RELATIONSHIP of LEARNING and CREATIVITY FACILITIES COMPUTER LAB with IMAGE PRACTICES LEARNING ACHIEVEMENTS of MANUFACTURING GRADE XI ENGINEERING MACHINING SMK NEGERI 2 KARANGANYAR

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KEYWORDS	ABSTRACT
Learning Creativity Computer Laboratory Facilities Learning Achievement Drawing Manufacture	This research aims at finding: (1) correlation between creativity learn students with achievement manufacture drawing practice students of grades XI vocational high school 2 of Karanganyar, (2) correlation between computer laboratory facilities with achievement manufacture drawing practice students grades XI vocational high school 2 of Karanganyar, (3)correlation between creativity learn students and computer laboratory facilities with achievement manufacture drawing practice students grades XI vocational high school 2 of Karanganyar. This research was a correlational-quantitative study. The population of this study was an all of mechanical engineering department vocational high school 2 of Karanganyar students grades XI which it has 104 students and samples used 80 students with simple random sampling technique. In collecting the data, the researcher used questionnaire methods and documentation methods. Questionnaires are used to gather data independent variable that was creativity learn students and computer laboratory facilities, whereas documentation methods were used to gather bound variable achievement manufacture drawing practice, students. The validity test used the product moment formula, the reliability test used the alpha Cronbach formula. The analytical rules test which was used, those are normality test, linearity test, multi co-linearity test, autocorrelation test, and heteroscedasticity. Data analytical techniques used partial correlation and double linear regression. The result of the study shows that: (1) there has a significant positive correlation between creativity learn students with achievement manufacture drawing practice students of grades XI students of machine engineering department vocational high school 2 of Karanganyar with effective contribution of 54,7%, (2) there has a significant positive correlation between computer laboratory facilities with achievement manufacture drawing practice students of grades XI students of machine engineering department vocational high school 2 of Karanganyar with effective contribution of 20,4%,(3) there has a significant positive correlation between creativity learn students and computer laboratory facilities in a simultaneous manner with the achievement manufacture drawing practice students of grades XI students of mechanical engineering department vocational high school 2 of Karanganyar with effective contribution of 75,1%.

INTRODUCTION

Vocational secondary school (SMK) is a form of educational institutions at the secondary level which aims to produce graduates of the creative, independent and have certain skills who are ready to work. The process of preparing the graduates of VOCATIONAL SCHOOL which has a qualified competence is directly proportional to the effort of the school in an effort increase the quality of education. The enhancement is done in the process of teaching and learning in the classroom and outside the classroom in the school. One of the teaching and learning activities in Vocational secondary school (SMK), namely in the workshop or laboratory.

The fact that the process of learning of vocational techniques refers to the understanding of the basic theory of applicative studied, by always requires a learning approach that is able to bring the learners towards empirical understanding. To further the understanding of the essence of a lesson that is engineering always on the pressure to students through a practical approach.

One of SMK Negeri that exist in Central Java is SMK Negeri 2 Karanganyar. One of the program's existing expertise in CMS Land 2 Karanganyar is Machining Engineering Program. Machining demanding engineering program students to understand concepts and theories on engineering drawings and pictures of manufacturing as well as being able to apply them in the world of machining or in the design of the machine. One way to measure the students ' understanding of lesson practice against the image of manufacturing at the school by looking at the achievements of learning the practice of manufacturing drawings.

According to Tohirin (2006:153) stated that learning achievement is what has been achieved by the students after the study showed proficiency students in mastering the lesson, including achievement of learning the practice of manufacturing drawings.

Optimal student learning achievements or not is influenced by several factors, namely the internal factors include the physical condition and the five senses, intelligence, thoughtfulness, creativity, talent, motivation, motive, maturity, and readiness, while factor the external covering of the natural environment, social environment, and education instrument consisting of a curriculum, programs, media of learning, teaching methods and teacher of teachers.

Based on observations made on the students of Class XI when implementing Educational Internship 3 activities conducted at SMK Negeri 2 Karanganyar can be seen 31.7% or 33 students from a total of 104 students have learning achievements are not optimal or still under the standards of KKM. This is because students tend to be passive in learning the practice of manufacturing drawings. Where students just focused on the solution of the problems discussed teacher, thus making the students tend to have a dependency against teachers. Students do not have a high curiosity in resolving problems in the learning process. When faced with other problems but within the same concept, students tend to not get it done. Students are not accustomed to a fringe issue and not accustomed to looking for a wide selection of settlement against a problem because students have yet to optimize the potential of their creative thinking.

Silaban (2014:67) explained that creativity is the ability of individuals to use the data or information available to find a variety of possible solutions/answers to a problem, whereby in this case the more emphasis on quantity, right use as well as the diversity of answers/solutions. Suharman (2005:373) argued that the definition of creativity is a cognitive activity, i.e. a process of thinking ability in creating an idea – an idea or ideas that are new and useful or new ideas and useful. The characteristics of creativity according to Munandar (2009:10) differentiated into two i.e. Cognitive traits (aptitude) and non-cognitive traits (nonaptitude). Cognitive traits (aptitude) of creativity include originality, flexibility, fluency, and elaboration.

In addition to a high level of creativity, chances are there are still factors – factors that affect the success of learning the practice of manufacturing drawings, including the availability of facilities fully equipped computer laboratories, the laboratory atmosphere, and so on. Suradji (1994:142) presents that are included in this facility, among others, the props, the room, the time, place, and tools – practical tools, books – books, as well as the library.

Lab spaces serve as venue specific learning in practice and require special equipment (Barnawi, 2011). The room is the ideal laboratory has a length of 30 m and a width of 5 m which was used for 15 students with a minimum ratio of the expansive space computer lab is 2 m2/learners (Marpanaji, 2014:68). The computer lab is a space used for practice and experience of applying the theory. Many students complained that some of the computers used in the practices of learning the practice of manufacturing picture are still sluggish in operation while working on a job app inventor so that students become reluctant to optimize the potential of his creativity in solving the manufacturing drawings practices job. In addition, some ancillary equipment is still a lot of learning that may not be functioning properly.

Use one computer for two or more students to make the learning process less smoothly. Therefore, to maximize the existing facilities is extremely important in improving the learning achievements of students. It can be said that the achievements of student learning is very related to the creativity of students and laboratory facilities.

Of the phenomenon, it is interesting to note how the relationship of creative learning of students and computer lab facilities with the accomplishment of learning the practice of manufacturing drawings. The research was specifically done on the students of Class XI Engineering Program Machining SMK Negeri 2 Karanganyar because subjects pictures of manufacturing carried out in class XI. The research will be undertaken with the title: "The Relationship Between Student Learning And Creativity Facilities Computer Lab With Image Practices Learning Achievements Of Manufacturing Grade XI Engineering Machining SMK Negeri 2 Karanganyar 2017/2018 School Year".

RESEARCH METHODS

Type of this research is quantitative research. This research aims to know the relationship between learning and creativity facilities computer lab with image practices learning achievements of manufacturing. Free variables in this study are the creativity study (X 1) and computer lab facilities (X 2), while the bound variable (Y) is the practice of learning achievements of manufacturing drawings.

This research uses the source of primary data obtained with the now directly closed to the variables X 1 and x 2. Arikunto (2009:28) States that the now-closed is a question or statement that is compiled in such a way that you have available the full answer, so the choice of the respondent only signaled the answers that he chose. Secondary data in this study were obtained by the method of documentation for the variable achievement learning the practice of manufacturing drawings in the form of average value assignments, and exams practice pictures manufacturing grade XI Engineering Machining SMK N 2 Karanganyar school year 2017/2018.
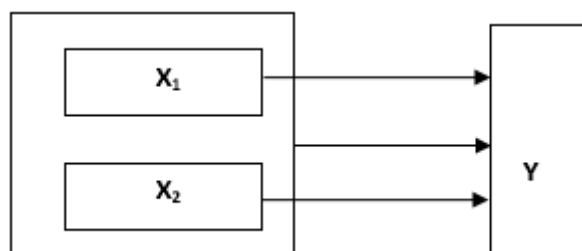
Design Research

Figure 1 Design Research

The population in this research is the grade XI Engineering Machining SMK Negeri 2 Karanganyar 2017/2018 school year which amounted to 104. The technique of sampling done by the method of simple random sampling with respect to table Isaach and Michael so obtained as many as 80 students. The technique of data analysis consists of test validity, reliability test, a test of classical assumptions (test of normality, linearity, multilinearity, autocorrelation, heteroskedasticity) and test the hypothesis (partial regression analysis and regression analysis).

RESULTS AND DISCUSSION

Validity and reliability tests in this study using IBM SPSS application version 21.0. The validity of a test is performed to measure the quality of the instrument variable learning and creativity facilities computer lab that tested at 30 students outside the research respondents.

A classic assumption test is done to find out whether or not there is normality of data, linearity, multilinearity, heteroskedasticity and the autocorrelation is calculated by the application of IBM SPSS version 21.0. Test of normality in regression models was used to test whether the residual value resulting from regression normally distributed or not. The good regression model is the residual value is normally distributed, the data obtained in this study are distribution normal to the third variable.

Linearity test aims to find out whether two variables have a linear relationship is linear or not. Good data is supposed to be there is a linear relationship between the free variables with variables bound. The results showed that each variable has a linear relationship with the free variables are bound.

Multicollinearity between independent variables means that there is a regression in models have a linear relationship was perfect or close to perfect. Good regression models should not happen multicollinearity. To find out whether or not there are multicollinearity can be viewed from the value of the VIF (Variance Influence Factor). The results showed that the variable learning and creativity facility computer lab has the value of tolerance and 0.457 VIF of 2.186. The value of the second variable tolerance no > 0.10 and value of VIF, 10 thus < doesn't happen multicollinearity.

Autocorrelation test aimed at testing whether in a linear regression model there is a correlation between error (residual) in period t with an error at period t-1 (earlier). Approach the presence of autocorrelation can be performed using the calculation of quantity Durbin Watson. The results showed that that did not happen because of the autocorrelation values between DU DW DW < 4-DU < i.e. 1.688 1.693 < < 2.312.

Heteroskedastisitas test is used to test whether in a regression model of the residual variance inequality occurs from one observation to another observation. The good regression model is that heteroskedasticity does not occur. This heteroskedasticity test using IBM SPSS application version 21.0. The results showed that the value of the variable X 1 is of significance to 0.635 and for variable X 2 of 0.858. The value of the second variable significance of the free > 0.05, thus not occur heteroskedasticity.

The regression equations for the variable of creativity learning facilities, computer labs and learning achievement practice pictures manufacturing grade XI Engineering machining SMK Negeri 2 Karanganyar as follows:

$$Y = 15,452 + 0,439\ X_1 + 0,259\ X_2$$

The relationship between creativity learning achievements of students with the practice of manufacturing drawings

The results of the analysis that has been done by using IBM SPSS application Version 21.0 obtained partial correlation value of r r = 0.658 with p = 0.000, (p. < 0.05) which means there is a significant positive correlation between learning achievements of students with creativity Learn the practice of drawing manufacturing, meaning the higher the level of creativity the students learning it will be increasingly higher learning achievements of the practice of the manufacturing picture will be achieved by the student.

The results of this research reinforced the theory put forth by Sugihartono (2007:76-77), factors affecting learning achievement consists of internal and external factors. One of the internal factors that influence learning achievements is the creativity study.

It is also aligned with the research done Anita Romance (2015) entitled "the influence of Learning Motivation of learning, Creativity, Student Perceptions about the Teaching method of teacher and Learning Media use against Achievement Learning Accounting Trading company Grade XI Program Accounting Expertise SMK N 7 Yogyakarta 2014/2015 school year ". The results of the study indicate that there is a positive influence between the creativity of learning with the learning achievements of Students trading company Accounting Class XI Accounting SMK Negeri Yogyakarta 7 2014/2015 academic year, it is indicated with the acquired Rx1y of 0.273 and R2x1y of 0.074.

Based on the study of theory and research relevant gets strengthened that creativity learning achievements against the positive effect of the practice of drawing manufacturing grade XI Engineering Program Machining SMK Negeri 2 Karanganyar Years The teachings of 2017/2018.

The relationship between the laboratory of computer learning achievements with the practice of manufacturing drawings

The results of the analysis that has been done by using IBM SPSS application Version 21.0 obtained partial correlation value of r r = 0.347 with p = 0.002, (p. < 0.05) which means there is a significant positive correlation between computer laboratories with facilities achievement learning practice image manufacturing, meaning the higher the computer laboratory facilities available then will be increasingly higher learning achievements of the practice of the manufacturing picture will be achieved by the student.

The results of this research with the research conducted by Wulandari (2015) in his journal, entitled "the influence of Computer Knowledge, Attitude, and Computer Facilities computer lab results Learn Computer Accounting Grade XI Accounting SMK Negeri 1 Surabaya ", mentioning that the facilities computer laboratory positive affect significantly to the results of a computer learning Accounting Accounting Class XI students of SMK Negeri 1 Surabaya.

According to Slameto (2010) to be able to learn effectively needed good physical environment conditions and regular, physical environment with regard to the provision of learning facilities which include indoor lighting, clean enough, and the proper equipment. The intended learning facility is on-site computer labs. Laboratory facilities are highly related to practical manufacturing image at school, including the computer devices and other means. However, a complete and computer lab facilities without the correct utilization can also lead to learning outcomes students are insufficient.

Other studies conducted by faith (2010) in his journal, entitled "the correlation student learning Readiness and management of computer laboratory student learning Achievements against On ICT Subjects in SMA Negeri Se-Town Praya 2012/2013 school year" which mentioned that the hypothesis test results from the management of computer laboratory with the learning achievements of ICT there is a positive and significant relationship, which also means the higher management of the computer lab students in SMA Negeri in-Town Praya the higher learning achievements acquired ICT students. The management of the computer laboratory is good then will produce good computer laboratory facilities.

From the results of some previous research that can corroborate that the higher a computer laboratory facilities are available at SMK Negeri 2 Karanganyar then it will have an impact on the higher learning achievements also practice drawing manufacturing will be achieved by the students of Class XI Machining Engineering Program of the academic year 2017/2018.

The relationship between student learning and creativity facilities computer lab with image practices learning achievements of manufacturing

This research shows that creativity learning of students and computer lab facilities to simultaneously have a significant positive relationship with the achievement of learning the practice of manufacturing, where the image is retrieved the value F regression of 115.886.

This shows that Fhitung > Ftabel, thus it can be concluded that the higher creativity learning of students and computer lab facilities are available then will be increasingly higher learning achievements of the manufacturing picture will practice achieved by the students of Class XI Machining Engineering Program of the academic year 2017/2018 at SMK Negeri 2 Karanganyar, vice versa, the lower the creativity learning of students and computer lab facilities are available then will be getting lower also achievement learning the practice of manufacturing picture will be attained by the students of Class XI Machining Engineering Program of the academic year 2017/2018 at SMK Negeri 2 Karanganyar.

CONCLUSION

Based on the analysis and discussion has been done, then it can be drawn the conclusion that (1) there was a significant positive relationship between creativity learning achievements with the practice of drawing manufacturing grade XI Engineering Program Machining SMK Negeri 2 Karanganyar, (2) there was a significant positive relationship between facilities computer lab with image practices learning achievements of students of Class XI manufacturing engineering Program Machining SMK Negeri 2 Karanganyar, (3) there is a significant positive relationship between student learning and creativity facilities computer laboratory jointly – the same as the practice of learning achievement pictures manufacturing grade XI Engineering Program Machining SMK Negeri 2 Karanganyar.

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