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An Effect of Using Group Investigation Method to Improving Critical Thinking Skill

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Abstract: *Student's critical thinking ability can be improved through a good learning process. For that, the learning process should be packaged in such a way that students are actively involved in the classroom. The effort to obtain these results is to improve the quality of learning through the use of good teaching materials. Learning to teach is a process that not only get information from lecturers but many activities and actions that should be done, in achieving better learning outcomes for students. For example from the provision of tasks that stimulate students to think critically, provided with methods and learning models in learning. The learning process is essentially a teaching-learning process that emphasizes the importance of learning through experience processes to gain experience. This research purpose is to identify the process and results of the implementation of group investigation learning model in improve of critical thinking skill. Students' critical thinking is needed, because during the learning process students develop ideas about the problems contained in learning. Some students difficult to think creatively when they learn in English. They difficult to share their ideas, they lack of vocabulary, and they diffiult to create an idea to solve the problem when their teacher ask them to discuss topic in English. Such as education problem, the effect of technology for students and etc.*
Keywords: *lesson study, critical thinking, group investigation.*

INTRODUCTION

Education is basically an interaction between educators and students to achieve goals. In education, it involves the teaching and learning process which is the core of the overall educational process with the teacher as the main role in efforts to teach and educate students. In the implementation of education, sometimes there are many problems in the learning process, for example the interaction between teachers and students where during the learning process students often do not pay attention to the learning, Some students difficult to think

creatively when they learn in English. They difficult to share their ideas, they lack of vocabulary, and they difficult to create an idea to solve the problem when their teacher ask them to discuss topic in English. Students need help constructing information that can be obtained well, so their critical thinking skills still need improvement.

Critical thinking skills can be done using collaborative learning. Collaborative learning makes it easier for students to learn and work together, contribute to each other's thoughts and be responsible for the achievement of learning outcomes in groups and individually (Zubaidah, 2010). Collaborative learning has many types or types, one of which is through techniques Group Investigation. In Group Investigation, students work through six stages namely: identifying topics and organizing students into groups, planning assignments to be studied, carrying out investigations, preparing final reports, presenting final reports, and evaluating (Slavin, 2005).

Critical thinking skill is the ability to manage information and identification problems so that they can find the cause of the issues, assess the impact of an incident, and create a solution and conclusion (Budianti, 2018). Critical thinking according to Ennis (in Fisher, 2009) is a sensible and reflective thinking that focuses on deciding what to believe or do. The ability to think critically will provide a more precise direction in thinking, working, and helping more accurately in determining the interrelationship of something with others. Therefore, the ability to think critically is necessary in solving problems or finding solutions. The development of critical thinking skills is the integration of various components of capability development, such as observation (observation), analysis, reasoning, judgment, decision making, and persuasion. The better the development of these capabilities, the better will be in solving problems.

Critical thinking indicators can be explained through behavioral aspects expressed in the definition of critical thinking. Based on the definition of critical thinking there are some activities or behaviors that indicate that these behaviors are activities in critical thinking.

Critical thinking is a directional and clear process used in mental activities such as solving problems, making decisions, persuading, analyzing assumptions, and conducting scientific research. Critical thinking is the ability to argue in an organized way. Critical thinking is the ability to systematically evaluate the weight of personal opinions and the opinions of others (Johnson, 2012).

In addition, Glaser (in Kowiyah, 2012) defines that: “Critical thinking as: (1) an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one’s experience; (2) knowledge of the methods of logical enquiry and reasoning; and (3) some skill in applying those methods. Critical thinking calls for a persistent effort to examine any belief or supposed form of knowledge in the light of the evidence that supports it and the further conclusions to which it tends.”

The definition of the above statement explains that critical thinking as: (1) an attitude of deep thinking about the problems and things within the reach of one's experience; (2) knowledge of logical methods of examination and reasoning; and (3) a kind of skill to apply those methods. Critical thinking demands a vigorous effort to examine any assumptions or assumptive knowledge based on its supporting evidence and the subsequent conclusions it brings about The purpose of critical thinking is to evaluate the best acts or beliefs. The focus of the critical thinking framework is the thought process that involves gathering information and applying criteria to consider a different set of actions or views.

The Group Investigation (GI) technique is a collaborative learning technique that involves students from planning, both in determining the topic and the way to study it through investigation. The GI method requires students to work together to help each other in groups and choose topics to be studied, then each group presents or displays their findings in front of the class (Salamah et al., 2016). The advantages of Group Investigation (GI) are that in the learning process they can work freely, encourage initiative, be creative, and active, can increase selfconfidence, can learn to solve, deal with problems, develop enthusiasm and a sense of the physical, improve learning work together, learn to communicate both with one's own friends and teachers, learn to communicate well systematically, learn to respect other people's opinions, increase participation in making decisions, and students are trained to be accountable for the answers given (Barkley., 2014).

The Group Investigation learning model (GI) is categorized as one of the cooperative learning models. Cooperative learning is a learning strategy that involves the participation of students in a small group to interact with each other. The Group Investigation (GI) learning model by Wena (2009) is categorized as one of the cooperative learning models. From that point of view, the Group Investigation learning model (GI) has characteristics as a cooperative learning system. Group Investigation (GI) learning is a type of cooperative learning that consists of several members within a group that are responsible for the mastery of the subject matter and able to work on that part with other members of the group.

The Group Investigation Model (GI) is student-oriented which aims to prepare students as information experts who are able to communicate their knowledge to friends to other group members. In addition, the Group Investigation (GI) model aims to foster the spirit and spirit of teamwork in groups to create active, effective, creative and fun learning.

According to Slavin (1995), there are six stages in applying the Group Investigation (GI) model: (1) grouping stage, (2), planning stage, (3) investigation stage, (4) organizing stage, (5) presenting stage, (6) evaluating stage. Model Group Investigation has an essential role in learning activities, such as; learning planning, collecting information or material, discussion activities, and exchanging thoughts and ideas among group members to find solutions to problems (Zulaeha,

2015). Based on these activities, students are trained to increase their critical thinking capacity. The group investigation learning models effectively increase learning efficiency and the student's preparation knowledge process (Christina & Kristin, 2016). According to Wahid (2019), this model guides the development of critical thinking skills, seeking root problems, and solving problems logically in preparation for tough global competition. In addition, to face international competition, students demand to be more innovative, creative, communicative, collaborative, think critical & analytical, and capable of solving problems in life. The advantages of the Group Investigation (GI) model lie in processes and learning outcomes such as student-centered learning and improved student achievement. But it also has some weaknesses that lie in the learning process such as, complex and difficult learning model, the time of presentation takes a long time because students are less willing to express opinions in front of a classmate.

METHOD

This research is a type of experimental research that is True Experiment Design. This research is called True Experiment Design. The subjects were divided into two groups: experiments and controls. The experimental group was treated using Group Investigation (GI) model, while the control group was treated using non Group Investigation (GI) (lecture and question and answer). The subjects used in this research are the students of system Information in Institute Technology Business and Languange Dian Cipta Cendikia . Research design in this research is pre-test post-test control group design. The process of selecting experimental group and control group is done by combining all the students of 22-SI and 21-SI class which is 60 students.

The experimental and control group determination was done randomly, then given pre-test to know the student's early ability, then the two classes were drawn to be experimental group and control group. It is to prove that the learning model used is really suitable (affecting the ability of critical thinking). The research design, can be seen in the table below.

Kelompok	Pre-Test	Perlakuan	Post-Test
eksperimen	O1	X	O2
kontrol	O3		O4

Information:

X: Treatment. (The experimental group treated with the model Group Investigation (GI) model).

O1 & O3: Both groups were observed with a pre-test to determine early critical thinking skills.

O2: Student's critical thinking ability after following learning using Group Investigation (GI)

O4: Critical thinking skills of uneducated students using Group Investigation (GI) model.

Data collection techniques used in this study is a test of Student critical thinking skills. The test is carried out twice, pre-test and post-test. The pre-test was conducted with the aim of knowing the students' early critical thinking skills in the experimental class and control class. This test is carried out before the experimental and control classes receive lecture materials and treatment of the Group Investigation learning model (GI).

Post-test in the experimental class and control class aims to determine the increase or decrease in students' critical thinking skills after being given Group Investigation model treatment (GI) by comparing with the pre-test results. Furthermore, the use of the instrument of observation guidance is two observation sheets of the implementation of Group Investigation learning model (GI) and observation sheet of critical thinking ability.

The GI model implementation observation sheet is based on the stages of the RPS and observed by 1 person. The critical thinking observation sheet consists of 5 indicators with 2 observers. The instrument of obs ervation is first validated by the instructional expert. After the improvement based on the suggestion from the validator, the researcher then perform a second validation. Validation of the second, the validator has approved the improved observation sheet. Validation results show that the observation sheet is very good with a score of 5. This research is a type of experimental research that is quasi experiment (quasi experiment). This study is called quasi because the treatment given to the research subjects is not fully controlled. The experimental group was treated using Group Investigation (GI) model, while the control group received non Group

Data collection techniques used in this study is a test of students' critical thinking skills. The test is carried out twice, pretest and posttest. Pretest is implemented with the aim of knowing students' early critical thinking skills in the experimental class and control class. The tests were conducted before the experimental and control classes received the subject matter and treatment of the Group Investigation (GI) learning model. Post test in the experimental class and control class aims to determine the increase or decrease in students' critical thinking skills after being given the Group Investigation model (GI) treatment by comparing with the pretest results. The research instrument of critical thinking ability in this research use question problem is five question.

RESULT AND DISCUSSION

To know the influence of Group Investigation (GI) learning model on improving students' critical thinking ability, it can compare mean value of critical thinking ability gained. The value obtained from the observation of critical thinking ability during the learning activities of each meeting in the experimental

group experienced a significant increase while the control group also increased but not significant.

The research findings show that learning by Group Investigation (GI) model influences students' critical thinking ability. The effect is thought to be caused by:

First, the experimental class student is more active than the control class. This activity is shown from the ability of students in the experimental class to express their opinions. Daring to express an opinion is one of the characteristics of critical thinking skills, this is in Chance's opinion (in Hidayati, 2014). Who argues that critical thinking is the ability to analyze facts, give ideas, defend opinions, make comparisons, draw conclusions, evaluate arguments, and solve problems. in this research makes students more active.

The second cause, caused by the ability of students to determine the topic of the problem. The topic of the problem was obtained by the students from the help of the pictures given by the lecturer.

The third reason is the discussion held in the experimental class. Discussion activities in the experimental class using Group Investigation study train students to speak and speak their opinions. Discussion activities in the experimental class may involve each student communicating and arguing and being accountable to all the things he or she has said because of the relevant evidence.

CONCLUSION

Based on the formulation of the problem and the result of the research, it can be concluded that the implementation of Group Investigation (GI) model consisting of grouping, planning, investigation, organizing, presenting, and evaluating stage are generally performed fairly well. The critical thinking ability of the students in the system information faculty before the implementation of the group investigation model is generally in the non-critical category, both in the experimental group and in the control group. There was an increase of students' critical thinking skills to a critical level in the experimental group after being given group investigation model treatment while the control group increased to less critical. Implementation of Group Investigation (GI) model influences the critical thinking ability of students of study program System Information in Institut Teknology business and Languange Dian Cipta Cendikia Kotabumi.

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