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Original Research Article

The Effect of Self-Learning and Regulating Methods on Critical Thinking Ability in Social Knowledge Science Subject

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Abstract: This study aims to determine the effect of learning and self-regulation methods on the critical thinking skills of Social Sciences subjects in Class IV students of elementary schools Gedong 08 Pagi East Jakarta. This study uses an experimental method with 2 x 2 factorial design. The affordable population is the fourth grade students of Gedong 08 Pagi East Jakarta elementary school with a total sample of 64 students. The data analysis technique used in this study is a two-way analysis of variance (ANAVA). The results of the study were obtained, namely Overall there was a significant influence of critical thinking skills between students who studied using the investigation group method and students who studied using the expository method.
Keywords: Learning methods, self regulation, critical thinking, social science

INTRODUCTION

Learning methods are procedures, sequences, steps and ways that teachers use in achieving learning goals. Teachers should be able to choose learning methods that are considered appropriate with teaching material and can explore students' critical thinking skills in solving social science concepts in learning Social Sciences. There are several learning methods that can be used by teachers to explore students' critical thinking skills in learning Social Sciences including the Group Investigation method and the expository method.

The Group Investigation method is a method where students interact and communicate with each other with various information and do work collaboratively to investigate a problem, plan, present, and evaluate student activities (Irwan, N *et al.,* 2015). Group Investigation is classified as a method of group investigation because the tasks given are very diverse, encouraging students to collect and evaluate information from various sources, their communication is bilateral and multilateral, and the awards given are very implicit (Susilo, F *et al.,* 2016, Bray, A. *et al.,* 2015). The Group Investigation method encourages students to be more active and learning more meaningful. While the expository method is a learning model that emphasizes the process of delivering material verbally from a teacher to a group of students with the intention that students can master the lesson optimally (Ergas, O. 2017). Expository learning is a form of teacher-oriented approach. That said, because

in this learning the teacher holds a very dominant role (Fleer, M. 2017).

In addition to external factors of students, internal factors can be one of the factors that can affect the learning process. The teacher considers all students in the class to have homogeneous abilities, while students clearly have different characteristics and have self-regulation (different emotions and behaviors) (Vohs, K. D. *et al*., 2016). Self regulation is the ability to regulate behavior and carry out such behavior as a strategy that influences a person's performance in achieving goals or achievements as evidence of improvement (Zimmerman, B. J. *et al.,* 1997). With the existence of self-regulation, a person will be able to regulate his thoughts, emotions and someone's behavior towards success in the school environment, work and life (Strunk, T. *et al*., 2014). Self regulation becomes important when students in a class are faced with an environmental situation that requires active interaction between all components, but if students cannot have a high level of regulation it will make students unable to manage their thoughts, control their behavior and emotions.

METHOD

This study uses an experimental method with 2 x 2 factorial design. In this study the target population was all students of Gedong 08 Pagi East Jakarta elementary school. The affordable population is grade IV Gedong 08 Pagi East Jakarta elementary school. The number of samples in this study were 64 students.

RESULT

Table-3: Summary of Two Path Variance (ANAVA) Analysis Results

Source of Variance	Db	F_{hitung}		F_{tabel}	
				0,05	0,01
Learning Method (A)	1	21,098	*	4,20	7,64
Self Regulation (B)	1	0,065		4,20	7,64
Interaction	1	89,144	**	4,20	7,64
In	28				
Total Reduced	31				

The score of critical thinking skills of students who use the Group Investigation learning method is higher than the learning outcomes of students who use the Expository learning method. The average score of critical thinking skills of students using the Learning Method Group Investigation (A1) is 53.50 while the average score of critical thinking skills using the Expository (A2) learning method is 49.00. The results of the calculation of two-way ANOVA obtained Fcount = 21,098 while Ftable = 4,20 at the real level α = 0,05. Because the Average Score Score of critical thinking skills of students using the Group Investigation learning method is greater than the average score of critical thinking skills using Expository learning methods (µA1 > µA2) and values (F count> Ftable), then (H0) is rejected and H1 is accepted, meaning that there is a significant difference between the average score of critical thinking skills of students using the Group Investigation (A1) learning method and the average score of critical thinking skills using the Expository learning method (A2).

Further testing using the Tuckey Test shows that the value of Q count = 6.50 is greater than the value of Qtable = 3.00. The conclusion is the score of critical thinking skills of students who use the Group Investigation learning method is higher than the score of critical thinking skills of students who use the Expository learning method. A summary of the Tuckey test results can be seen in the table below:

Table-4: Tuckey Test Summary The critical thinking ability score between students

	Q_{hitung}	Q_{tabel}
		α= 0,05
A₁ - A₂	6,50	3,00

Effect of interaction between learning methods and self-regulation on students' critical thinking skills. Learning and Self Regulation methods have an effect of 73% (Wˆ ^ 2 = 0.733) on students' critical thinking abilities. Data concluded that H0 was rejected and H1 was accepted. The ANAVA calculation results that Fcount = 89.144 for the interaction factor is greater than Ftable which is 4.20 at the real level α = 0.05. There is an interaction effect between the use of learning methods and self regulation on students' critical thinking skills scores. The graphical form of interaction between learning methods and self regulation on critical thinking ability scores is presented in the following figure:
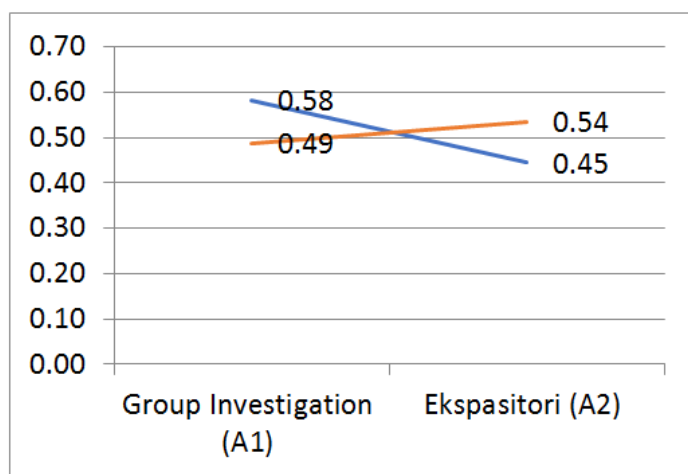
Fig-1: Graph of Interaction Learning Methods and Self Regulation

Students who have high Self Regulation, have the ability to think critically better when using the Group Investigation learning method. The average score of the critical thinking ability of students who use the Group Investigation learning method and have a high Self Regulation (A1B1) is 54.50 while the average score of the critical thinking ability that uses the Expository learning method and has a high Self Regulation (A2B1) is 45.25 and the Tuckey Test show that Qcount is 14.03> Qtable which is 4.53 at the significance level α = 0.05, thus it can be concluded that H0 is rejected and H1 is accepted which means that for students who have high Self Regulation is higher if using the Group Investigation learning method. A summary of the Tuckey Test results is presented in the following table:

Table-5: Summary of the Tuckey Test Score

	Q_{hitung}	Qtabel $\alpha= 0,05$
Q1 : A_1 - A_2	6,50	3,00
Q3: A_1B_1 - A_2B_1	14,03	4,53
Q4 : A_1B_2 - A_2B_2	4,85	4,53

DISCUSSION

Based on the opinion of Sarah (Schlegel, S. 2011) which states that, regulating one's thinking, emotions, and critical behavior for success in school, work, and life. that is, by self-regulation, a person will be able to regulate his thoughts, emotions and behavior towards success in the school environment, work and life. Strengthened by the opinion of waiten (Weiten, W. 2007; Petri, H. L. *et al.*, 2012). Namely self-regulation is the ability that exists in the individual, which refers to the ability to use knowledge. Relating to the goals to be achieved, while still using conformity to make a happy life, or live a regular life.

Based on the description above self regulation is defined as a regulator in a person towards stimuli from within and from outside and the child's environment (Reeck, C. *et al.*, 2016). So that students can be able to adapt to the environment and friends and be able to control their thoughts and emotions. That way students who have high self-regulation are able to focus on learning objectives that they want to achieve and in the learning process, they are able to work well together with friends and be able to express their opinions systematically and controlled (Sumantri, M. S. *et al.*, 2016; Rachmadtullah, R. 2015). The learning method is a conceptual framework that describes a systematic procedure in organizing learning experiences to achieve certain learning goals, and serves as a guide for learning designers and instructors in planning teaching and learning activities.

CONCLUSION

Based on the results of research, data collection, tabulation, processing, assessment, and analysis of all data, it can be concluded as follows (1). Overall there is an influence of students' critical thinking skills on Social Sciences subjects in fourth grade students of Gedong 08 Elementary School. A significant morning between students who study using the investigation group method and students who learn using the expository method. (2). There is an interaction between learning methods and self-regulation of critical thinking skills in Social Sciences subjects of fourth grade students of SDN Gedong 08 Morning. (3) For groups of students who have high self-regulation, the group investigation method gives a better influence on critical thinking skills in Social Sciences subjects of fourth grade Gedong 08 elementary schools Morning students compared to study groups that use the expository method. (4) For groups of students who have low self-regulation, the expository method gives a better influence on critical thinking skills in Social Sciences subjects in fourth grade students of Gedong Elementary School 08 Morning compared to study groups using the group investigation method.

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