervising lecturer.
- Implementation Phase, including the making of questionnaire instruments based on the grid consulting consultant related to dependent variables, intervening,

independent variables, interest factors and indicators of work interest and interest in further study.

## III. Results And Discussion

This study aims to determine the contribution of learning achievement subjects A, subject B, field competence, program competence and competence of vocational skill packages to the interests of work and interest in further study. The validity of work interest questionnaires and interest in further study conducted at SMK N 2 Purwokerto by taking a sample of 30 people from the competence of building drawing engineering expertise and the competence of concrete stone techniques.

Competence may be the motivation, the nature, the self-concept, the attitudes or values, the knowledge content, as well as the skills, meta cognitive or behavior of individual characteristics significantly between high performers and mean, or between effective and ineffective behavior [4].

Furthermore, will explain the results of the processing based on data obtained by using SPSS release 16 software in the form of validity test results (validity in general, the validity of the item), the reliability of 42 items item about work interests that meet 38 items item for research questionnaire, while from 35 items of interest concerning further study which is considered to fulfill only 32 item items of course with various considerations.

### A. Content validity

Content validity with regard to the ability of assessment tools to measure content should. This means that the test is able to reveal the contents of a concept or varabel to be measured [5]. Prior to the limited testing in the field, the questionnaire in this study experienced the process of testing the validity of the content. Content validity is carried out by consideration of mentors and experts, ie two lecturers and vocational education and one education and culture office. Experts provide judgment with regard to the proposed instrument design. In this case the experts will give a decision, the instrument can be used without repair, there is improvement and may be completely overhauled [6].

Judgment results from experts in the form of suggestions to correct the errors that occur in the design of the problem about the proposed problem is seen from the conformity of the question and the key answer. The results of judgment from the experts then revised, after that performed the process of implementing the instrument against the sample research.

### B. The validity of the whole question

Based on the result of validation of item item which got the validity of each item item from 30 respondents doing on item 1 and 2 aitem 0.446 and 0.434 respectively are high for work interest questionnaire while for instrument of interest of advanced study consecutive aitem items number 1 and 2 are 0.412 and 0.325.

### C. Validity of the item

The validity of the item is used for the purpose of knowing the validity for each item or item of question. One item can be said to be valid if it has great support to the total score. The score on the item causes the total score to be high or low. In other words it can be argued that an aitem has high validity if the score on aitem has alignment / correlation with total score [2].

The value of the validity of the item on 193 respondents has increased compared to 30 respondents. However, there are some items that actually decreased the value of validity in 193 respondents is on item number 1, 10, 12, 16 for the instrument of interest questionnaire. Although the four items above the problem has decreased the value of validity, but the category of validity values are generally still in the category enough. So it still needs more consideration if the question is to be discarded. The validity of the item is developed for 193 respondents each in very low, low, sufficient and high category.

## IV. Reliability test

A test can be said to be reliable if it always gives the same results when tested on the same group at different times or occasions [3].

Table II. Reliability

| Validity test | Realibility value | Category |
|---|---|---|
| Interest work | 0.613 | Enough |
| Futher study | 0.508 | Enough |
| Interest work | 0.738 | Height |
| Futher study | 0.687 | Height |

From Table II above, the data processing obtained the reliability of 30 respondents and 193 responder successively 0.613 and 0.738.Reliability value of each work interest is quite high and respectful.Secara respective respondents value increased.Based on the reliability value obtained then open-ended test problems are organized into reliable test categories. Although the value of reliability is different but the value of reliability increases and this is because students are told by 30 previous respondents so that score increase. Since year 2000, research after study has been conducted and the results are very clear that there is a worrying crisis that is related to student interest in science and especially technology. This lack of interest is caused by complex factors including the circumstances outside the individual environment. For example, lack of knowledge of job prospects in in the field of building engineering. In education there is evidence that the technology experience in school contributes to this ignorance.

The factors for the development of the 2013 curriculum are to address the challenges of internal, external, improving mindset and strengthening governance as Marina in [7] stated in Technical Industries and Vocational Enterprise Training (TIVET). Furthermore, the urgency of curriculum development as the opinion of the former Minister of Education and Culture (Mendikbud) initiator, Muhammad Nuh, is to adjust the development of the times so as not to create an "obsolete" generation but to create a generation that follows the development of the era. Especially added "there is no enduring curriculum".

Data on the absorption of graduates of one vocational high school showed an increase in the level of absorption of SMK graduates into the world of work compared to the previous year. In 2015, almost 55% of SMK graduates of Building Engineering Skills Competencies are absorbed into the workforce according to the field, which is not according to 5% skill intervention, no 5% job, 15% vocational education, 18% go to academics not according to field of 5%, and the rest because it is not accepted in favorite college.

This study was conducted with five endogenous variables between two variables with one dependent variable, endogenous variables were taken from the agreed documentation while the work interest variable and the interest of further study with questionnaires were conducted on 17 March s.d. 29 April 2017. A viable questionnaire was 193 respondents from the total population of 359 with a sample of 247 students with a 95% return rate. While the description of respondents by sex 73, 57% male, 26.28% female and 0.25% without a name. Based on research data obtained from 194 respondents related to skill packages can be grouped 30.93% of Building Construction Engineering, 22.68% of concrete stone construction techniques and 46.49% of building drawing techniques.

The result of the tabulation of the respondent's respondents' responses on the variables of work interest was 59.68%. The answer was very good, 35.43% of the respondents were good, 4.89% of the respondents were not good, and the rest of the respondents were not good.

The validity testing criterion is by analysis of Social Sciense Structure Program variant (SPSS release 16) comparing correlation of validity with *r*_tabel pearson corelation value with 95% confidence level and Alpha Cronbach α = 0.05. The result of validity test above shows that all question items on the questionnaire have a correlation coefficient greater than $r_{tabel}$ = 0.138, on job interest variable $r_{empiric}$ = 3.65 whereas in interest study variable $r_{empiric}$ = 0.919.

Constant value 52.967 mean job interest variable is equal to 52.967 unit with assumption that learning achievement variable of subject A group, subject group B, field competence, program competence and competency skill package constant.

That the more the students the competency value of the high skill field, the more the student's interest decreases to the work after graduation, and also on the competency of skill package and subject group, while the competency of the skill program the higher the achievement result of the competence of the skill program the higher the student interest on the work, as well as on the achievement of study group B, only the contribution given by the learning achievement variable of subject group B is too high at 74.3% whereas if we refer to the literature review only maximum 25% donation for the group subjects i.e. *R* = 0.378 and *F* = 3.65.

The constant value of 89.765 means the interest variable of advanced study is 89.765 units with the assumption that the learning achievement variable of subject A group, subject group B, field competence, program competence and competency skill package constant. That the more the students the competency value of the high skill field, the more the student's interest will decrease to the work after graduation, so also the result of the competency of the program of kehlian, the competency of the skill package and the subject groupB, while in the subject group variable A the higher the student's interest toward interest in further study, only the contribution given by the learning achievement variable of subject A group is too high 58,8% while if we refer to literature review only maximum 25% donation for subject group i.e. R = 0.687 and *F* = 0.919.

The constant value of 142.732 means the learning achievement variable is 142.732 units with the assumption that the learning achievement variable of subject A group, subject group B, field competence, program competence and competency skill package constant.

That the more the students the competency value of the high skill field, the more the student's interest decreases to the work and further study after graduation as well as the competency skill package result and the subject A group, while the subject group B variable and the competency of the skill program the higher the achievement the student's learning the higher the student's interest toward work and further study, the contribution given by the variable of learning achievement is relatively high to the competence of skill program.

The discussion obtained from the proposed hypothesis shows that the contribution of learning achievement of subject A group, competency of expertise and competence package of negative skill to the interest of work means the higher the students' learning achievement the less student's interest in work. Contribution of learning achievement of subject group B and competence positive skills program means the higher the students 'achievement the greater the students' work interests.

The contribution of learning achievement of subject A group and the competence of positive skill field means that the higher the students' learning achievement will be greater interest for further study, while the contribution of learning achievement of subject group B, the competency of skill program and the skill package competence indicates the negative means the higher the students achievement the smaller the students' interest in further study.

## V. Conclusion and Suggestion

This study has employed a descriptive study of learning achievement using independent variables and dependent from the content of proposals that have been agreed upon mediated by considering the direct and indirect effects between exogenous variables and endogenous variables tested in addition to intervenig variables in particular, in addition to indicators that support factors as well the variable is positive and negative both the interest of work and interest in further study. The results showed that the proposed contribution with the data and can be drawn conclusions about the relationship among variables as follows:

- Student interest from direct negative empirical result by learning achievement of subject group A equal to -40.70% means that the higher the achievement of group A mapel the less the contribution to the work interest.
- Interest in student positive by learning achievement from result of subject group B 74.30% means that it will increase contribution to learning achievement of subject group B the higher of student interest to work after graduation later. Significant subject group variables with the existence of subjects that contain local content such as japanese language have a direct positive effect on student achievement.
- Expertise Competence consist of physics, chemistry and engineering drawings according to empirical data give significant contribution compared with competence of job interest skill program, non-significant contribution equal

to -21.90% meaning that higher achievement of field competence will decrease student's work interest.

- Achievement learn competence of program of expertise have contribution equal to 90.20% to the interest of work, meaning that higher achievement learn competence of program the higher interest of work competence of student skill program. From the result of significant test competence of skill program have empirical data equal to 0.009 thus very significant because less than 0.01.
- Job interest is directly influenced by skill competency competency of -8.40%, it means that each competency skill increase of student equal to -0.084 unit will decrease student interest to work equal to 0.084 unit.
- Interest in further study direct positive contribution of subject A group amounted to 58.80 percent, meaning that every increase in student work interest will give a direct positive contribution of 58.80 percent. It is quite high that the contribution of subject A group consisting of religious education and character, english, bahasa indonesia, math, history give big contribution so that the remaining 41.20 percent for group of subject B, competency competency competency, competence skill program and competency Expertise package.
- Further study of direct negative contribution by student achievement of subject group B -16.40%, if the learning achievement of subject group B increases, will decrease 16.40% interest in student advanced study.
- The interest of further study is given positive contribution by the skill area competence equal to 1.10% student achievement, this means that indicator of internal factor of student and external factor of competence skill student will raise interest of further study 1.10 percent.
- The interest of further study of the negative contribution directly by the competence of the program of expertise which consists of engineering mechanics, materials science, budget plan and geometry of -36.7%, meaning that the higher competence of skill program achievement will further decrease interest in student advanced study.

### *A. Suggestions*

This study shows the variables studied namely competence field competence expertise skill competency program skill results obtained showed a direct positive effect on student achievement. This research has implications for the competence of building engineering skills to optimize the use of two odd semester competencies and even two semesters can be done to improve the competency achievement of the students 'skill and will have an effect on the students' learning achievement so the two semester skill competency ganji two semesters can be done. The use of the competence system has a weakness such as the problem of practical activities in the field will give a negative value on the indicators of student training, interest, desire to deepen certain knowledge, feel have the ability to learn more also external factors indicators of encouragement from other people, to study, the difficulty of getting a job and a lucrative social environment there is a negative influence whereas in the laboratory facilities and workshop facilities of practical subjects have a positive effect, so the competence of the field of skill packages two semesters odd two even semesters can be done.

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