

Implementation of cooperative learning with group investigation model to improve learning Achievement of vocational school students in Indonesia

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Doi:10.5296/ijld.v5i3.9128 URL: <http://dx.doi.org/10.5296/ijld.v5i3.9128>

Abstract

The purpose of this research is to describe the application of group investigation learning model in improving learning achievement of vocational school students in Indonesia. This research used qualified approach and applied classroom action. Subjects were students of first year of Sales Skills Program Vocational School in Malang Indonesia. Data collection techniques used were: in-depth interviews, observation, documentation, literature studies and tests. Data analysis technique used interactive technique. The results showed that: learning model group investigation has been carried out properly and vocational students have better learning achievement. Investigation group learning model can improve learning achievement of vocational school students.

Keywords: Group Investigation Model, Learning Achievement

Introduction

According to competency-based Curriculum 2004 that the minimum requirements for the student mastering the material and categorized completed the study or passed is about 75% and above. Data of 2006 show that in state schools, especially in urban areas, the issue of the level of learning mastery is usually not an issue, but in not excellent private schools and state schools located in suburbs and in regions, the issue of learning mastery is always an issue. In 2006, when the state schools in urban areas, especially Malang graduation rate of students in the National Exam (UNAS) reached about 95%, but in state schools in the suburbs graduation rate only reached 78%, for non excellent private schools is even very alarming, graduation rate is very low, there is even 0%, meaning that all students who take lessons at school did not pass entirely (Jawa Pos, July 21, 2006).

Many education experts highlight that the factors causing low graduation rate of students at UNAS is the fact that learning management in the classroom is still not good. Such as, the role of teachers is still the only learning resource center (teacher centered). Teachers still

considers himself the most intelligent when compared with students, but with advances in information technology students may be quicker to obtain information than his teacher. Other variables that may have influenced the low level of students' learning mastery is the still ongoing pattern of traditional learning eventhough there are already widely found constructivistic learning models that can actually encourage student participation in the learning process.

These conditions are also being experienced by vocational students in Malang. From the results of author's observation, there is information that many students experience boredom in learning, because learning methods in the classroom still use traditional learning approaches. This saturation causes students' motivation to be reduced so that in turn can further alleged that, learning achievement of the students are also less encouraging. Data obtained in 2007 from vocational school in Malang, shows the level of training mastery for first year economy training subject is still below 60%.

From the experience above it can be concluded that up to now in the state and private schools in Malang Indonesia, the learning process in the classroom still focuses on teachers as the main source of knowledge, then speech teaching methods lectures becomes first choice in the learning process. Therefore a strategy is required to learn more empowering students' potential or teaching methods that involve students actively, furthermore it is expected to transform the learning process that is teacher centered to be student centered that have a positive impact on the potential and competence of students (Saputra (2003: 121).

One method involving active student learning is cooperative learning methods. According to Sanjaya (2006: 106) "Cooperative Learning" is a small group of students who work as a team to solve a problem, complete a task or doing something to achieve the goal. Hence in cooperative learning, students are actively involved in shaping the concept, principle, or theory learned. Cooperative learning has some learning models namely STAD (Student Teams Achievement Division), jigsaw model, Group Investigation model, and structural model (Nurhadi et al, 2003: 64). In this research, researcher used cooperative learning method with group investigation model as the object of experiment. Group investigation model is based on democratic processes and group-based decision-making, and in the implementation of this model involves students from planning, both in determining the topic as well as a way to learn through investigation (Saputra et al, 2003: 131). Group investigation model requires students to have a good ability to communicate and group process skills. Selection of group investigation model as the focus of this research is due to the group investigation model has the potential of more than learning by using conventional methods to improve student's learning achievement through a system of mutual aid, helping each other. Johnson & Johnson (in Lie, 2005: 7) states that the atmosphere of cooperative learning yield better learning result, more positive relationships, and better psychological adjustment than learning atmosphere filled with competition.

According to the result of observation by author in vocational school in Malang indicated that: (1) A decline in student motivation (2) Lack of variety of learning methods in the classroom, using only conventional teaching methods (3) As a result of the lack of student motivation

and less variation learning methods therefore the students' achievement is still low.

Based on the above problems, the researcher discussed with economics training teachers to find a way to solve it. Eventually, we agreed to try to implement cooperative learning model of Group Investigation on economics training subject. This model is expected to create an atmosphere of student active learning with mutual communication, mutual listening, sharing, giving and receiving, that in turn will improve the understanding of the material and also increase the social interaction of students, so as to improve student learning result (Johnson & Johnson Lie, 2005: 7). The basis of our agreement, in addition supported with theoretical study, also supported by some results of empirical studies, including: (1) Sutrisno (2002), title of study "Problem Solving Ability of Students in Geometry through Investigation Group Learning Model: Experimental Study in Class II SLTPN 4 Bandar Lampung". From the analysis of variance (ANOVA) followed with t-test at 0.05 significance level. Noticed from the percentage of learning mastery, problem-solving skills of students in learning geometry in group investigation model is better than students learning using STAD model and the conventional model. (2) Mahdiyah (2006) title of the study: "Application of Cooperative Learning Group Investigation Model to Enhance Scientific Work and Biology Learning Achievement of Class X.1 Students SMAN 2 Pasuruan". The results showed that the cooperative learning with group investigation model can enhance the scientific work and learning achievement. (3) Lestari (2006), title of the study: "Application of Cooperative Learning with Group Investigation Model to Improve Learning Achievement : Competence in Keeping and Maintaining Work Culture in Class 1 Office Administration SMK 1 Ngawi". The results showed that the group investigation model of cooperative learning can improve learning result. (4) Prasetyowati (2005) entitled "Implementation of Cooperative Learning with Group Investigation (GI) Model to Improve Learning Achievement of Class X Students of SMAN 2 Malang". The results of the study in the first cycle and second cycle has been very satisfactory.

Theoretical Background

Cooperative Learning Methods with Group Investigation Model

According to Nurhadi (2003: 63) cooperative learning method has four kinds of learning models namely STAD, Jigsaw model, Group Investigation model, and structural model. Group investigation model designed by Herbert Thelen and expanded and improved by Sharan and his colleagues from the University of Tel Aviv, is often regarded as the most complex model and most difficult to implement in a cooperative learning, compared with STAD and Jigsaw models. This model involves students from the planning, both in determining the topic as well as a way to learn through investigation, and requires students to have good skills in communication and group process skills. Therefore this model requires students to have a good ability to communicate or in group process skills. Group investigation model is based on democratic processes and decision-making in groups. Teachers play a role helping students to plan, implement the plan, and organize group, and serves as academic counselor. The environment created should be able to respond the

demands of the students.

According to Saputra (2003: 129) the purpose of the group investigation is to assist students in watching knowledge constructively, having interpersonal warmth, following the group process effectively, having disciplined inquiry, having commitment in social inquiry, becoming independent learner and respecting the dignity of all people and having a commitment to pluralism.

According to Nurhadi (2005: 118-119), the steps of group investigation model are as following: 1) Selection of topics, 2) Plan of Cooperation, 3) Implementation, 4) Analysis and Synthesis. and 5) Final Presentation. Kristiani (2005: 27) states that many advantages of group investigation in learning, namely:

1. Students who participated in the investigation group were more likely to discuss and contribute certain ideas compared with the students taught with other methods.
2. Students can be observed their speaking style naturally and cooperation when learning in a group investigation.
3. Students can learn to cooperate more effectively thereby improving their social interaction.
4. Students with low economic backgrounds participate more in activities and dialogue in group investigation activities.
5. Group investigation can encourage students to participate actively. So that the knowledge gained can be transferred to outside of classroom.
6. Group investigation allows teachers to be more formal, so that teachers can immediately provide help, praise and feedback.
7. Group investigation can improve learning performance and achievement of the students.

Learning Achievement

Every effort has the result, for example students learn, this means the students try to achieve learning objectives. Learning objectives in general is to enhance the knowledge, skills, abilities, attitudes and so on (Prantiasih, 1997: 75). And learning achievement will reflect the students' ability to fulfill a stage achievement of the learning experience, to achieve a basic competency learning achievement that serve as clues about behavior changes that will be achieved by learners in relation to learning activities carried out, in accordance with the basic competencies and the material studied, the results of this study may be in the form of knowledge, skills and attitudes.

Dimiyati and Mudjiono (1999:20) learning achievement is the result of a learning process that occurs from teacher evaluation, and generally includes cognitive, affective, and psychomotor

realms. Learning achievement can be the impacts of teaching and accompaniment. Both effects are useful for teachers and students. Syah (2005:213) stated that disclosure of ideal learning outcomes covering all psychological realms has changed as a result of the experience and the learning process of students. Psychological realm here is the realm of creation (cognitive), the realm of taste (affective), the realm of intention (psychomotor). In accordance with the above statement Bloom (in Dimiyati & Mudjiono, 1999: 27-29) emphasizes on what is supposed to be controlled by the individual.

Priantiasih (1997: 75) states there are several factors that become obstacle for students' learning achievement, such as:

1. The teaching materials are not in accordance with the talent, the development or the needs of students.
2. Teachers have less ability such as lack of knowledge, lack of skills, lack of diligence and so on.
3. The family situation is not good, for example, lack of family attention to the student.
4. The environment that inhibits, for example, a narrow housing.

Teachers and students can find out the results of the study where the teachers are required to make a measurement, since the measurement will be known whether or not the learning objective of the students is accomplished. In relation to the definition of actual assessment or evaluation, it means an action to determine the value of something (Prantiasih, 1997: 75). Between the assessment and measurement in the interest of teaching that is always used, two terms are different. Definition of measurement leads to the act or process to determine the quantity of something, therefore the measurements needed an equipment for measuring. While the assessment is used to determine the quality or value of something. Although there are differences between the measurement and assessment, but both of these can not be separated because they are both related very closely. In the implementation of assessment firstly should be based on the measurement, otherwise the measurement would be meaningless if it did not followed with assessment.

Tyler (in Arikunto, 2003:3) : evaluation of learning achievement is a process of collecting data to determine and find out the extent to which, in any case, and which part educational goals have been achieved.

The changes in behavior as a result of learning have certain characteristics. These characteristics are presented by Ma'mun (in Mulyasa, 2004:189), as follows:

- a. The change is intentional (experience or practice the exercises were deliberately conducted and not by chance).
- b. The change is positive (as expected or better success criteria in terms of students and teachers).

- c. The change is effective (changes in the learning outcomes relatively fixed, and any time required it can be reproduced and used, such as in solving the problem, test, as well as adjustments in everyday life in order to survive).

The Correlation Between Group Investigation Learning Model and Learning Achievement

Conventional teaching method such as speech teaching method is still widely chosen or demanded by the teachers in learning process. This method is less engaging students in the learning process, so that learning becomes less meaningful. Meanwhile, according to Kristiani (2005: 75), the study will be meaningful when many students are involved in the learning process, and meaningful learning can improve student learning achievement, so teachers should be able to create a learning process becomes meaningful. Teachers besides educate students to acquire knowledge, also trains creativity as well as other capabilities that need to be cultivated in the era of learning today, namely social skills, and learning activities may include group collaboration, or by using cooperative learning method with group investigation learning model.

Group investigation learning model also refers to some principles of learning, which according to Haryono (2006: 4) learning principles are: student-centered, learning by doing, developing social skills, develop curiosity, imagination, develop problem solving skills, develop students' creativity, develop the ability to use science and technology, cooperation and solidarity.

The group investigation learning model can be regarded as a learning model of active students that can make meaningful learning positively related to student learning achievement, or in other words, to improve learning achievement, until there are research results proving that the group investigation model can improve students' learning achievement. This is according to a statement of Prasetyowati (2005) that there is a significant positive relation between group investigation learning model with student learning achievement. It has also been proved by the research, and several studies have been described in the section relevant research findings, which have proved that applying the group investigation learning model are improving student learning achievement, either in the cognitive, affective and psychomotoric aspect.

Methodology

1. Approach and Type of Research

This reasearch is in term of a qualitative research as suggested by Arikunto (2002: 11-22), which is also called the "qualitative naturalistic" indicating that: This research occurs naturally, it is, in a normal situation, not manipulated circumstances and conditions. According Moleong (2005: 6) The qualitative research is a research that aims to understand the phenomenon of what is experienced by the subject of the research such as behavior, perception, motivation, action, etc. holistically, and in descriptive way in the shape of words

and language, on a special natural context and by utilizing a variety of natural methods.

This type of research conducted is classroom action research, the one that stems from the practical problems faced by teachers in the classroom where the results of his research can later utilized directly for the benefit of the quality of teaching and learning activities in the classroom, where the hallmark of classroom action research is focused on the issue of classroom practice, there is collaboration in planning, action, observation, reflection and preparation of reports (Akbar, 2006:3). It can be stated also that action research as a means for improvement of professional skills of teachers and students' learning achievement (Latif, 2003:102). Akbar (2006:3) states there are six basic principles that underlie classroom action research:

1. Researchers committed in seeking improvements and improving the quality of learning on an ongoing basis.
2. Researching is an integral part in the learning process, research stages are aligned with the learning stages.
3. The problem is a real problem that disturb professional responsibility and commitment to improve the quality of education and learning.
4. Intrinsic motivation (growth from within) that results attitude of concern for the improvement of the quality of learning.
5. Regarding the issues of education and learning that is not limited only to the classrooms.
6. The procedure is rather loose, concerned with the process and result.

2. Research Location

Research location in applying Cooperative Learning Methods with Group Investigation model is at Vocational High School (SMK) in Malang Regency Indonesia.

3. Research Subject

Subject of this research is first year students of Sales Skill Program at Vocational High School Malang Indonesia.

4. Data Collection Technique

The procedure of collecting data in this research is not only using one method but several methods that are used together or separately according to the needs in the field. Data collection methods used were: observation, in-depth interview, documentation, study of literature, study of documentation and test.

5. Data Analysis Technique

Data were analyzed using interactive technique including 3 phases of activity, namely: Data Reduction, Data Presentation and Conclusion.

Result and Discussion

A. Implementation of Cooperative Learning Method with Group Investigation Model at Vocational School Students in Malang Indonesia

Based on preliminary observations conducted by researcher, students in first year of Sales Skill program tend to be passive in following the teaching and learning activities of Economics Training. This is because students are less involved actively in the learning process, teachers still tend to use speech method as frequently used in the classroom, so that students are “forced” to accept and memorize the facts presented by the teacher. Often students are assigned to summarize the material and the teacher gives a task for the materials, without further explanation.

These facts can be evidenced that the role of the teacher as information provider in which the act of learning given by the teachers among others are preaching to the number of students in classes, maintaining classroom discipline, and evaluate each student carefully through the questions and answers or test, (Saputra et al 2003: 5). In fact in good learning activities students are not only “forced” to accept and memorize facts but students are expected to learn through “experience” so that teaching and learning becomes more meaningful, considering that nowadays teachers are not the only source of information for students and teachers not only as information provider, but also held various roles including as a facilitator, the source, organizer, moderator, and the evaluator (Saputra et al, 2003: 5).

The application of conventional learning system continuously without variation can be an obstacle in the formation of knowledge actively, especially in the Economics Training subject, therefore it requires variation and creativity in teaching methods. Then Cooperative Learning Method with Group Investigation model is applied on Economics training subject, materials balance of supply and price mechanism. In this lesson the teacher has at least three interrelated objectives. First, it helps the students to investigate a topic systematically and analytically. This, resulted in the discovery of development skills and help to achieve the goal. Second, deep understanding of a given topic. Third, students learn how to work as a cooperative in solving problems. Learning to work cooperatively is a valuable life skills in social life. So teachers in applying group investigation model can achieve three things, namely learning by discovery, learning the content and learning to work cooperatively.

Teachers also play a role to help students to plan, implement the plan, and organize group, and serve as academic counselor. Environment that is created should be able to respond to the demands of the students.

This model involves students from the planning, either in determining the topic as well as a way to learn through investigation, and requires students to have good skills in communication and group process skills. So that this model requires students to have a good ability to communicate or in group process skills. Group investigation model is based on democratic processes and decision-making in groups.

This research applied Cooperative Learning Method with Group Investigation model through several activities (Nurhadi, 2003: 65), namely 1) the formation of the group, 2) explain the rules in learning, 3) selection of duty materials, 4) group discussion, 5) submitting group discussions result or presentation, 6) quiz or test. This research has implemented seven steps in every action.

1. Group Formation

In the formation of this group, the researcher was helped by the teacher of Economics training subject, dividing the class of 20 students to be formed into 4 groups where each group of 4/5 students with heterogeneous characteristics (annex 23).

2. Explaining The Rule of Learning

The researcher explains the intent or purpose of learning and the role of learning along with the group's task, considering group investigation learning is seen as a method of the most complex and most difficult to implement in a cooperative learning (Nurhadi, 2003: 64), because this learning involves students from the planning, both in determining topics and ways to learn through investigation to present the results in front of the class, and each group also has role such as the primary responder group that functions other than as a group respond to the material being discussed during the presentation took place, as well as a comparison material.

3. Selection of Task Material

Each group selects task material of different sub-chapter (annex 20 and 21). Selection of topics or materials of task is drawn by each group represented by the chairman of each group, so that one group gets the task of one material or different tasks from other groups. The drawing is done to maintain the efficiency of learning time and prevent disputes between students or groups. In each of these tasks have been listed who served as the primary responder group and a description of their tasks.

4. Group Discussion

In the implementation of group discussions, initially every member makes a plan of cooperation, including dividing the tasks of each member of the group. Then the students read and understand the task material of discussion obtained, then the students began to discuss with the group, the discussion here to create an atmosphere of cooperative learning in the classroom, where students who are able teach students who have not been able yet, mutual listening, sharing and mutual acceptance, respect the opinions of others so that each student can exchange experiences, as stated by Nurhadi et al (2003:61) that the cooperative learning is learning consciously and deliberately develop mutual interaction (mutually

educate), mutual compassion (love each other and affection) and mutual fostering (mutual tolerance). Students also analyze and synthesize information obtained from a source of learning obtained and planned to be presented attractively. Researcher comes around oversee the discussions, and provide guidance to groups that have difficulty in understanding the purpose of the topic.

5. Presentation of Group Discussion Result

Presentation of group discussion results is in accordance with the order of task material obtained. This is done because the sequence of any task material is the sequence of every sub-chapter of material being studied, or in other words to maintain the regularity of the material in accordance with the order. After spokesman presents the group discussion result, there is a segment of investigating other groups in a way there is a debriefing, giving feedback on the material.

6. Quiz or Test

In this research, assessment is carried out during and after learning process takes place, based on the observations of researcher and 2 observers that in cycle 1 overall level of student's achievement is included in category A, as well as the level of student's achievement at cycle 2 is also included in the category A.

B. Learning Achievement of Vocational School Students in Malang Indonesia.

Learning achievement may reflect the ability of the students participant in fulfilling an achievement level of learning experience, to achieve a basic competency learning achievement that serves as clues about behavior changes that will be achieved by learners in relation to learning activities carried out, dealing with the basic competencies and the material studied, the results of this study may be in the form of knowledge, skills and attitudes. Knowing the student's learning achievement is by giving students a test on observation and assessment.

Test is carried out each end of the lesson, in which the test must be done by respective students, students are prohibited working together and discussing. The test item in cycle 1 consists of 15 multiple choice questions and 5 about the description question, in cycle 2 consists of 5 description questions and 15 multiple choice questions, time spent on the implementation of the test is 25 minutes for the pre-test and post-test cycle 1, while for post test cycle 2 takes 20 minutes.

Criteria for the success of the actions used is Minimum Graduation Standards (MGS) namely 60, the score obtained by the students is then linked with the students achievement level of mastery against the teaching materials in accordance with its intended purpose, it is the same as the explanation of Ministry of Education (2004b: 22) which explains that the assessment of learning in a competency-based learning system is basically a determination process to ensure learners whether competent or not. The determination is done by comparing learning evidence obtained by a learner with performance criteria established in the standard of

competence.

In the pre-test learning achievement of students gained an average of 49.83, with the details comprising 9 students completed or 31% of the total number of students, and there are 20 students who have not completed or 69% of the total number of students. Post test cycle 1 learning achievement gained an average of 62.72 (25.87% increase), with the details there are 22 students completed or 76% of the total number of students, and 7 students have not completed or 24%. The evaluation on the observation of attitudes of students in the process of improving the ability or group process skills in cycle 1 get an average of 67.3.

In the cycle 2 there is an increase in learning achievement. In the post test cycle 2 average score obtained by students is 79.78 namely increased 27.20% from the post-test cycle 1 contained 100% of students declared completed. Similarly, the assessment on the attitude of students in the process of improving the ability or group process skills in cycle 2 get an average of 80.27, or increases 19.27%. Based on the presentation above it can be concluded that Economics training learning achievement after the implementation of cooperative learning method with group investigation model have increased.

Conclusion

Based on the results of data analysis and discussion, it can be concluded as follows:

1. Cooperative Learning Method with Group Investigation Model has been implemented well either in two cycles, by following the procedure of learning operational framework of Group Investigation Model from Joise & Weil.
2. Learning achievement of Economics Training subject after the implementation of cooperative learning method with group investigation model increased where pre test of student learning achievement gained an average of 49.83, while in the post test cycle 1 gained an average of 62.72 (increase of 25.87%), in the post test cycle 2 average value is 79.78 increase of 27.20%. The evaluation on the observation of students' attitude in group process skills in cycle 1 get an average of 67.3, and in cycle 2 get an average of 80.27, or an increase of 19.27%.
3. Group Investigation learning model can improve learning achievement of Vocational School students in Malang Indonesia.

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