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The Effect of The STAD Learning Model Aided by Students Worksheet to Improve Critical Thinking Skills of Students

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Abstract

This study aims to determine the ability of critical thinking skills of students before and after the implementation of STAD learning models assisted by Students worksheet to analyze the effect of STAD learning models assisted by Students worksheet (LKPD) on critical thinking skills. This study was Quasi-experimental research. The population of this study was grade IV students of Diponegoro Cluster in Brebes District consisting of 203 students. Samples were taken by random sampling technique, a total of 60 students. The data of this study were obtained from tests and observations. Data were analysed using t-test analysis. The results showed that there was an increase in critical thinking skills before and after the implementation of the STAD learning model assisted by Students worksheet with a score of 10.55 and Sig, of 0.000. There is an effect of the STAD Learning Model by Students worksheet on students' critical thinking skills with at value of 7.18 and a Sig of 0.000. It can be concluded that there is a positif influence of the ability of students to think critically, before and after the STAD learning. The worksheet-assisted STAD learning models can improve critical thinking skills of students significantly.

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INTRODUCTION

Education is a conscious and planned effort to realize and help learners develop their potential. All potential of learners can be developed through learning. Learning process must provide suitable strategy and the teacher acts as a facilitator and mediator. Generally, the learning process that is carried out at school, is only centered on the teacher (teacher center) which is dominated by the lecture method. As expressed by Vianata (Arifin 2016: 423) in the reality, almost all school teachers act as learning center. They usually teach by using lecturing method, even though there are many other methods. The materials taught were incomplete and in accordance with the circumstances of the surrounding environment that can be used as a source of learning to train students critical thinking skills. One example is that the questions used are mostly at the C1-C3 cognitive level so there are no questions that pursue critical thinking.

The 21st century shows the advances in technology and communication. Based on this phenomenon, quality education is important to prepare a good future. The US-based Partnership for 21st Century Skill (P21), identified the competencies needed in the 21st century, namely "The 4Cs" which refers too communication, collaboration, critical thinking, and creativity. These skills are important to be taught to students in learning and are the theme of the 21st century learning. Achievement of 21st century skills, especially in aspects of critical thinking can be done by renewing the quality of learning, helping students develop ways of thinking, adjusting learning personalization, emphasizing learning models that are appropriate to the material being taught, encouraging critical thinking, and communication, increasing engagement and students' interests, cultivating critical thinking and making changes in learning, using appropriate learning tools, designing learning activities that are relevant to the real world.

Preliminary observations on students' critical thinking skills in the form of the average test scores of grade IV students has been done in social studies subjects. Based on the results of observations obtained a description of the low critical thinking skills of students. As seen from the results of the analysis of items test that are considered difficult only 11 students or 33.66% who passed the minimum criteria. Based on the background described, it is important to conduct a research about The Effect of STAD Learning Models assisted by students worksheet in Social Studies Learning to Improve Critical Thinking Skills of students. This is in line with the research conducted by Arifin (2016) that the STAD learning model can improve students' critical thinking skills. But in this research, the study is enriched with students worksheet to guide students to thinking critical thinking.

METHODS

The study was Quasi-experimental research to determine the effect of STAD learning models assisted by Students worksheet (LKPD) on the critical thinking skills of students. The research design was Pretest Posttest control group design as in Table.

Table 1. Pretest Posttest Control Group Design Research Design

Group	Pre-test	Dependent variable	Post-test
Experiment (STAD)	O_1	X	O_2
Control (Jigsaw)	O_3	Y	O_4

The population taken was grade IV elementary school students in Dabin XI, the Diponegoro cluster, amounting to 203 students in the Brebes sub-district. Samples were taken by random sampling technique and obtained 30 students in grade IV SDN Pulosari 03 and 30 students in grade IV SDN Pemaron 02.

The research data were obtained from tests and observations. Conducted in two different classes, namely in the experimental class using STAD learning models assisted by students worksheet while the control class using Jigsaw learning models assisted by students worksheet. The prerequisite test of the study is the normality test and homogeneity test. Data analysis in this study used a t-test analysis using SPSS 23.

RESULTS AND DISCUSSION

Test results for normality of critical thinking skills data before and after the STAD (Student Team Achievement Divison) learning model is given. The experimental and the control classes obtained the critical thinking test result(KBK and KBKK) as presented in Table 2.

Table 2. Data Normality Test Results

Group	Kolmogorov-Smirnov		
	Statistic	df	Sig
KBKK_Pre	.136	30	.164
KBKK_Pos	.120	30	.200*
KBKE_Pre	.140	30	.140
KBKE_Pos	.144	30	.114

In the Table 2, a significant value of the results of the normality of critical thinking skills before and after learning of the STAD (Student Team Achievement Division) model is obtained is greater than 0.05 or sig > 0.05 so that it can be concluded that all data are normally distributed.Next step was the pretest and posttest data were tested for homogeneity. Test result of students early childhood knowledge data are as in Table 3.

Table 3. Homogeneity Test Results

Samples	Levene statistic	df_1	df_2	Sig.
Control	2.540	1	58	.116
Experimen	.108	1	58	.744

The results of the test of Homogeneity of Variances shows that the test results show that critical thinking skills data in the learning of experimental groups and control groups assisted by Students worksheet (LKPD) have homogeneous variants (sig 0.744 > 0.05 and 0.116 > 0.05).

Critical Thinking Skills Using The STAD Learning Model Assisted by Students Worksheet(LKPD)

The results of this study indicate that there is an increase in students' critical thinking skills by using STAD learning models assisted by Students worksheet.The results of the pretest and posttest critical thinking skills have differences between the experimental group and control group. The average critical thinking skills can be seen in Table 4.

Table 4. Average Critical Thinking Skills of the Control and Experiment Groups Before and After Students worksheet Assisted Learning

		Mean	N	Std. deviation	Std. error mean
Pair 1	KBKE_Pre	21.70	30	4.20	.76737
	KBKE_Pos	33.76	30	4.11	.74999
Pair 2	KBKK_Pre	23.70	30	5.69	1.03851
	KBKK_Pos	30.43	30	5.20	.95012

Based on the Table 4, it can be seen that before learning is given to the experimental group the mean value of critical thinking skills is 21.70 and after learning is 33.76. Whereas after learning is given to the control group the average (mean) value of critical thinking skills is 23.70 and after learning is 30.43.

The average score of the experimental group and the control group above shows as significant increase in scores before and after the Students worksheet-assisted STAD learning model was given. After knowing the differences, then test the comparison of the effectiveness level pretest and posttest of the critical thinking skills of the experimental group and the control group in STAD learning model assisted by Students worksheet learning presented Table 5.

In the Table 5 it is known that the difference in the average critical thinking skills of the experimental group is 12.06. The value of count is 10.55 with a probability of 0,000. When compared with the α value used (0.05), it can be concluded that there is a significant increase in the value of students' critical thinking skills with the STAD-assisted learning model of Students worksheet. The percentage of the increase in the value of pretest to posttest was 55.57%.

Table 5. Testing the Effectiveness of Improving the Critical Thinking Skills of the Experimental Group and the Control Group on Students Worksheet Assisted Learning

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	KBKE_Pre - KBKE_Pos	-12.06	6.26	1.14	-14.40	-9.72	-10.551	29	.000
Pair 2	KBKK_Pre - KBKK_Pos	-6.73	8.22	1.50	-9.80	-3.66	-4.482	29	.000

The difference in the average difference in thinking skills after learning Jigsaw assisted by the Students worksheet (control group) was 6.73. The value of count is 4.48 with a probability of 0.000. When compared with the value of α used (0.05), the calculated probability value is smaller than the value of α or (0,000 <0.05), so it is concluded that there is a significant increase in the value of critical thinking skills of students with Jigsaw learning models assisted by Students worksheet. The percentage increase in the value of pretest to posttest was28.39%.

The findings in this study also show relevance to previous studies that the STAD learning model also improves the critical thinking skills of grade IV students in elementary schools. Relevant research, among others, research conducted byTaufik Samsuri (2017) that the STAD cooperative learning model affects the critical thinking skills of class VII Madrasah Tsanawiyah NW Pringgabaya Academic Year 2017/2018. The results of research conducted byFarqiyatur Ramadhan et al (2016) that the STAD Remap model measures STAD Remap can improve critical thinking skills. Dwi Sulisworo (2016) that the involvement of students with thinking activities during the learning process with the STAD model has animpacton the achievement of mastery of the concepts being studied. At the stage of group work, each group member can express ideas and concepts that are understood to answer the task of the teacher.

The Effect Assisted STAD Models by Students Worksheet (LKPD) on Critical Thinking Skills

The results of this study indicate that there is an influence of STAD-assisted by Students worksheet (LKPD) learning models on critical thinking skills. To find out whether the difference is significant or not, an independent sample t-test was conducted with the following results.

Table 6. Results of Tests on the Effectiveness of Critical Thinking Skills in Experimental Groups and Students worksheet Assisted Learning Control Groups

		Levene's test for equality of variances		t-test for equality of means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference Lower	Upper
Critical thinking	Equal variances assumed	1.365	.247	-7.185	58	.000	-7.06667	.98358	-9.03552	-5.09781
	Equal variances not assumed			-7.185	56.502	.000	-7.06667	.98358	-9.03663	-5.09670

In the Table 6, it is known that the difference in the critical thinking skills of the experimental group and the learning control group STAD assisted by Students worksheet has a count of 7.18 with a probability of 0,000. When compared with the value of α used (0.05), the calculated probability value is smaller than the value of α or (0.000 < 0.05), so it is concluded that the increase in critical thinking skills with Students worksheet-assisted group learning models is significantly more effective than the model Jigsaw learning assisted by Students worksheet (LKPD) (control group).The findings in this study indicate that there is an influence of the STAD learning model assisted by Students worksheet (LKPD) on critical thinking skills. Based on Figure1 show that students who can answer the pre-test have not been able to answer

coorectly. The results of the pre-test did not meet the maximum criteria of 75.

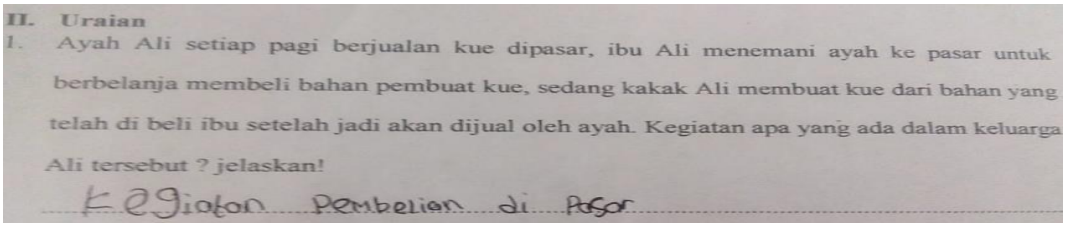
II. Uraian
1. Ayah Ali setiap pagi berjualan kue dipasar, ibu Ali menemani ayah ke pasar untuk berbelanja membeli bahan pembuat kue, sedang kakak Ali membuat kue dari bahan yang telah di beli ibu setelah jadi akan dijual oleh ayah. Kegiatan apa yang ada dalam keluarga Ali tersebut ? jelaskan!
Kegiatan Pembelian di Pasar

Figure 1. Pre-test Results of Critical Thinking

The ability to concept the critical thinking after giving the treatman of STAD learning model assisted by students worksheet (LKPD). The following result is a sample of the post-test students ability in Figure 2.

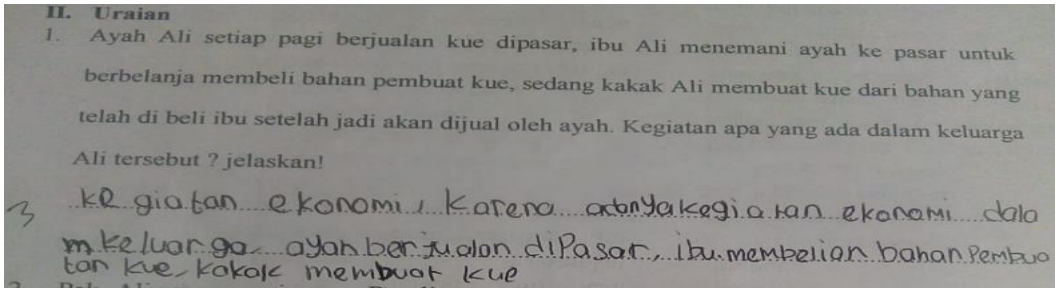
II. Uraian
1. Ayah Ali setiap pagi berjualan kue dipasar, ibu Ali menemani ayah ke pasar untuk berbelanja membeli bahan pembuat kue, sedang kakak Ali membuat kue dari bahan yang telah di beli ibu setelah jadi akan dijual oleh ayah. Kegiatan apa yang ada dalam keluarga Ali tersebut ? jelaskan!
3 kegiatan ekonomi. karena adanya kegiatan ekonomi dala m keluarga ayah berjualan dipasar, ibu membelian bahan pembuatan kue kakak membuat kue

Figure 2. Post-test Results of Critical Thinking

Based on Figure 2 show that students who answer post-test are able to answer all of them correctly. The ability after giving the treatment, the students understand the material about economic activity. The posttest result fulfill the maximum completeness criteria. The model of STAD based learning assisted by Students worksheet (LKPD) can improve the concepts understanding of students.

CONCLUSION

Based on the discussion that has been done, it can be concluded that there is a significant increase in the ability of critical thinking skills in students after learning with the cooperative type STAD model assisted by Students worksheet (LKPD). There is a significant influence of STAD by Students Worksheet (LKPD) cooperative learning model on students' critical thinking skills.

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