



## Effectiveness of Think-Pair-Share Learning Model on Students' Creativity and Critical Thinking Ability

Wukir Cahya Utami ✉, Rusdarti

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Universitas Negeri Semarang, Indonesia

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Effectiveness, Creativity, Critical Thinking, Think Pair and Share

### Abstract

This study aimed to measure students' creativity and critical economic thinking skills. The method was Quasi Experimental Design with Nonequivalent control group design. The sampling process used purposive sampling technique and obtained 2 classes, namely class X IPS 3 as an experimental class using cooperative learning model of Think-Pair-Share and class X IPS 4 as a control class using Expository learning model. The variables in this study were creativity, critical thinking skills, and Think-Pair-Share cooperative learning. The results of the analysis of the effectiveness of the experimental class learning with the Think-Pair-Share learning model showed that the average final test result for the control class was 65.14 and the experimental class was 82.39 and obtained an N-Gain score of 0.58 in the moderate category, the Sig. (2-tailed) value of  $0.000 < 0.05$  through the Paired sample t-test, it can be concluded that there was a difference in the average critical thinking ability of students in the economy. The results of the analysis of the student creativity sheet showed that the percentage of students' creativity in the experimental class was 86.00% with the very creative category and the control class was 55.80% with the quite creative category. This showed an increase in creativity and the ability to think critically in economic subjects, management materials using Think-Pair-Share learning model was more effective than using expository learning in class X IPS at SMA Negeri 1 Rembang, Purbalingga Regency.

### How to Cite

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✉ Correspondence Address:  
E-mail: [wukircahyautami61@gmail.com](mailto:wukircahyautami61@gmail.com)

## INTRODUCTION

Law No.20 of 2003 concerning the National Education System states that education is a conscious and planned effort to create an atmosphere of learning and the learning process so that students actively develop their potential to have religious spiritual strength, noble morals, and the necessary skills, society, nation and state. Education in Indonesia has entered the era of the 4.0 industrial revolution, in this case the government has prepared a special learning strategy standard in the face of the 4.0 industrial revolution era, the standard was made by redesigning the educational curriculum known as 21st century learning, namely learning that emphasizes the ability of students to be able to mastering 4C, namely, Communication, Collaboration, Critical Thinking, Creativity, an Innovation.

The curriculum policy currently implemented in Indonesia is the 2013 Curriculum. The 2013 curriculum aims to streamline the learning process in schools, so as to improve the quality of education. The 2013 curriculum focuses on student-centered learning or student-centered so that the task of a teacher in the classroom is a facilitator. According to Permendikbud Number 21 of 2016 regarding content standards for primary and secondary education, it is explained that in the 2013 curriculum generic competencies consist of four dimensions that present spiritual attitudes, social attitudes, knowledge, and skills, hereinafter referred to as Core Competencies.

The description of core competencies in the dimensions of skills in the Secondary Education Level is to demonstrate the skills of reasoning, processing and presenting effectively, creatively, productively, critically, independently, collaboratively, communicatively, and in solutions. The skills that high school students must have are being able to think critically and creatively. Increase students' creativity and critical thinking skills through the help of teachers, namely by selecting an appropriate learning model.

Lismaya (2019) explained that the ability to think critically (critical thinking) is defined as

an intellectual process by making concepts, implementing synthesis, and evaluating information obtained from observation, experience, reflection, thinking, or communication as a basis for believing and doing something (action). One example of the ability to think critically is to draw conclusions (inferring) which is defined as the ability to relate various clues and facts or information with existing knowledge to make predictions of the final results that are formulated.

Apart from critical thinking, creativity is also an important thing for students to have. Creativity itself is the ability to provide new ideas and apply them in problem solving. Creativity includes both aptitude traits such as fluency, flexibility, and originality in thinking, as well as non-aptitude traits, such as curiosity, like asking questions, and wanting to find new experiences (Utomo, 2014).

In learning economics, the development of creativity and critical thinking skills is needed because economics is very closely related to daily life. The objectives of the economics subject in Senior High School (SMA) namely students must have the ability to understand a number of economic concepts to relate economic events and problems that occur in daily life. In addition, students are expected to be able to display a curious attitude towards a number of economic concepts needed to explore economics.

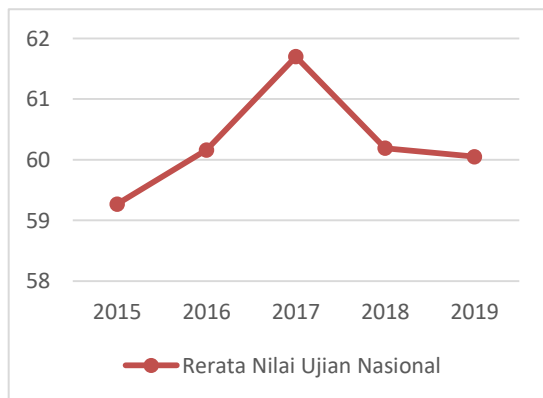
Economic conditions in the field require students to be more sensitive and hone their creativity and critical thinking skills, so that students can face situations of economic problems that often occur in their daily life. Therefore, students' thinking skills in economic subjects need to be developed, so that students not only know the concepts and theories of economics, but are able to have an understanding and knowledge that is in accordance with the current situation.

Students' creativity and critical thinking skills can be trained and developed by applying appropriate learning models. Joyce & Well in Rusman (2013) explained that the learning model is a plan or pattern that can be used to form a curriculum (long-term learning plans), design learning materials and guide classroom

learning. Learning models can be used as patterns of choice made by teachers to achieve their educational goals. The learning model that is thought to improve students' creativity and critical thinking skills is a cooperative learning model.

Daryanto and Syaiful (2017) explained that cooperative learning is a learning method where students learn in small groups that have different levels of ability, each member of this small group is required to work together between group members with one another. Cooperative learning consists of several models, including the Jigsaw model, Team Game Tournament (TGT), Cooperative Integrated Reading and Compositon (CIRIC), Group Investigation (GI), Student Team Achievement Division (STAD), Problem Based Intoduction (PBI), Mind Mapping, Think-Pair-Share (TPS), and Team Assited Individualization (TAI).

There are many models in the cooperative approach, one of which is thought to increase students' creativity and critical thinking skills is the Think-Pair-Share model. Think-Pair-Share learning model is a learning model where students can directly solve problems, understand material in groups and help each other, make conclusions and present as one of the steps to evaluate the learning activities that have been carried out.



**Figure 1.** Average National Examination Score of Senior High School, Purbalingga Regency in 2015 - 2019

Source: Puspendik Kemendikbud

Purbalingga is one of the districts in Central Java with a good quality of education. However, in recent years it has decreased. Based on Figure 1.1, it can be seen that the average

value of the National High School Examination for Public Senior High Schools in Purbalingga Regency from 2017 - 2019 has decreased. This indirectly indicates that the 4C ability of students is still low, because the National Exam questions have been made with Higher Order of Thinking Skill (HOTS) quality.

SMA Negeri 1 Rembang is one of the public high schools in Purbalingga Regency which has the means to support active, innovative learning and has implemented 2013 curriculum-based learning. The school has two programs, namely the Natural Science class which consists of Physics, Chemistry subjects, and Biology and Social Sciences classes consisting of Geography, Economics, History, and Sociology subjects.

**Table 1.** Data on Economic National Exam (UN) Score of Social Studies Students at SMA Negeri Purbalingga District 2018/2019

Name of Education Unit	Number of participants	Average Score of Economic UN
SMA Negeri 1 Purbalingga	132	82.78
Bobotsari 1 Public High School	155	78.07
SMA Negeri 2 Purbalingga	202	75.91
Kejobong 1 Public High School	84	70.23
SMA Negeri 1 Kutasari	122	67.50
SMA Negeri 1 Padamara	136	59.75
SMA Negeri 1 Bukateja	190	56.16
SMA Negeri 1 Rembang	127	55.47
SMA Negeri 1 Karangreja	137	52.92
SMA Negeri 1 Kemangkon	50	40.00

Source: Puspendik Kemendikbud 2020

Based on the data above shows that SMA Negeri 1 Rembang Purbalingga Regency gets the average national exam results for economic subjects, to be able to get higher grades and rankings the school must be more supportive and facilitate all the needs that can support the learning process in schools. Economics subject teachers must be extra in providing learning to students, namely starting from class X, by applying student-centered learning to improve and develop students' creativity and critical thinking skills, which is in accordance with the curriculum applied in SMA Negeri 1 Rembang, Purbalingga Regency, namely the 2013 Curriculum.

Based on observations made on Monday, January 20<sup>th</sup>, 2020 for the economy class X IPS teacher at SMA Negeri 1 Rembang, Purbalingga Regency, the learning process has not fully involved students actively. Learning activities have used innovative and creative learning models. However, students still do not fully understand the procedures of the applied learning model. Learning is mostly still centered on the teacher; the active role of students has not

been seen significantly. Learning media are also not optimally utilized. Teachers tend to prefer textbooks as guides and whiteboards as learning media compared to using Liquid Crystal Display (LCD).

**Table 2.** Recap of the Activities of Class X IPS Students at SMA Negeri 1 Rembang, Purbalingga Regency, Academic Year 2019/2020

Class	Average Percentage of Student Activities		Criteria
	Average Percentage	Criteria	
X IPS 1	34.38%	Less	Less
X IPS 2	33.33%	Less	Less
X IPS 3	30.00%	Inactive	Inactive
X IPS 4	29.17%	Inactive	Inactive

Source: SMA Negeri 1 Rembang Purbalingga Regency

From the data in Table 2, it can be seen that the average percentage of student activeness shows the criteria for being less active and even inactive in the material of non-bank financial institutions.

**Table 3.** Data of Daily Test Values for Class X IPS Students at SMA Negeri 1 Rembang, Purbalingga Regency, Academic Year 2019/2020

Class	Completed		Not complete		Total students
	amount	Percentage	amount	Percentage	
X IPS 1	20	55.5%	16	44.4%	36
X IPS 2	23	63.9%	13	36.1%	36
X IPS 3	13	37.1%	20	60.6%	33
X IPS 4	15	42.9%	20	57.1%	35

Source: SMA Negeri 1 Rembang Purbalingga Regency (2020).

The data in Table 3, it can be seen the percentage of incompleteness of class X IPS students during the Daily Test (UH) of Economic Subjects on the subject of Non-Bank Financial Institutions in 2018/2019. This proves that the students' creativity and ability to understand the material in economics are still low, because less than 75% of students score above the KKM (Minimum Completeness Criteria). There were 44% of students in class X IPS 1 who did not complete or had to take remedials, while class X IPS 2 had a smaller percentage of 36% of students who took

Remedia, for class X IPS 3 there were 60% of students who did not complete it, and for class X IPS 4 there were 57% of students who did not complete it. For that we need an evaluation in carrying out learning activities in the classroom.

In this study, the learning model used is the Think-Pair-Share (TPS) cooperative learning model for the experimental class and is compared with the expository learning model for the control class, applying the Think-Pair-Share (TPS) learning model for the experimental class. to students to increase creativity and the ability to communicate and collaborate between

groups and to know more about the material that has been delivered by discussing a subject matter that is being studied and conducting collaborative experiments and is expected to increase creativity and the ability to improve students' critical thinking.

Wade and Tarvis (2017) stated that critical thinking (*critical thinking*) is the ability and willingness to make judgments against a number of statements and make objective decisions based on judgment and supporting facts, not based on emotions and anecdotes. Critical thinking includes the ability to be creative and constructive, the ability to come up with various alternative explanations for existing events, think about the impact of the research results obtained and apply new knowledge to various social and personal problems. So that the ability to think critically is a skill to think broadly, meaning not only knowing a meaning but having the ability to analyze a problem by providing arguments, explaining a comparison and making a conclusion to the problem at hand.

Ennis in Maulana (2017) stated that there are 12 indicators of critical thinking skills which are grouped into five groups of thinking skills, namely: (1) Providing simple explanations which include: focusing questions, analyzing arguments, asking and answering questions about an explanation or challenge, (2) Building basic skills which include: considering the credibility of a source, observing and considering the results of observations, (3) Concluding which includes: making education and considering the results of education, making induction and considering the results of induction, making decisions and considering the results, (4) Providing further explanation, which includes: defining terms and considering definitions, identifying assumptions. (5) Setting strategy and tactics.

Creativity is a necessary thing in life. Creativity can help someone develop their talents to achieve achievements in life. Mohammad Ali and Mohammad A srori (2012), explained that creativity is a characteristic that is owned by an individual which is characterized by the ability to create something from a combination of existing works, into a new work

that is different from what already exists, beforehand and done through interaction with the environment to face problems, looking for alternative solutions by divergent thinking.

According to Munandar (in Harry 2018) the indicators of creativity are as follows: (1) fluency, which is bringing up many ideas and answers in solving problems, (2) flexibility, which includes producing various answers, (3) original (originality) namely being able to produce unique answers and being able to think of unusual ways, (4) elaboration, namely developing an idea by adding or detailing an idea.

Supardi (2013) stated that effective learning is a combination composed of human beings, materials, facilities, equipment and procedures directed to change student behavior in a positive and better way according to the potential and differences that students have to achieve predetermined learning goals. Meanwhile, according to Hamalik (2004) effective learning is learning that provides learning opportunities by themselves or carrying out activities as widely as possible for students to learn. Provision of self-study opportunities and activities as widely as possible are expected to help students understand the concepts that are being studied.

Joyce & Weil in Rusman (2012) stated that the learning model is a plan or pattern that can be used to form a curriculum (long-term learning plans), design learning materials and guide learning in class or others. Learning models can be used as patterns of choice or teachers can choose appropriate and efficient learning models to achieve their educational goals. The learning model is a plan or a pattern that is used as a guide in planning classroom learning activities. This model is a general pattern of learning behavior to achieve the expected competencies or learning objectives.

The learning model is a pattern of interaction between students and teachers in the classroom concerning approaches, strategies, methods, learning techniques that are applied in the implementation of learning activities. In a learning model, it is determined not only what the teacher should do, but also the stages, the principles of teacher and student reaction, and

the required support system (Putranta, 2018). Rusman (2015) stated that cooperative learning is a form of learning in which students learn and work in small and collaborative groups whose members consist of four to six people with a heterogeneous group structure.

Cooperative learning is not the same as just learning in groups, there are basic elements of cooperative learning that differentiate it from random group learning. Correct implementation of the basic principles of the cooperative learning system will enable teachers to manage the classroom more effectively. In cooperative learning, the learning process does not have to learn from teachers to students, but students can teach each other fellow students. Cooperative learning is not just learning material, but students must also learn special skills called cooperative skills.

According to Ali and Evi (2017) each learning model has strengths and weaknesses, the advantages of cooperative learning models can be described as follows: (a) Training students in multicultural classes who respect each other in differences, (b) Training students in team work, take responsibility individually and in groups, and (c) training students to learn independently, not always depending on the teacher. While the weaknesses of the cooperative learning model can be described as follows: (a) Requiring a long period of time to produce independence and skills of students in doing team work-based work, (b) Students who are less able to learn will become obstacles in team work, because they are less able to adapt to other friends,

Think-Pair-Share (TPS) is a type of cooperative learning designed to influence student interaction patterns. TPS requires students to work together in small groups (2-6 members) and are more detailed by cooperative rewards, rather than individual awards (Ibrahim et al. 2003). Huda (2014) suggested that Think-Pair-Share allows students to work alone and collaborate with others. This learning technique can optimize student participation, and provide at least eight times as many opportunities for each student to demonstrate their participation to others.

According to Lie (2004) the stages of cooperative learning of Think-Pair-Share (TPS) include: (a) The teacher divides students into groups of four and assigns assignments to all groups; (b) Each student thinks about and does the task himself; (c) Students pair up with one of their peers in the group and discuss with their partner; (d) The two partners meet again in groups of four. Students have the opportunity to share their work with groups of four. The purpose of this study was to measure the increase in creativity and the ability to think critically in economics in class X IPS at SMA Negeri 1 Rembang Purbalingga Regency by using the cooperative learning model of Think-Pair-Share (TPS) in economic subject, management material for class X IPS SMA Negeri 1 Rembang Purbalingga Regency.

## METHODS

The method used in this research was quantitative experimental method. According to Sugiyono (2016) experimental research is research that is used to find the effect of certain treatments on others under controlled conditions. The experimental method is part of a quantitative method that has its own characteristics, especially in the presence of a control group. By using the experimental method, it means that the researcher looks for a causal relationship between two factors that are deliberately caused and then eliminates the disturbing factors. Experiments are research conducted in order to find the cause and effect of a treatment.

There are several forms of experimental design that can be used in research, but the one used in this study was Quasi Experimental design. According to Sugiyono (2016) Quasi experimental is usually called a quasi-experiment, because in this study, researchers only used existing sample classes, without having to form a new class. In this study, two groups were taken as the control class and the experimental class. The control class was given treatment with the Expository learning model while the experimental class was given special treatment using the Group Investigation learning

model. This research was an experimental study with the Nonequivalent Control Group Design, this design is almost the same as the pre-test-post-test control group design, only with this design the experimental group and the control group were not chosen randomly.

The population used in this study were students of SMA Negeri 1 Rembang Purbalingga class X IPS class 2019/2020 which consisted of 4 classes with a total of 140 students. The sample is part of the number and characteristics of the population. The sample taken from the population must be truly representative or representative of the whole. The sampling technique used in this study was purposive sampling technique. By using purposive sampling technique, the researcher obtained 2 classes as the sample class, namely the control class and the experiment class.

The purpose of selecting class X IPS 3 as the experimental class and X IPS 4 as the control class as the sample is based on the initial data obtained where the two classes had a difference in average values that were not much different. The variables in this study were the Think-Pair-Share (TPS) learning model,

creativity and increased students' critical thinking skills in economic subjects, management material for class X IPS SMA Negeri 1 Rembang Purbalingga Regency. Data collection techniques in this study used documentation techniques, interviews, observation, and tests. The data analysis technique used independent test and paired sample test using the SPSS 22 program.

**RESULTS AND DISCUSSION**

This chapter describes matters relating to the data that the researcher has collected and a discussion of the results of the research. The part that will be discussed in this research is divided into two stages of analysis, including early stage data analysis and final stage data analysis. Initial data analysis was in the form of normality test, homogeneity test and similarity test for two means. While the final data analysis was in the form of normality test, homogeneity test, hypothesis test (paired sample t-test), N-Gain test, student learning activity analysis and completeness analysis.

**Table 4.** Normality Test of Pre-Test Data for Experiment and Control Class

Class	<i>Kolmogrov-Smirnov</i>	Sig value.	Conclusion	Data Distribution
Experiment	0.200	0.420	H0 Accepted	Normal
Control	0.200	0.736	H0 Accepted	Normal

Source: Processed research data, 2020

The data normality test was carried out by the Kolmogorov-Smirnov test using the help of SPSS 22. The rules for decision making included the Sig. > level of significant. Then the pre-test value data for both classes was normally distributed and vice versa if the value was Sig. <level of significant then the pre-test value data for both classes was not normal. From the test above, the results showed the Sig value. > level of significant (0.05), namely Sig. the experimental class and the control class was 0.200 > 0.05. Therefore, this showed that the pre-test data for the two classes was normally distributed.

**Table 5.** Homogeneity Test of Pre-Test Data for Experiment and Control Class

Levene Statistics	Sig value.	Conclusion	Ket
1,251	0.267	H0 Accepted	Homogeneous Variance

Source: Processed research data, 2020

To test the homogeneity of a data, a levens test was carried out by using the help of SPSS 22. The rules for decision making included the Sig. > level of significant. Then the pre-test value data for both classes was homogeneous and vice versa if the value was Sig. <level of

significant then the pre-test value data of the two classes was not homogeneous. Based on the results of testing the pre-test data for the control and experimental classes above using SPSS 22, it showed the Sig. > level of significant (0.05), namely  $0.267 > 0.05$ , this showed that the pre-test data in both classes was homogeneous or the same.

#### Similarity Test of Two Means of Pre-Test Data of Experiment and Control Class

The similarity test of the two mean of pre-test data was used to determine whether there was a difference in the mean of pre-test scores between the control class and the experimental class. The similarity test for these two means was analyzed by using the independent sample

test. To test whether there was a difference in the mean pre-test data, the independent sample test used the help of SPSS 22. The rules for decision making included the level of significance (0.05) if the Sig. <level of significant, then the pre-test data between the two classes had an average difference, and vice versa if the value was Sig. > level of significant, then the pre-test value data of the two classes had no average difference.

Based on the results of data testing, the pre-test value of the control and experimental classes using SPSS 22 showed the Sig. > level of significant (0.05), namely  $0.071 > 0.05$ , it can be explained that the pre-test data in the two classes was not a significant difference. This result means that the two classes had relatively the same initial ability.

**Table 6.** Post-Test Data of Normality Test for Experiment and Control Class

Class	<i>Kolmogrov-Smirnov</i>	Sig value.	Conclusion	Data Distribution
Experiment	0.129	0.238	H0 Accepted	Normal
Control	0.189	0.227	H0 Accepted	Normal

Source: Processed research data, 2020.

The data normality test was carried out by the Kolmogorov-Smirnov test using the help of SPSS 22. The rules for decision making included the Sig. > level of significant, then the post-test value data of both classes was normally distributed and vice versa if the value was Sig. <level of significant then the post-test value data of the two classes was not normal. Based on the data above, it can also be seen that the results showed the value of Sig. > level of significant (0.05), namely for the post-test data the value of Sig. the experimental class was  $0.129 > 0.05$  while the Sig. control class was  $0.189 > 0.05$ . Therefore, this showed that the post-test data for the two classes was normally distributed.

**Table 7.** Post-Test Data of Homogeneity Test for Experiment and Control Class

Levene Statistics	Sig value.	Conclusion	Ket
3,372	0.071	H0 Accepted	Homogeneous Variance

Source: Processed research data, 2020

The homogeneity test of the data was carried out by the levens test using the help of SPSS 22. The rules for decision making included the Sig. > level of significance, then the post-test value data of both classes was homogeneous and vice versa if the value was the Sig. <level of significant then the post-test score data of the two classes was not homogeneous. Based on the results of the post-test data testing of the control and experimental classes above using SPSS 22, it showed the Sig. > level of significant (0.05), namely  $0.071 > 0.05$ , this showed that the post-test data in both classes was homogeneous or the same.

#### Hypothesis testing

Ho: Creativity and the ability to improve students' critical thinking who use the Think-Pair-Share learning model is lower or the same as students who use the expository model.

Ha: Creativity and the ability to improve critical thinking of students who use the Think-Pair-Share learning model is higher than students who use the expository model.



The significance value (2-tailed) <0.05 indicated a significant difference between the initial and final variables. This showed that there was a significant effect on the differences in the treatment given to each variable. Meanwhile, the significance value (2-tailed) > 0.05 indicated that there was no significant difference between the initial and final variables. This showed that there was no significant effect on the differences in the treatment given to each variable.

**Table 8.** Paired Sample t-Test

		Mean	Df	Sig. (2-tailed)
Pair 1	Pre-Test Experiment	-	32	0,000
	Post-Test Experiment	24,515		
Pair 2	Pre-Test Experiment	-	34	0,000
	Post-Test Experiment	14,057		

Source: Processed research data, 2020.

From the paired sample t-test, the results of data testing of the pre-test and post-test values of the control and experimental classes using

SPSS 22 obtained the Sig. (2-tailed) of 0.000 <0.05, it can be concluded that there was a difference in the average critical thinking ability of students for the pre-test and post-test of the experimental class (TPS model) and the control class (Expository model).

**Table 9.** N-Gain Test Results of Pre-Test Post-Test of Control Class and Experiment Class

No.	Class	N-Gain Score Value	Criteria
1.	Control	0.29	Low
2.	Experiment	0.58	Moderate

Source: Processed research data, 2020

Based on the data above, the results of the N-Gain value for the experimental class average was 0.58 > 0.30 and 0.58 < 0.70, which means that the level of effectiveness of the learning model applied to the experimental class was in the moderate category. Whereas for the N-Gain value the control class average of 0.29 < 0.30 which means that the level of effectiveness of the learning model applied to the control class was in the low category.

**Table 10.** Results of the Percentage of Student Learning Activities in Control Class

Indicator	Student Learning Activities	
	Meeting I	Meeting II
Paying attention to the teacher's explanation	88.57%	71.43%
Active In Asking	37.14%	68.57%
Able to Express Opinions	34.29%	65.71%
Active In Doing Tasks From The Teacher	77.14%	68.57%
Submitting Tasks On Time	85.72%	65.71%
Average Percentage	64.57%	68.00%
Category	Active Enough	Active

Source: Processed research data, 2020

The results of observations of student activities during the learning process in the control class using the Expository model can be seen in the average of each meeting, at the first meeting there was an average percentage of 64.57% with the category of students being quite

active, at the second meeting the percentage of learning activities students experienced an increase of 3.43% to 68.00%. The first meeting to the second meeting of student activities in learning showed active criteria during the learning process.

**Table 11.** Results of the Percentage of Student Learning Activities in Experiment Class

Indicator	Student Learning Activities	
	Meeting I	Meeting II
Paying attention to the teacher's explanation	93.94%	90.91%
Active In Asking	63.64%	93.94%
Able to Express Opinions	69.70%	72.73%
Active In Doing Tasks From The Teacher	90.91%	100%
Submitting Tasks On Time	90.91%	100%
Average Percentage	81.82%	91.52%
Category	Active	Very active

Source: Processed research data, 2020

The results of observations on student activities during the learning process in the experimental class using the Think-Pair-Share model can be seen in the average of each meeting, at the first meeting there was an average percentage of 81.82% with the category

of active students, and at the second meeting. the percentage of student learning activities increased by 9.7% to 91.52%. The first meeting to the second meeting of student activities in learning showed the criteria for being very active during the learning process.

**Table 12.** Description of the final test results for class X IPS in SMA Negeri 1 Rembang, Purbalingga Regency

No.	Component	Initial Test		Final Test	
		Control	Experiment	Control	Experiment
1	Total students	35	33	35	36
2	The highest score	71	72	80	92
3	Lowest Value	37	43	58	65
Average		51.09	57.88	65.14	80.00
Percentage of Completeness		2.86%	6.06%	31.43%	90.91%

Source: Processed research data, 2020

Based on table 12, it showed the effectiveness of learning with a completeness limit of 70. according to Mulyasa (2013) the effectiveness of the use of teaching and learning strategies used in learning can be seen from the success of the class according to the learning mastery theory, that is, if all students are able to complete or achieve learning objectives of at

least 65 % and at least 85% of the total students in the class. Judging from the results of the analysis of the effectiveness of learning in the control class which was 31.43% and the experimental class was 90.91%, it can be concluded that the Think-Pair-Share learning model was effective on creativity and the ability to increase students' critical thinking abilities.

**Table 13.** The Results of the Percentage of Creativity for Class X IPS in SMA Negeri 1 Rembang, Purbalingga Regency

No.	Aspect (Stages)	Indicator	Student Creativity			
			Meeting 1		Meeting 2	
			Experiment	Control	Experiment	Control
1	Fluent Thinking Skills	Come up with lots of ideas, answers, suggestions in solving problems	55.00%	40.71%	86.43%	51.43%
		Work faster and do more than others	65.71%	52.86%	82.14%	64.29%
2	Flexible Thinking Skills	Generate a variety of ideas	72.14%	60.71%	83.57%	72.86%
		Can see problems from many different points of view	54.29%	41.43%	89.29%	52.86%
		Can apply concepts, properties, or rules in problem solving examples	57.86%	43.57%	92.86%	55.71%
3	Original Thinking Skills	Sparking problems, ideas, or things that other people don't think about	57.86%	42.86%	83.57%	47.86%
		Creating ideas or work that is different and completely new	54.29%	44.29%	83.57%	45.00%
4	Detailed Thinking Skills (Elaboration)	Develop or enrich other ideas	54.29%	40.71%	86.43%	46.05%
		Make a detailed and different report on the results of the discussion	49.29%	38.57%	83.57%	48.57%
5	Curiosity	The desire to find out, deepen deeper knowledge	61.43%	55.00%	83.57%	60.71%
		Question everything	57.14%	36.43%	85.43%	55.00%
6	Act feeling challenged	Get involved in the assigned task	67.14%	52.86%	89.29%	69.29%
Percentage Average			59.00%	45.80%	86.00%	55.80%
Category			Very Creative	Less Creative	Very creative	Very Creative

Source: Processed research data, 2020

Table 13 showed the results of observations on student creativity during the learning process in the Experiment class using the Think-Pair-Share learning model which can be seen in the average of each meeting, at the first meeting there was an average percentage of 59.00% with the category of creative enough students, at the second meeting the percentage of student creativity increased by 27% to 86.00% with the category of very creative students. At

the first meeting to the second meeting the students' creativity in learning showed that the criteria were creative enough to be very creative during the learning process.

In the control class, it can be seen that the results of observations on student creativity during the learning process using the Expository model can be seen on the average of each meeting, at the first meeting there was an average percentage of 45.80% with the category of less creative students, at the second meeting the percentage student activity increased by 10% to 55.80% with the category of creative enough students. At the first meeting to the second meeting students' creativity in learning showed the criteria from being less creative to being creative enough during the learning process.

This research was a type of experimental research that aimed to determine the cooperative learning model of the Think-Pair-Share was effective in increasing creativity and critical thinking skills in economic subjects with basic management competencies compared to using the Expository learning model on basic management competencies. From the preliminary data analysis carried out in the control and experimental classes, it was obtained normality test data for the experimental class with a significance level of  $0.200 > 0.05$  and the control class  $0.200 > 0.05$ , which means that the two classes had normal data and the homogeneity test data was obtained at the level of significance of  $0.267 > 0.05$ , the data was taken from the two homogeneous classes.

The implementation of learning in this study was carried out in class X IPS at SMA Negeri 1 Rembang Purbalingga Regency in the 2019/2020 academic year with management material in three stages, namely the first stage in the form of pre-test treatment, the second stage giving Expository model learning treatment for the control class and the Think-Pair-Share model for the experimental class and the third stage in the form of post-test treatment which focused only on two classes, namely the control class (X IPS 4) which used the Expository model and the experimental class (X IPS 3) which used the Think-Pair-Share model.

The two classes had the same characteristics where students were given

economic material with the same curriculum, got different learning models and were taught by the same teacher. From the results of the research in the form of a pre-test that had been conducted, it was found that the average initial ability of students for the control class was 51.09 and the experimental class was 57.88. This showed that the two classes had initial abilities that were not much different or relatively the same.

The learning process lasted for three meetings in basic management competencies. It can be seen that students' understanding of the material was quite good and effective. This can be seen from some students who can answer the questions and asked correctly. In each indicator, students were able to understand the material in it well. Besides, there were advantages of students in understanding the material, there was also a lack of students in understanding indicators in management fields due to learning that was applied online or explanations of material using video.

The results obtained from this study were increased creativity and critical thinking skills of students in the control class and experimental class management material, the results of observations of the implementation of learning management material in the control and experimental classes, the results of observations of student learning activities in control and experimental class management materials, the analysis of effectiveness. the learning model implemented both in the control class and the experimental class. After three meetings, the control and experimental class students were given post-test treatment which aimed to determine the students' final ability after the treatment in the learning process. The test was conducted to determine the effectiveness of the Think-Pair-Share learning model in increasing students' creativity and critical thinking skills.

According to Lismaya (2019), the word "Critical Thinking" or Critical Thinking is defined as an intellectual process by conceptualizing, implementing, synthesizing and evaluating information obtained from observation, experience, reflection, thinking, or communication as a basis for believing and doing an act. So that the ability to think critically

can be interpreted as the skills to think broadly, meaning not only knowing a meaning but having the ability to analyze a problem by providing arguments, explaining a comparison and making a conclusion to the problem at hand.

Creativity is a necessary thing in life. Creativity can help someone develop their talents to achieve achievements in life. Mohammad Ali and Mohammad Asrori (2012), explained that creativity is a characteristic that is owned by an individual which is characterized by the ability to create something from a combination of existing works, into a new work that is different from what already exists, beforehand and done through interaction with the environment to face problems, looking for alternative solutions by divergent thinking. So creativity can be interpreted as a characteristic possessed by each individual in the form of the ability to create something from combining existing works,

Based on the results of data testing, the pre-test and post-test values of the control and experimental classes using SPSS 22 obtained the Sig. (2-tailed) of 0.000 <0.05, it can be concluded that there was a difference in the average critical thinking ability of students for the pre-test and post-test of the experimental class (TPS model) and the control class (Expository model), so  $H_0$  was rejected and  $H_a$  was accepted, and it can be seen that there was a significant difference in the average critical thinking ability of students between the post-test of experimental class and the control class. This means that the improvement of students' critical thinking skills in the experimental class by applying the Think-Pair-Share learning model proved to be effective.

The results of this study were relevant to research conducted by Desi Ancillina et al (2013) which stated that the Think-Pair-Share learning model with image media had a significant effect on students' critical thinking skills as evidenced by the acquisition of the t-test with a significance level of 0.004 <0.05., So it was concluded that the Think-Pair-Share learning model with image media had an influence on the critical thinking skills of class XI IPS students.

Arsyad (2009) stated "learning is a complex process that occurs in every person throughout his life". The learning process occurs because of the interaction between a person and their environment. Therefore, learning can happen anytime and anywhere. One of the signs that someone has learned is a change in behavior in that person which may be caused by changes in the level of knowledge, skills or attitudes. Learning can be defined as "a process of change in the human personality, and this change is manifested in the form of an increase in the quality and quantity of behavior such as increased skills, knowledge, attitudes, habits, understanding, skills, thinking power, and other abilities" (Rahmat, 2019).

In this study, observations were also made on student learning activities towards learning with the Expository model and by learning the Think-Pair-Share model. Based on research data with 5 indicators of student activity during learning in order to obtain data on student learning activity scores, the result of the achievement of each indicator of the average student learning activity of the control class was 66.29, which means that the activities of the students were quite active, while in the experimental class it was 86.67, meaning that the activities of the students were very active. So the average results of student learning activities both individually and classically in the experimental class were better because it showed a higher percentage of learning activity categories.

In addition to observations of learning activities, in this study also observations were made on students' creativity towards learning with the Expository model and by learning the Think-Pair-Share model. Based on research data through 6 aspects (stages) with 12 indicators in order to obtain data on student creativity scores, the result of the achievement of each indicator of the average creativity of the control class students was 50.80 which means that the creativity of the students was quite creative, while in the experimental class it was 72.50 which means that the students were creative. So the average results of student creativity both individually and classically in the experimental

class were better because it showed a high percentage of creativity categories.

The results of this study were relevant to the research conducted by Farihatun and Rusdarti (2019) entitled *The Effectiveness of Project Based Learning (PjBL) Learning on Increased Creativity and Learning Outcomes*, which stated that there was an increase in creativity and student learning outcomes. The effectiveness of the experimental class learning using the Project Based Learning (PjBL) method showed that the average final test result for the control class was 76.81 and the experimental class was 79.94. This showed the ability to increase creativity and learning outcomes on merchandise arrangement material using project-based learning was more effective than using conventional learning in class XI PM SMK Negeri 2 Semarang.

The effectiveness of the use of teaching and learning strategies used in a lesson can be seen from the success of the class according to the learning completeness theory, that is, if all students are able to complete or achieve learning objectives of at least 65% and at least 85% of the total students in the class (Mulyasa, 2013: 99). From the results of the analysis of the effectiveness of learning in the control class of 58.12% and the experimental class of 70.14%, so it can be concluded that the Think-Pair-Share learning model was effective in increasing students' critical economic thinking skills.

The Think-Pair-Share learning model is said to be effective in increasing creativity and the ability to think critically in the economy if the model developed is actually effective in class in terms of its implementation and student learning outcomes. Indicators of effectiveness in the application of the Think-Pair-Share learning model are: (1) The average learning outcome of students increases after the Think-Pair-Share learning model is treated, (2) Completing learning of all students achieves learning goals of at least 65% and at least lack of 85% of the total number of students in the class, (3) The results of the t-test which show the effectiveness of the Think-Pair-Share learning model (4) The results of the N-Gain test which show the effectiveness of the Think-Pair-Share learning model,

The first indicator used in analyzing the effectiveness of the Think-Pair-Share learning model is seen through the average learning outcomes of the students' critical thinking ability tests. The Think-Pair-Share learning model is said to be effective, if the learning outcomes from the critical thinking ability test of students increase after the Think-Pair-Share learning model is treated. The treatment was seen from the results of the students' pre-test and post-test. The average score of students obtained from the pre-test results of the experimental class given the Think-Pair-Share learning model treatment was 57.88, while the average value of the experimental class students from the post-test results was 82.39.

Thus there was an increase in the average critical thinking ability of students in the experimental class seen from before and after the Think-Pair-Share learning model treatment was 24.51%, the description of the critical thinking ability test results contained in table 4 was obtained from the pre-test assessment and post-test. The second effectiveness analysis was the learning completeness of all students in the experimental class to achieve the learning objectives of at least 65% and at least 85% of the total number of students in the class. The completeness of the experimental class students before the treatment was 6.06% of the pre-test results after the Think-Pair-Share learning model treatment had been achieved by proving that the experimental class had completeness of 90.91% of the post-test results.

The second analysis of the effectiveness of the Think-Pair-Share learning model was seen from the observation of students' learning activities in the learning process. Control class students who were treated with the Expository learning model received an assessment of learning activities of 66.29% with active criteria, while students in the experimental class who were treated with the Think-Pair-Share learning model received an assessment of learning activities of 86.67% with very active criteria. So that we could find out that the activity of the experimental class students with the Think-Pair-Share learning model treatment was higher than the control class with the Expository learning model treatment.

Analysis of the effectiveness of the Think-Pair-Share learning model was the analysis of the effectiveness using the Paired Sample t-Test, which was to determine the effectiveness of learning on the critical thinking skills of students. When viewed from the results of the calculation of the Paired Sample t-Test, the Sig. (2-tailed) of  $0.000 < 0.05$  which was taken from the final results of the control and experimental classes obtained then  $H_0$  was rejected and  $H_a$  was accepted. This showed that there were differences in students' critical thinking skills in the control class. Share was effective for increasing students' creativity and critical thinking skills.

The fourth was the analysis of the effectiveness using the N-Gain test, which was to determine the effectiveness of learning on students' critical thinking skills. When viewed from the results of the calculation of the N-Gain test taken from the final results of the control and experimental classes, the N-Gain value for the experimental class was  $0.58 > 0.30$  and  $0.58 < 0.70$  means the level of model effectiveness learning applied to the experimental class included in the medium category. Whereas for the N-Gain value for the control class was  $0.29 < 0.30$  means that the level of effectiveness of the learning model applied to the control class was in the low category.

The fifth was the analysis of the creativity of students using observation sheets of students' creativity. Observations were made at the first meeting and the second meeting. The Think-Pair-Share learning model was said to be effective, if the percentage of students' creativity from the observation sheet analysis of students' creativity increases after the Think-Pair-Share learning model was treated. The treatment was seen from the percentage of students' creativity sheets at the first and second meetings. The average percentage of students' creativity at the first meeting obtained from the analysis of the experimental class creativity observation sheet that was given the Think-Pair-Share learning model treatment was 59.00 with a fairly creative category, and the average percentage of students' creativity at the second meeting was 86,

Thus there was an increase in the average percentage of creativity of experimental class

students seen from the observation sheet of the first and second meetings when the Think-Pair-Share learning model was applied by 27.00%. From the results of the increase in the average percentage of students' creativity, it can be concluded that the application of the Think – Pair-Share learning model could increase the creativity of students. Based on the elaboration of the five indicators of the analysis of the effectiveness of the Think-Pair-Share learning model, it could be concluded that the learning model was effective in increasing creativity and the ability to think critically in the economy of class X IPS at SMA Negeri 1 Rembang Purbalingga Regency in the 2019/2020 school year.

## CONCLUSION

From the results of research on the effectiveness of the Think-Pair-Share learning model on the creativity and critical thinking skills of the X IPS class students of SMA Negeri 1 Rembang Purbalingga Regency, data analysis and discussion obtained the following conclusions, namely first, Think-Pair-Share learning model in economic subjects, management material applied to class X IPS at SMA Negeri 1 Rembang Purbalingga Regency could increase student creativity, this was evidenced by the enthusiasm of students when discussing via WhatsApp Group. Think-Pair-Share was able to make students more enthusiastic about exchanging thoughts and opinions with their partners, so that the opinions expressed were more varied. In this case students were also able to provide more innovative answers.

Second, the Think-Pair-Share learning model was able to improve students' critical thinking skills in economic class X IPS at SMA Negeri 1 Rembang Purbalingga Regency, which was seen from the increase in the results of the pre-test score. In addition, the Think-Pair-Share learning model was also able to increase the learning activities of students in learning management material shown by the average percentage of student learning activities in the

experimental class was higher than the control class that used the expository learning model.

Third, the Think-Pair-Share learning model was effective in increasing the creativity of social studies students at SMA Negeri 1 Rembang, Purbalingga Regency, it was proven that from the results of the analysis of the student creativity observation sheet, the percentage of students' creativity in the experimental class was 86.00% with very creative criteria and the percentage of student creativity of control class was 55.80% with quite creative criteria. This showed that the Think-Pair-Share learning model applied to the experimental class was effective in increasing student creativity.

Fourth, the Think-Pair-Share learning model was effective in improving the critical economic thinking skills of students of class X IPS at SMA Negeri 1 Rembang Purbalingga Regency, as evidenced by the results of the analysis of the paired sample t-test data on the pre-test and post-test scores of the control class and the experimental class obtained the value of Sig. (2-tailed) of  $0.000 < 0.05$ , it could be concluded that there was a difference in the average critical thinking ability of students for the pre-test and post-test experimental class (TPS model) and control class (Expository model), then  $H_0$  was rejected and  $H_a$  was accepted and the results of the N-Gain value for the experimental class were  $0.58 > 0.30$  and  $0.58 < 0.70$ , which means that the level of effectiveness of the learning model applied to the experimental class was in the medium category.

## SUGGESTION

The author provides several suggestions. For teachers of economics subjects, they should evaluate the learning model that has been applied in the classroom and can consider the Think-Pair-Share learning model for materials that require higher understanding in analyzing and solving problems. Students are expected to be more courageous in asking questions and expressing their opinions in group discussions and in class discussions. For future researchers, there are many things that can be researched

besides the Think-Pair-Share learning model on students' creativity and critical thinking skills, so that further researchers can apply other learning models that can increase students' creativity and critical thinking skills.

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