

Practical Report on Flipped Jigsaw Collaborative Learning of English as a Foreign Language

Yoshiko, GODA^{a*}, Masanori, YAMADA^b, Hideya, MATSUKAWA^c,
Kojiro, HATA^d, and Seisuke, YASUNAMI^a

^a*Research Center for Higher Education, Kumamoto University, Japan*

^b*Faculty of Arts and Science, Kyushu University, Japan*

^c*Center for Education in Liberal Arts and Science, Osaka University, Japan*

^d*Faculty of Modern Social Studies, Otemae University, Japan*

*ygoda@kumamoto-u.ac.jp

Abstract: This research reported on a trial practice of a flipped jigsaw collaborative learning (flipped jigsaw) of English as a foreign language (EFL) at a university in Japan. Its design, preparation, implementation, and overall evaluation were introduced. Individual works set as outside-class activities adopted a flipped classroom approach to jigsaw collaborative learning to free more class time for collaborative learning. The EFL students needed more opportunities to practice their target language with quality interactions among other students and teachers. The flipped jigsaw was designed to increase learners' quality interactions and reach their higher cognitive goals. Three video clips were selected for expert group learning, and a report with four open-ended questions was assigned to each expert group as a pre-expert group discussion activity. The expert group discussion was conducted face-to-face in a classroom, and the jigsaw group discussion was held in an online chat format. The overall evaluation based on students' perceptions of the flipped jigsaw (Class A: $N = 89$, Class B: $N = 74$) indicated that they might think that they were practicing English more than in the usual computer-assisted language learning activities. Interest in the final topic, expectation to improve their English, and satisfaction scored over 3 points in a 6-point Likert questionnaire. The results showed slightly positive attitudes toward the flipped jigsaw, regardless of the registered classes.

Keywords: flipped classroom, jigsaw collaborative learning, EFL learning

1. Introduction

The flipped classroom is one type of blended learning with online learning materials. An activity usually held in a class, such as a lecture and individual information searching, is set outside the classroom, which frees time for higher-order cognitive learning in the class. The concept is not new since homework prior to a class session has traditionally been assigned to students. In this approach, obtaining new information, facts, and concepts individually (lower cognitive goals) are separated from collaborative work with others for problem solving or creative learning (higher cognitive goals). To use learning time efficiently and effectively, these two types of activities are designed to allocate home time and classroom time according to the nature of learning. It also allows students to learn at their own pace; students with lower proficiency in English as a foreign language (EFL) can spend more time to obtain the information prior to the next class. The flipped classroom technique has been employed in EFL learning, and positive effects have been reported (e.g., Engin, 2014; Fraga & Harmon, 2015; Hung, 2014).

A jigsaw collaborative learning approach is utilized to activate quality interactions and promote higher-order thinking. This approach was first introduced by Aronson in 1971, and positive effects on learning in different subjects from elementary to graduate school have been reported (Aronson & Patnoe, 2011). Its two main stages are expert and jigsaw group discussions. The final discussion topic is introduced first. Students are usually divided into several groups, with each group assigned a different

theme or perspective, which is one of the approaches or key concepts critical to the final discussion topic. The students in an expert group individually study an assigned material on the theme; then as a group, they get together and discuss the theme to check their understanding and deepen and broaden it as experts of the theme. Once all members in the expert group become familiar with the theme, they are assigned to a jigsaw group, which consists of different members from all expert groups. In a jigsaw group, each student introduces his or her expertise; based on their different themes of expertise, the students discuss the final discussion topic. When all jigsaw groups come to a solution or conclusion on the final topic, then their thoughts are shared and discussed with all their classmates. This is a helpful method for EFL students who are not confident in speaking English; they at least have confidence in discussing their assigned expert content with a jigsaw group, giving them a successful experience of speaking in English. In an expert group, students also have opportunities to learn expressions and wordings to explain the concepts or ideas. This preparation may help them overcome their mental barrier and anxiety in speaking English.

To achieve more effective and positive results of the jigsaw collaborative learning, the flipped classroom and jigsaw approaches were merged in this research, called the flipped jigsaw collaborative learning (flipped jigsaw for short). This paper reports about the trial practice of the flipped jigsaw with its design, preparation, implementation, and evaluation. The issues on the current practice and future implications are discussed in the conclusion of the paper.

2. Trial Practice of Flipped Jigsaw

2.1 Design

A flipped jigsaw practice was planned as a three-week learning activity. Figure 1 shows the flow of all course activities, both outside and inside a classroom. As shown in Figure 1, individual learning activities (gray boxes) previously held in a classroom were set as outside-classroom activities. A final discussion topic was assigned with the following questions: What skills, knowledge, and attitudes should be acquired for the 21st century? How could we learn new things effectively and efficiently in modern society? Compare and contrast the traditional and new education. Organize the ability and literacy necessary for 21st-century success and better learning strategies and approaches utilized for your lifelong learning.

There were three expert groups (Groups A, B, and C) with different video clips. The expert group discussion was conducted in a traditional face-to-face setting, with each group consisting of four to five members. The jigsaw group discussion was held by using synchronous written communication (i.e., online chat), with three to four members in each group.

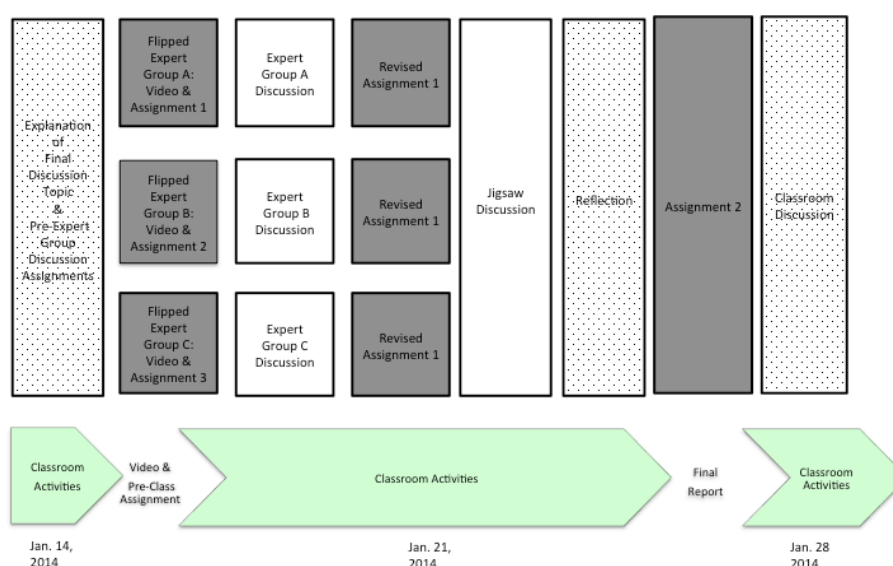


Figure 1. Flow of flipped jigsaw collaborative learning activities.

Gray: individual work, dotted pattern: classroom activity, white: group collaborative learning.

2.2 Preparation

For the flipped jigsaw practice, once the design was fixed, assignments including a pre-expert group discussion report, an expert group report, and a final report were prepared, along with video clips for the three expert groups.

2.2.1 Video clips

Three video clips were selected from open educational resources (i.e., YouTube) as expert group materials. The selection criteria were (1) about 4 minutes long, (2) keywords related to 21st-century education, and (3) different contents from other clips. The topics of the selected videos A to C were games and 21st-century skills, formal and informal learning, and new education in foreign countries and ideas for technology use in education, respectively.

2.2.2 Pre-expert group discussion reports on video clips

To check students' understanding of the video content, four open-ended questions were prepared for each video. The students had to summarize and organize the content to answer the questions. The report submission was due one hour before the next class. This allowed an instructor to arrange jigsaw groups only with students who submitted the assignment and understood the video content. The learning progress should be different between students who submitted the pre-expert group discussion report and those who did not. The students with no submission would form groups by themselves so as not to bother the others' learning with their ignorance of the assigned topic.

2.3 Implementation

The flipped jigsaw was implemented as designed in Figure 1 referring to CSCL design suggestions of Goda and Yamada (2012) to activate quality interactions among EFL students to establish a community of inquiry (Garrison, 2011). The instructions about the report assignments and links to the video clips were provided through the information function of Blackboard, a learning management system (LMS), and the report was submitted via the Blackboard assignment function. The jigsaw group's online discussion used the collaborative learning support system, C4 (C-quad), developed in the first stage of our research project (Yamada, Goda, Matsukawa, Hata, & Yasunami, 2014). Figure 2 shows a screenshot of the C4's chat and constructive map function. It allows students to use emoticons and the "like" button to express their feelings better in the written communication.

The trial practice was carried out in two computer-assisted language learning (CALL) classes, Classes A and B. Class A was offered to sophomore students majoring in information technology, and Class B was for mechanical engineering majors in the Engineering Department. In Class A, 98 students registered for the course, but only 89 completed all flipped jigsaw tasks and responded to a posted questionnaire asking about students' perceptions of the flipped jigsaw. Of the 93 students in Class B, 84 completed all flipped jigsaw tasks, and 74 responded to the questionnaire. The questionnaire used a 6-point Likert scale with four questions. The data from the completed questionnaires are descriptively analyzed in the next section.

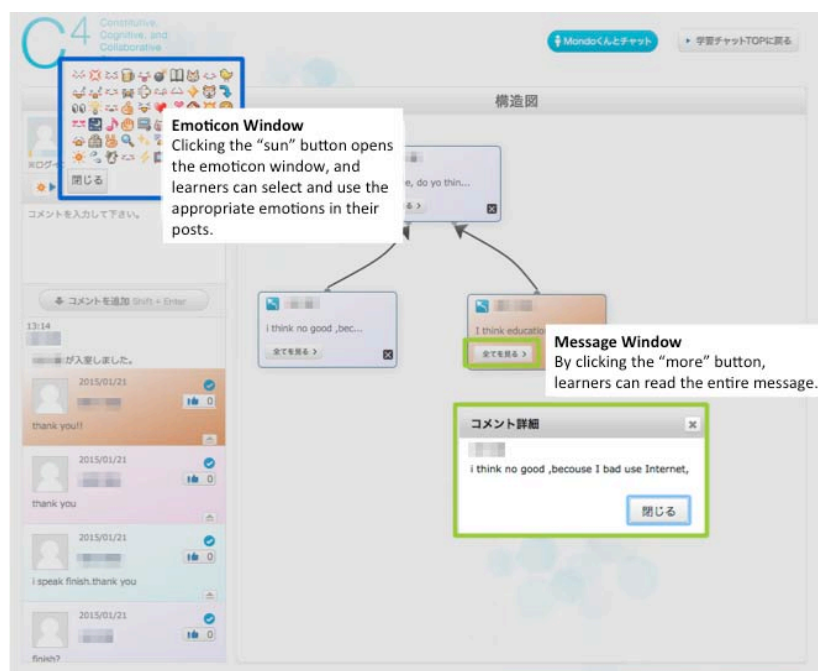


Figure 2. Screenshot of C4. Chat system on the left side and concept map available for students on the right side.

2.4 Overall Evaluation

Table 1 summarizes the overall evaluation for the flipped jigsaw collaborative learning of EFL, focusing on students' perceptions about (1) interest in the final discussion topic, (2) more English practice than in the usual CALL class, (3) expectation for English improvement when they have more flipped jigsaw activities, and (4) satisfaction about the flipped jigsaw. The answers to Question 2 (Q2) obtained the highest mean scores for both classes. Students in both classes claimed that they felt that they were practicing English more than when they were studying the CALL materials. The means and standard deviations of the other three question items were almost the same; the mean scores were 3.3 to 3.6, and the standard deviations were stable throughout the question items.

Table 1

Students' Perceptions of Flipped Jigsaw Collaborative Learning of EFL

Class	<i>n</i>		Q1. Interest in Topic	Q2. English Practice	Q3. Expectation for English Improvement	Q4. Satisfaction
A	89	<i>m</i>	3.43	4.25	3.58	3.46
		<i>sd</i>	1.06	1.16	1.09	1.06
B	74	<i>m</i>	3.32	4.00	3.38	3.47
		<i>sd</i>	1.29	1.19	1.16	1.24

3. Issues in Current Research and Future Implications

One of the major problems for the flipped jigsaw was that some of the students did not do the assignments that they were required to learn outside the class. If they had studied outside the classroom, it could have freed more time for collaborative learning. However, about 70% of the students finished their assignment by the deadline, and they were assigned to one of the jigsaw groups. The open-ended

questions about the flipped jigsaw showed that a lot of students had considerations of their learning ownership. The members of a class were also really important. Professors or experts from a variety of fields should work closely with the students to form better, more productive groups for effective and collaborative work.

Another problem for the flipped jigsaw was the selection of the same-level videos for the students' learning. If we want to use open educational resources, we need more information about the videos. Three video clips were selected based on three criteria; however, it was difficult to select equivalent level of language and contents in the videos.

The students' learning ownership was difficult to follow and visualize, but it was important for active learning. Future research should investigate the relations between learning ownership and learning behavior and attitudes toward the flipped jigsaw.

The effects of the flipped jigsaw on EFL learning, including learning hours, proficiency, students' perceptions (such as anxiety and confidence), and quality of interactions among students in both expert and jigsaw group discussions, should be analyzed and examined.

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