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IMPROVING STUDENTS' CREATIVE THINKING AND SELF-EFFICACY THROUGH PROJECT-BASED LEARNING MODELS

By

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Abstract

This study conducted at SMA Negeri 5 Kabupaten Tangerang. The purpose of this study was to determine the extent to which the application of the project based learning model of learning to improve the ability to think creatively and self efficacy. This study uses a Non-equivalent control group design which is one of the research design that is part of a quasi experimental and data collection technique in form of tests, questionnaires, observation sheets, and documents. Samples were taken using the convenience sampling technique so that selected tenth grade IPS. The result of the calculation prove there is a significant difference and an increase between the ability of creative thinking and self efficacy of students who apply the project based learning with the creative thinking abilities of students who apply conventional learning models in cooperative economic subjects. Based on the result of research using the t-test then the results of testing the questionnaire with the average value that it can be concluded that there is a significant difference between students creative thinking abilities applying conventional learning models and increasing self efficacy of class students experiments that apply the project based learning model of learning in cooperative economic subjects.

Jel Classification:

H68; L11; L25; D29

Keyword: Project Based Learning, student, creative thinking, self efficacy.

INTRODUCTION

The quality of education or educational attainment in Indonesia is currently still in the low category of the average after a change in curriculum in 2013, this is strengthened based on data from the Global Human Report, published by the World Economic Forum in 2017, Indonesia's ranking in education is 65 from 130 countries. That position is still low compared to other ASEAN member countries (Association of Southeast Asian Nations), for example Singapore (12), Malaysia (33), Thailand (40) and Philippines (50) (Schwab, 2017). With regard to the attainment of Indonesia's low education the 2013 curriculum was revised in 2017, according to the Ministry of Education and Culture the latest revision carried out in 2017 in the 2013 Curriculum has been set, focusing on improving two major parts of the curriculum, namely the content standards and assessment standards. The content standards are designed so that students are able to think critically, analytically, and creatively in accordance with the applicable international standards by reducing irrelevant and in-depth material expansions and expansion of material relevant to students, whereas assessment standards are carried out by adapting international standard assessment models step by step. One of the assessment of learning outcomes is focused on the ability to think creatively which is included in the Higher Order Thinking Skills (Hanifah, 2019) Higher Order Thinking Skills are very important skills in education in the 21st century era (Azieyana Aziz, et al. 2018). Higher Order Thinking Skills applies to curriculum development in Indonesian education not only for improving education but also because of the demands of 21st century learning involving information and communication technology in education and most importantly higher order thinking skills such as cognitive skills (creative thinking), interpersonal skills (social skills), and intrapersonal skills (self

management) (Koenig, 2011) Higher Order Thinking Skills as thinking skills that occur when someone takes new information and information that has been stored in his memory, then connects the two information and convey it to achieve the goals or answers needed.

In curriculum development in the 21st learning era, it makes or demands students to think in higher level or Higher Order Thinking Skills, one of them is to think creatively because creativity is an important issue in education and has become one of the nation's main agendas (Hashimah MD Yusoff, 2018) in line with the opinion of Tuti Tuarsih, said that the implementation of the 2013 curriculum which was implemented in the 2017-2018 academic year in senior high schools encouraged students to be more creative and innovative in accepting the learning process (PCN, 2017) because of the problems that occur in the ability to think creatively in Indonesia is in low category compared to other countries. This is shown from Indonesia's creativity based on the 2015 Global Creativity Index (GCI). A survey conducted by the Martin Prosperity Institute assesses a country's creativity index based on three indicators, namely technology, talent and tolerance, which Indonesia's rank is 115th out of 139 countries (Florida, et al. 2015) from the data, can be seen that the ability to think creatively in Indonesia is still a concern in the 21st Century era, whereas learning in the 21st century has been identified as a skill that is highly needed in today's global labor market (Mohamad Sattar Rasul, et al. 2009) this problem can occur because in most situations teachers do not optimize student involvement in learning so as to cause students can not express what they feel and think properly (Wa Ode Lidya Arisanti, et al. 2016), teachers only act as objects and students acting as a subject so this situation is not To encourage interaction between teacher and student, this one-way teaching process causes students to only memorize the concept of

learning until the aspect of thinking is ignored (Rian, et al. 2012).

The problem regarding the low ability of creative thinking in Indonesian education also occurs in SMAN 5

Kabupaten Tangerang, students in SMAN 5 Kabupaten Tangerang are low in creative thinking abilities can be seen from the results of the distribution of observation sheets in the form of the diagram below:

Figure 1. Observation Sheet Diagram

From the diagram above, it can be proven that students of SMAN 5 Kabupaten Tangerang are still lack in the ability to think creatively because many students choose the answer "Rarely" by 42%, in line with the results of interviews with teachers that students at SMAN 5 Kabupaten Tangerang are low in creative thinking skills in learning activities, whereas the ability to think creatively is an ability closely related to creativity that can be described as a way of thinking to change or develop a problem from a variety of different angles or sides, open to diverse new ideas and ideas (Hardika Saputra, 2018) so if where someone has the ability to think creative then it will form a creative person such as being more organized in action, designing new things but still paying attention to the possibility of obstacles that arise in his process (Marliani, 2015). Based on the problems regarding the low ability of creative thinking in education, as a instructor and teacher should determined a learning model that

will be used in learning activities that have effective results to be able to increase the level of creative thinking abilities of students. Teaching and learning process is at the heart of the educational process will occur between various teaching components (Ronald et al., 2018) Just as the (Saepuloh & Rodiah, 2020) teachers need to create a learning atmosphere that demands students to be more creative and initiative, students also play a very decisive role in achieving learning outcomes. To overcome these problems, the learning model that can be applied is the Project Based Learning model. Project Based Learning is a learning approach that teaches many important steps and tactics for success in the twenty-first century (Bell, 2010). Project Based Learning has the characteristics of developing students' thinking skills, allow them to have creativity, encouraging them to work cooperatively, and directing them to access their own information then showing the results of their information search (Bédard,

et al. 2012). The results of research conducted by Paian Tamba, Motlan, and Betty M Turnip on high school students in physics materials indicate that the level of creative thinking ability of students taught by applying Project Based Learning learning models is better than the level of creative thinking abilities of students with conventional learning (Paian Tamba, et al. 2017).

In line with the interview conducted by the author to one of the economics subjects in class X at SMAN 5 Kabupaten Tangerang, said that the teacher is still applying the conventional learning model,

the teacher has not applied the project-based learning model, Learning because of consideration, lack of time, lack of students' confidence in completing task (Self Efficacy) and the low participation of students in learning activities because students have not been able to the Project Based Learning model, the use of the Project Based learning model has not led to students in creative thinking abilities and Self Efficacy is still low. The low Self Efficacy of students at SMAN 5 Kabupaten Tangerang can be seen from the results of distributing observation sheets about Self Efficacy in the form of the diagram below:

Figure 2. Observation Sheet Diagram

From the diagram above, it is proven that students of SMAN 5 Tangerang Regency are still lack of confidence or Self Efficacy in learning activities because there are many students who choose the answer "Not Sure" by 45%, low creative thinking skills and Self Efficacy is an important issue in education. Therefore, we need a learning model that can improve students' creative thinking skills and Self Efficacy.

According to Bandura, Self Efficacy is related to people's belief in their ability to produce expected achievements and Self Efficacy is related to perceived ability (Bandura, 2006). Project Based Learning and Self Efficacy that have a bonded relationship is proven based on research by Shin Myeonghee from Hannam University who examined the Effects of Project-based Learning on Students' Motivation and Self-efficacy explains that the relationship between student motivation and their Self Efficacy after Project learning Based Learning. According to the results of the study, the average Self Efficacy and Self Efficacy projects are statistically correlated. In other words, the higher the student's Self Efficacy, the higher the Self Efficacy of project-based learning (Shin, 2018). this study is not in line with the results of research conducted by Bilgin, Karakuyu, & Ay, (2015) which stated that students who were given the study model treatment Project Based Learning (PjBL) before and after had the same

Level of Self Efficacy. Applying the Project Based Learning (PjBL) learning model to learning is expected that students can develop creative thinking skills and have high confidence (Self Efficacy) to solve problems in the learning process. Based on the description above, the authors conducted research on "Application of the project based learning model to improve students' creative thinking skills and self efficacy". The purpose of this research is to find out the extent of the application of project based learning models to improve students' creative thinking and self efficacy skills.

METHODS

This research method uses non-equivalent control group design which is one of the research designs that is part of experimental quasi through t test using independent sample test and data collection technique in the form of test questions and questionnaires that have been conducted validity and rehab tests, observation sheets, and documents. The population is 172 out of class X IPS I-V, with the sample set taken using convenience sampling techniques so that it is selected class X IPS 1 and X IPS 2 with a sample of 68 students.

This research was conducted at SMA Negeri 5 Kabupaten Tangerang.

RESULTS AND DISCUSSION

This study aims to find the ability to think creatively and the efficacy of students who use project based learning model and who use conventional learning models, it will be given a description of the summary of research results that can produce conclusions in processing data with manuals submitted by researcher determine mean, standard deviation, and variance. The following are the results that can be seen in the following table:

Table 1. Description of Pretest and Posttest Experimental Class Data Descriptive Statistics

	N	Minimu m	Maximu m	Mean	Std. Deviatio n	Variance
Pretest_Ek sperimen	34	33	55	42,56	5,960	35,527
Posttest_E ksperimen	34	71	96	82,26	6,778	46,079
Nilai beda	34	21	59	39,71	8,466	71,668
Valid N (listwise)	34					

Source: Results of processing statistical data using SPSS 22

Based on the pretest and posttest statistical description table the experimental class above can be seen the mean which is the average score of the experimental is 82.26. Meanwhile, for the

experimental class scores in learning activities the results show that the lowest score (min) is 71 highest score is 96 with a range to the score of 25 with a standard deviation of 8.466.

Table 2. Description of Pretest and Posttest Control Class Data Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Pretest_Kontrol	34	30	50	42,53	5,506	30,317
Posttest_Kontrol	34	63	88	74,26	7,956	63,291
Nilai_Beda	34	13	50	31,74	9,507	90,382
Valid N (list wise)	34					

Source: Results of processing statistical data using SPSS 22

Based on the pretest and posttest statistical description table the control class above can be seen the mean which is the average score of the control class is 74.26. Meanwhile, for the score of the control class in learning activities the results show the lowest score (min) is 63 to the highest

score is 88 with a range of score of 25 with a standard deviation of 9,507.

This study aims to see the comparison of the two classes, namely the experimental and control classes, there are differences or not after the implementation of the learning model, then testing the hypothesis can be done using the t test (test)

Tabel 3. Hypothesis Test Results Independent Sample T Test

Levene's Test for Equality of Variances				T test for Equality of Means						
Creative Thinking	Equal variances assumed	F	Sig.	T	df	Sig. (2-tailed)	Mean difference	Std. Error Difference	95% Confidence Interval of the Difference	
	Equal variances not assumed								Lower	Upper
		,727	,397	3,651	66	,001	7,971	2,183	3,612	12,329
				3,651	65,131	,001	7,971	2,183	3,611	12,330

Source: Results of processing statistical data using SPSS 22

Based on the data obtained from the results of the hypothesis test on the comparison between the pretest and posttest of the experimental and control classes it can be seen that the tcount is 3.651. Meanwhile, to get the table value seen in the t test table on two sides with df that is 66 at 1.997. Because tcount > ttable

(3,651 > 1,997) so H_0 is rejected and H_a is accepted. This shows that there is a significant difference between students' creative thinking abilities using the project based learning learning model and students' creative thinking abilities using conventional learning models.

Figure 3: Diagram of the average value of the experimental class of self-efficacy questions before treatment

Based on Figure 3 it can be seen that the average score for the whole question is of 2.14 for the test results of questionnaires

before treatment study model project based learning

Figure 4: Diagram of the average value of self-efficacy question experimental class after treatment

Based on the figure 4 it can be seen that the average score for the whole question is 3.09 for the test results of the questionnaire after treatment project based learning model of learning, from the analysis above can be said that self efficacy experiment class students has increased

from before to after treatment of learning through project based learning model. It can be seen from the given treatment before learning through project based learning model learning obtaining average score for the entire question by 2.14. Meanwhile, after treatment learning through project

based learning model learning obtaining average score for the whole question by to 3.09 so it can be concluded that learning project based learning model can improve self efficacy.

Creative Thinking Ability After Application Of Model Student Learning Project Based Learning And Learning Model Conventional

Project based learning applied to the experimental class is class X IPS 1, students during the learning process becomes more active and creative thinking in solving a problem and prepare a simulation project for the establishment of cooperative learning model where teacher gives students a problem to be solved related to the project. While conventional learning models are applied to the control class X IPS 2, where during the learning process only teachers as a learning center while students just as an object that makes students being passive, lack of understanding of the subject matter and difficult to solve a problem because students isn't get used in facing the problem.

Posttest score for the experimental class after being given treatment by applying the learning model project based learning in economics lesson material about cooperation obtain the highest posttest score of 96, While the lowest posttest score of 71, with the acquisition of the highest score between 83-96 it because students are able to understand and answer the posttest properly. Posttest average score of experimental class received grades of 82.26 and the total score of the overall indicator of the ability to think creatively in experimental class is 13.17.

The fourth indicator is based on students' ability to think creatively can be explained that the indicator 1 students are able to give the idea of the idea / that quite obvious, indicator 2 most students have been able to provide a range of ideas, indicator 3 students answered the question by using appropriate information obtained

during the learning process, and indicators of 4 students already have the ability to think creatively elaboration because in answering questions with the correct, complete and detailed.

While the results of the posttest for the control class after being given conventional learning models in economics lesson material about cooperation obtain the highest posttest score of 88 while the lowest posttest score of 63, with the acquisition of the highest score between 63-83 so that students in answering questions posttest did not reach the maximum score because in the learning process only teachers as a learning center where the teacher explains the material, frequently asked questions and were assigned. Posttest average score of control class obtain a value of 74.26 and the total score of the overall indicator of the ability to think creatively in control class is 8,76.

Through the above discussion it can be seen that the results showed the creative thinking ability of students to apply project based learning model is better than the students who apply conventional learning models, this was confirmed by research Rena Solar Rohana & Wahyudin Din "Project Based Learning To Enhance Students Creative Thinking On Food And Health Matter" which shows that with the implementation of project based learning model can improve students' ability to think creatively then other appropriate studies of Nanik Wijayati, Woro Sumarni, and Sri Supanti "Improving Student Creative Thinking Skills Through Project Based Learning" show that way of thinking is most of student in creative predicate. With the high increase in each fluency and elaboration indicator (Wijayati, et al. 2019).

Self-Efficacy After Application Of Model Student Learning Project Based Learning

Self-efficacy questionnaire discuss appropriate indicator of confidence in completing a task, motivate themselves, try hard and persistent, capable of facing obstacles and difficulties, and the latter

solve problems in various situations. Questionnaires were administered to students in the experimental class before and after *treatment* learning through project based learning model learning, Then in the analysis and the conclusion that the level of self-efficacy of students after learning model application project based learning increases than before withobtaining average score for the whole question 3.09 compared with prior to the implementation of project based learning model of learning thatobtaining average score for the entire question by 2.14.

In accordance with the theory of Bandura *self efficacy* have shown that more and more people consider their own actions as effective, the more likely they will persist in the work they are doing in terms of time and effort has been invested

Differences Between The Creative Thinking Ability To Implement The Model Student Learning Project Based Learning With Creative Thinking Ability To Implement The Model Student Learning Conventional

The average score of the results of creative thinking abilities to the experimental class at 82.26, while the average value for the control class 74.26 with a range of score 8. Data obtained based on the t test obtained from the difference between experimental class and control class can be seen of value tcount of 3.651. Meanwhile, to get the value ttable seen in the table on two-sided t test with df is 66 at 1,997, for $t > t \text{ table}$ ($3.651 > 1.997$) so H_0 is rejected and H_a is accepted. So it can be concluded that the project based learning can improve the ability to think creatively and self-efficacy of students on economic subjects in SMAN 5 Kabupaten Tangerang. The results are in accordance with research Gilang Akbar Nugroho, Baskoro Adi Prayitno & Joko Ariyanto "Enhancement of Creative Thinking Ability through the Implementation of Project Based Learning on Materials and Waste Recycling" which revealed that the learning model project

based learning can significantly improve the ability to think creatively from less creative to be creative enough (Nugroho, et al. 2017) then matches other studies of Angga Risnaini Hanz Chasanah, Nur Khoiri & Harto Nuroso "Project Based Learning Effectiveness Model of the Science Process Skills and Creative Thinking Skills Students on the Topic Heat Class X SMAN 1 Wonosegoro the Academic Year 2014/2015" which revealed that learning models project based learning is more effective than conventional learning models in improving learning outcomes in the form of creative thinking abilities (Angga Risnaini Uswatun Chasanah, 2016).

CONCLUSION

Creative thinking ability of students to apply project based learning model in the experimental class pretest obtain average score of 42.56, while the average score of the experimental class posttest gain an average score of 82.26. The lowest score pretest of experimental class is 33 and a high is 55 while the lowest posttest score value of 71 and the highest posttest score 96. posttest creative thinking ability of students which applying model project based learning in control class gained pretest average score of 42.53, while the average score of control class in posttest average score of 74.26. The lowest score of pretest in control class is 34 and a highest is 50 while the lowest posttest score in control group of 63 and 88.*self-efficacy* students in X grade IPS in SMAN 5 Kabupaten Tangerang to economic subjects in cooperations material has increased than prior to the implementation of project based learning model that can be seen from the assessment results of self-efficacy questionnaire analysis which derive a value of 3.09. So it can be concluded that the learning model project based learning can improve the ability to think creatively and self-efficacy of students.

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