

Mizuno Masao (2011) Cooperative Learning for Fostering Knowledge Construction in Japanese High School, In: *Comparative Education in Teacher Training, Education Policy, Social Inclusion, History of Education*(pp.119-124), Vol.9, Edited by N. Popov, C. Wolhuter, M. Mihova & J. Ogunleye, Sofia: Bulgarian Comparative Education Society & Bureau for Educational Services.

Cooperative Learning for Fostering Knowledge Construction in Japanese High School

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Abstract

The purpose of this study is to investigate how cooperative learning approach supports teachers to design an effective teaching for promoting the students learning to construct knowledge in practice. Quantitative and qualitative research methods such as surveys and case studies were employed for data collection. A High School which challenges face teachers to foster cooperative learning approach was selected as case study. From this study it can be illustrated that Japanese students' cognitive abilities and emotional intelligent skills for building knowledge have been developed through cooperative learning in Japanese language lessons.

Keywords: Knowledge Construction, Designing Teaching, Cooperative Learning, High School, Japan

Introduction

In a general class where many students are learning under the instruction of a teacher, so called the teacher-centered classroom, there are limited opportunities for students to communicate and learning from each other (Killen, 2006). In most high school classrooms, in particular, few students actively express their thoughts during a lesson, and there is a tendency for many of them to take a passive and unmotivated approach to participate in the teaching-learning process (Mizuno, 2010). It seems that

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cooperative learning is an effective way for designing learning environment in which the students learns how to learn and construct knowledge rather than memorize it (Jolliffe, 2007).

Cooperative learning in this pathway means a relationship in a group of students that requires positive interdependence (a sense of sink or swim together), individual accountability (each of us has to contribute and learn), interpersonal skills (communication, trust, leadership, decision making, and conflict resolution), face-to-face and interaction, and processing (reflecting on how well the team is functioning and how to function even better)(Johnson et. al., 1991, 1993). Specifically in this paper cooperative learning signifies as an effective approach of designing lessons which focuses on small-group discussion and whole class discussion for promoting learning through developing communication within a class and allowing students to learn from each other (Mizuno, 2008). It means the positive interdependent relations that students learn from each other and work together to reach a learning task through communication, discussion and cooperative problem solving, contribute to the formation of study groups that have the essential properties of practical communities (Bleich, 1995; Daniels, 2001).

Research Context

In order to advance the research into this type of cooperative learning, it is appropriate to focus this study on Japanese language lessons in high school, where the primary goals of teaching materials are “increased communication abilities”, “improved cognitive abilities”, and “emotional enrichment” for construction of knowledge (Monbukagakusho, 2009). It is because in comparison to primary school students, high school students are thought to be more highly developed psychologically and intellectually and have a wealth of previous knowledge, and are therefore capable of a higher level of cognition and thinking and construction knowledge, of course in the learner-centered classroom (Schuh, 2003).

In Japan, recently educational researchers try to apply cooperative learning for designing effective teaching in school. However, it has not been progressing in high schools. Therefore this research has fully significance in Japan to do, especially when cooperative learning applied in Japanese language lessons of high school. The main proposal of this research is that cooperative learning can support high school students to develop their abilities and academic achievement which is needed for construction of knowledge in practice. Therefore, the main purpose of this study is to investigate impact of cooperative learning approach on high school students’ abilities and skills for

construction knowledge.

Quantitative (surveys and questioners) and qualitative research methods (case studies and lesson analysis) were employed for data collection, especially from a high school (grade 12) in Nagoya central Japan, where challenges facing teachers to consider designing effective teaching through cooperative learning. The Japanese language lessons were designed based on cooperative learning approach from April 2006. Lesson analysis and interpretation of students' communication during Japanese language lessons were used for analysis effective of cooperative learning on students' ability for construction knowledge. Evidence-based lesson analysis applied for analyzing qualitative data which recorded with videotape and transcribed from June 2006 in third grade 'Japanese lessons' of the high school. Statistical method such as *t*-test is used for data analysis which collected from survey and questioners from April 2007 until March 2008 in the first grade students of the high school.

The Cooperative Learning Script

During the Japanese Language lessons, the students individually considered each of the topics of learning task before discussing the topics in small groups (mainly four people in a group as a basic rule) and filled in a common worksheet based on the results. The contents of the discussion that were made in each group provided for presentation in a whole class. Individual reflection time was also provided for each student. It means each student has a chance to discuss in a small group and whole class discussion for learning, thinking and reflecting individually and cooperatively during the teaching-learning process. Basically each lesson was designed in an effective pathway that provides times for self-learning at the beginning, group talks, whole class discussion and self-reflection at the end of the lesson.

The cooperative learning script was examined in a third grade high school class in Nagoya city which has 39 students (4 boys, 35 girls) and subject entitled "Japanese expression". In this class, after an initial reading of the literacy text: *Asa* [Morning] written by Taku Miki (1977), taken from previous textbook of Japanese high school published by Gakkotosho in 1996, as teaching material. The students were asked to suggest their impressions and questions and other possible points for discussion. The teacher created a worksheet listing topics for using during discussion and making communication-based conclusion. The whole unit plan based on the material took 11 lessons (50 minutes for each lesson).

Reading Text: Asa [Morning]

This text helps teacher to design the teaching-learning process in an effective way which encourages students to talk about the story, to share their idea and to discuss for constructing common conclusion. A part of the reading text 'Asa' is as follows:

"In the end of World War II, the Russian army went over national borders and invaded Manchuria. In the early foggy morning, a Japanese boy who lived in Manchuria was running in the park toward the closed school. The boy was going to save his rabbit that was kept in the school. In the park, the Manchurian people chopped off the head of the bronze statue of a Japanese ruler and kicked it. The boy saw the scene and got scared. He thought, "People used to enjoy themselves in the park until several days ago". It cleared up in the morning. The boy began to return to his apartment. When he went out of the park, he was surprised to see the two Russian soldiers who invaded the capital of The Empire of Manchuria. The boy thought 'They are already here'" (translated by the author).

Group Discussion

The fifth group filled the worksheet for submission with the details of their comprehension after their discussion to cover the main learning task of the lesson "why is the title of this novel 'Asa'?" They used the sheet to participate at the whole class discussion and actively presented their opinions and thoughts. It developed through group communication on the learning task such as follows: (A, B, C, D here used as name of students)

C1: First, the boy had a strong will to help his rabbit.

A2: Cheerful.

D3: Strong feelings.

C4: But he knew the anger of people against Japan's colonial rule and felt gloomy.

A5: He judged it dangerous to go to school.

B6: Discouragement.

C7: What does the word "Asa" symbolize?

A8: Light.

C9: The sun in the beginning of the day.

A10: What is this? An actual feels of live?

C11: A sense of reality to live. Oh!

D12: The boy was alive!

C13: He ran well in the early morning. Oh!

A14: Night scared him. Soldiers might come.

C15: A gap.

A16: He was eager to help his rabbit first. Though morning fog had cleared after that, he felt very depressed.

B17: We will write a gap between the contents of the novel and the image of the title.

The fifth group conclusion in the worksheet was such as, “in contrast to early morning fog, the boy was eager to help his rabbit. Though the sky was gradually becoming clearer, he had a fear and uneasiness in him and was discouraged by various things. The title “*Asa*” shows gaps that the boy felt in the morning” (taken from the fifth group’s worksheet).

Three other groups also concluded their comprehensions of “*Asa*” through their discussion such as 1) “The author’s desire to end of the brutal war and hope for peaceful world like a morning”, 2) “The youthful boy who had a slight hope knew the reality of the colony and got gloomy as dark night”, 3) “As morning symbolizes the “beginning”, it means that the new history would start. It means a hope for Manchurian and other people waiting for” (taken from the group’s worksheet).

Finding

The students worked together towards reaching a common learning task and understanding in advance the main message of the text (*Asa*). It became possible because the students applied the “*cooperative problem solving*” strategy through the following processes.

1. Promotion of frequent interaction of students within the groups;
2. Monitoring the speech and the reaction of other members’ opinion;
3. Utilization of their own knowledge to compensate their lack of understanding;
4. Reasoning and anticipating the story through contextual comprehension;
5. Building a temporary interpretation with the reasoning of all members; and
6. Modification of the partial comprehension of the story through the recognition of its whole structure and meaning as well as message “*hope for peaces*”.

The teacher applied the cooperative learning script for first time in the high school. As result, the students find chances to think in their own ways to communicate in group cooperatively and to present their ideas in a whole class discussion as well as

to have self-reflection on their own understanding and opinions.

The students have written their opinions on the cooperative learning script in their Japanese language classes as follows:

- “Through cooperative learning a lot of opinions come out and you are able to discover various things and enjoy the lesson,
- Even if you are reading the same text, each individual’s thinking is different. I was surprised that everyone had formed an opinion cooperatively,
- My own thinking was expanded by listening to the others in my group and the whole class discussion,
- By reading the text and expressing my feeling in my own words, I realized the difficulty of meaning and joy of creating my own sentences. I want to have this kind of lessons more” (taken from the student’s opinion on cooperative learning).

Analysis of a questionnaire surveys before and after delivering cooperative learning in the high school also shows that to insert cooperative learning approach in the Japanese ‘language lessons’ had an impact on students’ skills of progressing active learning such as ask questions, transparency of their own opinions, respect to other opinions, participate to create a enjoyable learning environment and develop communicational abilities. Comparing the scores of the “with cooperative learning” (106 people) and “without cooperative learning” (143 people), the average scores are significantly higher than the “with cooperative learning” ($p < .01$), (Mizuno, 2010).

Discussion

In contrast to the discussions in lessons using whole class teaching where there is a tendency for the teacher to dominate the debate (Clark, Anderson et al., 2003), in lessons of comprehending a text using cooperative learning there is no need for the students to raise their hands to take their turn speaking, and instead lesson transcripts indicate that active face-to-face interactions promote reaching the common goal of understanding the contents of the text.

By comparing students who had studied 11 months of ‘Japanese lessons’ through using cooperative learning approach (experimental group) with students who had taken conventional teacher-centered whole class lessons (control group), the students who had studied under the cooperative learning method tended to: 1) evaluate their own skills in relation to discussion more highly; and 2) have a more positive image of discussion. The fact that the students who studied by cooperative learning obtained higher average overall discussion skills indicates that the skills are able to be improved

by a lot of experiences with effective discussion and cooperative problem solving through group learning. In addition, lessons of comprehending text using cooperative learning were able to change the passive, unmotivated learning state of high school students into an independent active learning.

By understanding mutual differences in opinions, students' awareness of themselves is deepened. One of the topics to be addressed in the future is improving the awareness of students who dislike discussion through lesson analysis. There is a need for teachers to design lessons such that students can think by themselves and exchange opinions with other students to enjoy studying by repeating this kind of mutually beneficial experience.

Conclusion

From this study it can be illustrated that Japanese students improved their abilities and skills for constructing knowledge through intercommunication, learning from each other, whole class discussion, interaction and reflection. Students' cognitive abilities and emotional intelligence developed through cooperative learning especially for constructing their comprehension about the literacy text.

As this study distinguished, the knowledge construction process of students can be classified as reading, interpretation, comprehension and criticism. It means that students tried to construct knowledge in practice through active learning with 'literature text' in the 'Japanese lessons'.

More research is needed to explain how active learning has certain impacts on each step of the knowledge construction process in practice.

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