IMPROVING STUDENTS' HIGHER ORDER THINKING SKILL (HOTS) THROUGH JIGSAW

Emy sudarwati

English department

Faculty of cultural studies, Brawijaya University

Email: emysudarwati83@gmail.com

Abstract

This Classroom Action Research aims to improve students' HOTS (High Order Thinking Skills) through the application of jigsaw. This study was based on a model proposed by Elliott and was implemented for three cycles. The subjects were 15 students of the third semester students of English department taking Academic Reading course.The data collection instruments include observation, test, and documentation. The data were obtained from pre and post-test of each cycle. The findings revealed that jigsaw learning models could increase students' HOTS (High Order Thinking Skills). Jigsaw is able to boost students participation into an active learning and it can also improve student's HOTS (High Order Thinking Skills) as jigsaw itself will be followed by other activities like asking questions, discussing in groups, analyzing the results and providing feedback.

Keywords: jigsaw, Higher Order Thinking Skills (HOTS), academic reading

INTRODUCTION

Todays global world demands students to have not only good knowledge   but also the ability to apply that knowledge into a real life context. Possessing the knowledge will be very less usefull unless it is accompanied by one's ability to make use of the knowledge he possesses to solve problems, to explore ideas, to make decisions, to communicate ideas and to do other proactive capabilities. Those skills mentioned are known as Higher Order Thinking Skill or called as HOTS. HOTS basically consists of five important fundamentals namely the problem solving skills, inquiry skills, communicating skills, reasoning skills, and conceptualizing skills.

Considering the importance of having HOTS, Teaching high order thinking skills (HOTS) is currently at the centre of educational attention. Therefore, teaching an learning process in a university classroom is now designed in a meaningful way by putting more emphasis to the fostering of HOTS. This skill is very much needed and this should be possesses by those learning in tertiary education or in university level. When students are able to understand and integrate knowledge with their experience then they have achieved HOTS (Anderson & Krathwohl, 2015). For that, a teacher is required to perform a teaching strategy which helps students' thinking skills when learning in the classroom (Noor, 2009).

Based on the results of preliminary observation conducted to the third semester students taking Academic Reading (AR) class, it was found out that there are some problems hindering the teaching and learning process of Academic Reading. They are   1) students are very passive in the classrooom even when they are in group discussion as they have not been able to get involved and solved the problem. It took them longerr just to provide opinion regarding a certain issue,. In other words students skill in using HOTS is not yet maximum.

2)as a consequence, it results in lower students' low learning outcomes in three aspects namely cognitive, affective, and psychomotoric. As teaching and learning process does not only concern with the process of transferring knowledge from a teacher to students, but it also demands students great involvement in the process so that students will think, generate knowledge and explore ideas. Poor understanding of students in solving problems involving the skills of HOTS with cognitive domain of analyzing, synthesizing, and evaluating affects students' learning outcomes.HOTS should have been a habituation activity in the learning process since early in school. The data showing students' HOTS and learning outcomes come up to the conclusion that student's skills in using HOTS like the ability in distinguishing facts and opinion, giving logical reasoning, identifying bias, identifying generalization, identifying the writer's tone and purpose answer, making a synthesis and interpretation is still low.

There is a need to have appropriate learning strategies to improve students' thinking skills and learning outcomes. One solution to overcome these problems is by using jigsaw model of cooperative learning. The model was developed by Kagan and Kagan in his book entitled "Kagan Cooperative Learning. Kagan and Kagan (2009) states that cooperative learning can improve thinking skills, but it is also able to enhance the activity, social skills, team building in group work, communication skills, and build knowledge. The implementation of cooperative learning model selected aims to improve students' HOTS and student learning outcomes

Previous researches with the same interest has been done by Dhagul et. al (2016) concerning " the Effect of the Jigsaw-Based Cooperative Learning Method on Engineering Students". They conducted this research and found passive traditional teaching methodologies which is generally a teacher centric rather than student centric. Therefore, they implemented cooperative type of jigsaw active learning method and its feedback and assessment analysis. The results shows that Jigsaw is successfully manage to achieve this most important goal namely Learning and understanding of the technical concept in order to apply it in real-time application or situation.

Another study by Charania et.al entitled " Playing jigsaw: A cooperative learning experience" also used jigsaw to promote diploma nursing students critical thinking. The results found that jigsaw is proven to be effective in teaching concepts in nursing department.

As today more and more English teachers become increasingly concerned about the development of students critical thinking skills among English department students thus, the curriculum is made up in such a way that it enables teachers to boost students critical thinking ability. However, in practice there are still here and there hindering this purpose so that there is a need to use a certain teaching strategy to solve the aforementioned problems in the classroom.

Review of elated Literature

The nature of Cooperative learning

Actually Cooperative Learning is not a new idea in education. It was firstly developed by Vygotsky. Vygotsky proposes the developmental theories, which becomes the basis of Cooperative Learning. The fundamental assumption of the developmental theories is that interaction among children around appropriate tasks increases their mastery of critical concepts.

In addition, Jacobs (1999:13) defines cooperative learning as a diverse group of instructional methods in which small groups of students work together and aid others in completing academic tasks. In the language learning context, cooperative learning is defined as a class grouping of students who learn to work together on specific tasks or projects in such away that all students in the group get benefit from the interactive experience (Kessler, 1992:68).

According to Slavin (1994:2), there are many reasons that cooperative learning is entering the mainstream of educational practice. First, there are some extraordinary researches that support the use of cooperative learning to increase students' achievement as well as such other outcomes as improved inter group relation and increased self esteem. Second, the growing realization that students need to learn to think, to solve problems, and to integrate and apply knowledge and skills, and that cooperative learning is excellent means to that end. Third, cooperative learning works well in classes that are homogeneous, including classes for the gifted, special education classes, and even classes for severely and profoundly average. Fourth, cooperative learning can help make diversity a resource rather than a problem. Fifth, cooperative learning has wonderful benefits for relationship between students of different ethnic backgrounds, and between mainstreamed special education students and their classmates.

From the above explanation, it can be stated that cooperative learning refers to a variety of teaching methods in which students work in small groups to help one another learn academic content.

Cooperative learning involves a face-to-face interaction by all students, heterogeneous team, structured goal interdependence, individual accountability, and practicing social skills. Cooperative learning occurs when students work together to accomplish shared learning goals. In cooperative classroom, the students cooperate, interact, share material and help each other to achieve the goal. Here, the students understand that they have different roles or specific tasks to allow opportunities for all group members to participate.

In the present study, the researcher chooses jigsaw model of cooperative learning to be applied in the teaching of Academic Reading. It is assumed that using the model is considered to be the effective ways that can solve the reading problems in the classroom.

Jigsaw model of Cooperative Learning

Jigsaw technique is a classroom organization method resulting in students dependence to each other to succeed. Jigsaw splits the classes into groups and breaks assignments into pieces that the group assembles to complete the (jigsaw) puzzle. Students are broken up into home groups and expert group.

Ulrich and Glendon (1995) also considered jigsaw as an activity that enhances individuals critical thinking ability by allowing them to collect facts and analyze, reflect, and synthesize the information gained.

## HOTS (Higher Order Thinking skills)

HOTS as mentioned in this research refers to the activities demanded in Academic Reading class. In academic reading class students do analysis, synthesis, and evaluation in which all of these activities demand their use of HOTS. By implementing jigsaw model of cooperative learning, it is expected that students ability to use their HOTS in dealing with the toic discussed increases. at the end, it is also expected that this will also improve students

learning outcome. Learning outcomes are the abilities of the students after receiving their learning experience (Sudjana, 2011). In the Revised version of Bloom's Taxonomy, learning outcomes can be classified into three aspects, namely cognitive, affective and psychomotor domains. When the teacher is able to provide learning activities that stimulate students HOTS, it will increase their learning outcomes

METHOD

This classroom action research uses Elliott (2001) model which consists of the following stages (a) the identification of problems that occur in the classroom, (b) rereview, (c) general planning, (d) the implementation of action steps, (e) observation, and (f) reflection.

The subjects were third semester students of English Department Faculty of Cultural studies, Brawijaya University. There were 15 students taken as research subjects. The instruments used to collect the data werein the form of a) observation, b) test, c) interview, and d) documentation. In this classroom action research, the implementation of teacher and student activity is said to be good and very good if it gain the score of at least 70. The stages of research based on Elliott can be described as follow:
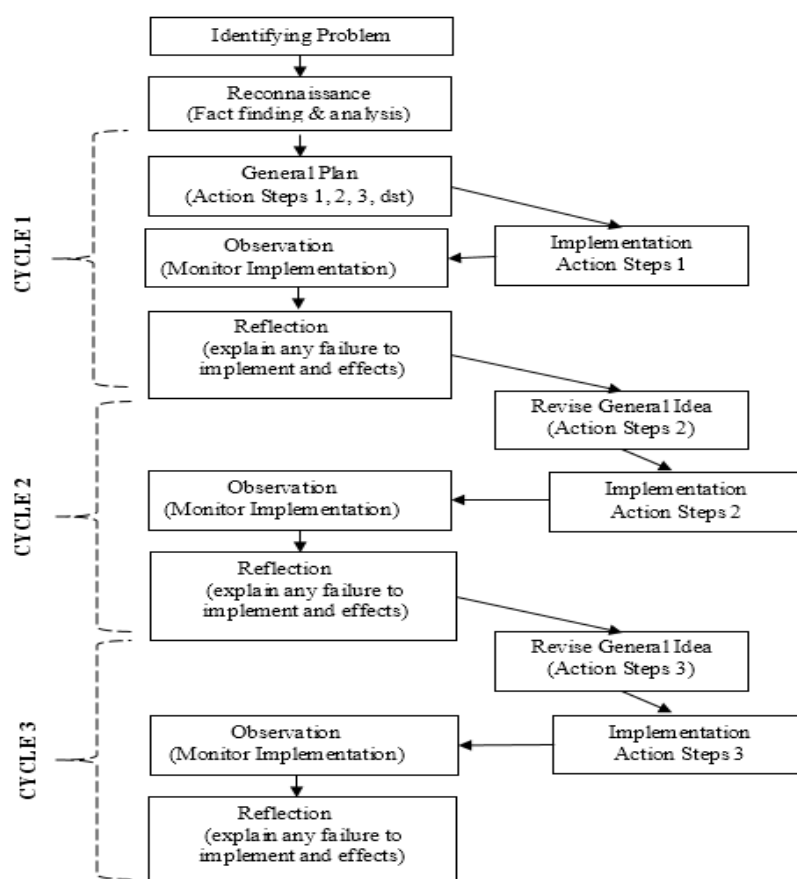
The Jigsaw activity for third year students of English Department was conducted by considering some aspect like participation, leadership, team-work, use of resources/creativity, relevance to the topic, and problem solving skill. Those aspects were considered since those aspects contain abilities needed to enhance students' critical and creative thinking which are very demanded by those taking Academic Reading subject. By taking this course, the students

are expected to be able to read critically text of fiction (literary text) and non fiction (scientific text) at advanced level with a focus on analyzing, synthesizing, and evaluating. Thus the activities involves the activity of identifying facts and opinion, evaluating author's opinion, infering meanings, making generalizations, recognizing the writer's tone, recognizing the writer's purpose, and recognizing the writer's bias. The students were only 15 students so it is divided into five group namely 5 home group consisting of three students in each group. Every members of these five group later will form 3 expert groups consisting of 5 persons in each group. There will be three different topic of discussion that will be mastered by each person in each expert group. Having mastered the topic of discussion each member of the expert group will return to the home group and share the topic he/she is expert in. Each group is provided with 30 minutes for discussion. One more important advantage of this learning method through discussion is that students come to know other perspectives of same topic from different angles. Through the interaction with other students, they have explored to whole new methodology, logic developing ability, different techniques adapted to solve the problem, different tools, and different way to presentation. This group discussion type of active learning also helped students to develop the skill set required with knowledge as discuses earlier. Last step is very important to assure the complete learning of the topics. In this step all the groups were reshuffled in such way that each student will go to their original home group. topics in detail.

FINDING AND DISCUSSION

The Implementation jigsaw *model of Cooperative Learning*
First of all the researcher identify the problem by doing preliminary study to find out problems occurring. After knowing the problems faced the researcher did the analysis from the facts found. Having completed the general planning, the researcher then implemented the action starting from the action cycle I. This cycle consists of 2 meetings.

The results showed that students' enforceability of activities by teachers and students during the teaching and learning of cycle I.Interview with several students can be concluded that students feel challenged and very happy to do this learning activity although at first many feel confused.

In actioncycle I, the material being taught was identifying the writer's tone and purpose. It was found that students still take longer time to think about the answer, to identify the types of generalization, to make decisions and solve problems. Moreover, the discussion group both in home group or expert group was not maximum.

The findings on the actions of the first cycle was discussed as an improvement of learning in the second cycle. The solution provided is first; teachers emphasize activity of students in group discussions by facilitating the discussion. It is done by moving around toward each group to enhance and boost everyone's self confidence to get involved in the activity. By doing so, students will be encouraged to take more active participation during the class activity

In the second cycle, the material being taught was identifying bias. The general implementation of the second cycle was performed well. Students are able to express their opinion confidently toward the subject matter being discussed. During a grup discussion activity both in home group and expert group all students actively participate. They have been

accustomed to producing various alternative opinion, responses, disagreements and even clarification. They are able to differentiate different concepts, provide a statement by giving logical reasons, and identify bias using new perspective of the learning process as they have got.

HOTS is said to be successful if it obtains a minimum score and it obtained moderate category. In cycle I, there were only 8 students while the other half are still in their confusion and their feeling of being less confidence. Then, in the second cycle all students are able to perform as demanded and HOTS was declared successful if students classical score was ≥75%. Therefore, this jigsaw model of cooperative learning was declared successful if it was able to increase the score of HOTS in each cycle.

The results showed that the implementation of jigsaw model of cooperative learning can improve students' HOTS. In the cognitive aspect, it was found that students learning outcome increases significantly. Next, in terms of affective there is a change on students behavior that is they feel more confidence in stating and expressing their opinions and they show thrir critical thinking when facing acertain topic or issue. Last, in the psychomotoric aspect, it was found that students show more concern toward issues happening around them and they become more active during in class or out of class discusiion. Students become more aware toward phenomena ahhpening around them shown by their high attention taward the everydalife encounter.

From the above results it can be concluded that the effort in increasing students' HOTS can be done through a series of activities. Students are becoming more aware toward phenomenon happening around them shown by their feeling serious and care toward things happening around them. In addition to its activities, learning should also be linked to the real environment where students live. For example, in understanding the concept of fact versus opinion analysis the students are asked to find out contradictory or debatable topic that the society engage with for them to discuss. By doing so students have the opportunity to implement the the theory they have got and everyday life encounter which demand their effort to solve the problem appropriately. This is in line with Anderson & Krathwohl (2015) who stated that HOTS can be achieved when students try to understand and integrate their knowledge with experience.

DISCUSSION

The discussion covers the aspect of students learning improvement in terms of their HOTS and learning outcome. With regard to the effort in improving students' HOTS, jigsaw model of cooperative learning is chosen. Through this activity students shared ideas each other during the class discussion as a part of jigsaw activity. Students seemed to enjoy the activities as the classroom provided the chances for these students to share ideas. They smiled a lot, responded to opinions, and took turns orderly. The teacher in the second cycle also walked around the room offering help which of course lessened the tense situation.

Based on the results of the observation conducted throughout the cycles of action, it was found that students HOTS were gradually improved. The HOTS skills such as taking turns, sharing ideas with each other, developing social interaction among the group members, and accepting roles were achieved during the class activity by the students. This was evidenced from the improvement of the learning outcome of the class which obtained the score of 70 as the minimum criterion. The finding of this present study confirmed the findings of the other two previous studies ensuring the facts that jigsaw is proven to be beneficial.

CONCLUSION

Based on the above results, it can be concluded that the implementation of jigsaw model of cooperative learning   can improve students HOTS on Academic Reading subject particularly on things related to students critical thinking skills. The effort in increasing students' HOTS can be achieved when teachers are able to design a series of measurable activities to be performed by studentssuch as the habit of giving time to the students to think, providing scaffolding, observing students' activity, asking questions, discussing in groups, analyzing the results and providing feedback are the examples of activities that should be familiarized. When the teacher is able to increase HOTS, it will have positive impact on learning outcomes. It is advisable for teachers to undertake the above activities as the main process. The obligation of teachers as educators is that they must be able to provide the best education in accordance to their time.Thus the Jigsaw technique with proper selection of topics and effective use of resources will result in an active learning method . In addition, teacher's creativity is very much needed in the implementation of cooperative learning especially using jigsaw model as sometimes the students tend to be so passive and seem do not have any idea or we even sometimes were faced with the situation where it is likely for them to just shut their mouth as they feel doubtful in expressing their ideas. Facing these kind of situations, teachers should be very ready in anticipating the challenges by creating solution so that the implementation of jigsaw model of cooperative learning will be still running well.

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