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Deeper Discussion Using Flipped Classroom Design[1]

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Abstract

The Ministry of Education recommends active learning and small group discussion as a tool for transforming university education so that graduates have the capabilities to address the challenges that Japan is facing (MEXT, 2012). However, many Japanese learners seem to have misconceptions about the nature of small group discussion and have weaknesses when they engage in English discussion. Flipped classroom is a pedagogical approach that can increase active learning without reducing the internalization of new knowledge by learners (Matsushita 2018). In this paper, we suggest that the flipped classroom approach can prepare Japanese university students to do small group discussion on academic topics. Elements of flipped lessons for discussion on academic topics, and example lesson designs from the writers' experiences of teaching discussion to first-year university students are provided. Flipped classroom design offers Japanese EFL learners the time they need to develop schema and formulate opinions for academic discussion.

アクティブラーニングと小グループディスカッションは日本の大学の英語教育の重大な目標である(MEXT, 2012)。しかし、多くの日本人学習者は小グループディスカッションについて誤解を持つこととディスカッションをすることにたいして弱さを持つらしい。反転授業は、新しい知識を学ばせることを減らせずにアクティブラーニングを増やせる教育方法である（松下 2018）。本稿の手案は、反転従業は日本人大学生を高レベルの課題についてのディスカッションを準備できる方法である。著者の大学 1 年生にディスカッションを教えるサンプル・レッソンはどのように反転従業が英語教育に適用するかを示す。反転従業は日本人学習者に高レベルのディスカッションのための意見や関連な知識を準備する機会を与えることが提案されている。最後に、学習者の反転授業の経験についてのデータが紹介されている。

Key words: small group discussion, flipped classroom, Japanese EFL learners

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"Active learning" describes one aim of education reform that replaces passive learning with participatory learning. However, active learning has been criticized for emphasizing classroom activities at the expense of teaching new knowledge (Matsushita, 2018). The flipped classroom approach is a pedagogical method that allows for active learning along with acquiring new knowledge (Mori, 2018).

The Japanese Ministry of Education, Culture, Sports, Science and Technology's definition of active learning includes discussion as an example of active learning (MEXT, 2012). Small group discussion involves two or more people who exchange ideas, through listening and responding, to make a decision or deepen understanding of a particular topic. Language educators use small group discussion to provide learners with opportunities to engage in the target language for meaningful interaction (Willis & Willis, 2007).

When Japanese university students discuss in the EFL classroom, three problems are observed: discussants (1) aim to win, as in a debate; (2) use nonstandard lengthy pauses before saying opinions; and (3) decide an order in which each discussant speaks once to merely report, not exchange, ideas in turn. Stroud (2015) stated, "Expecting [Japanese university students] to listen to the opinions of others and then immediately respond to such opinions may be unrealistic" (p. 200). Discussion involves communication between multiple people which should have many unseen influences on group dynamics (Stroud, 2018). However, the result of many Japanese classroom discussions is not an exchange of ideas, but a series of monologues.

To improve learners' discussion ability, instructors can explain what discussion should be, and teach phrases commonly used in discussion (Ryan, 2003). Stroud (2015) has demonstrated that giving learners pre-discussion planning time can also assist them. Japanese learners would benefit from a model of what classroom discussion is, yet, how can an individual instructor demonstrate discussion?

The university setting that is described in this paper envisions class discussion as a first step in the students' education. The authors prioritized teaching small group discussion skills in the English program beginning in the second half of Year One. To teach EFL discussion, the authors found that flipped classroom design can provide learners with models of discussion and time needed for gaining background knowledge or formulating opinions. In this paper, we explain the flipped classroom approach from its origins in North America to its use in Asia and in Japan. Elements of flipped lessons that promote deeper classroom discussion among Japanese university students and example flipped lessons are described. The authors of this paper suggest that flipped classroom design is beneficial in EFL classrooms that aim to promote learners' small group discussion abilities.

Origins of the Flipped Classroom

Flipped Classroom Design in the United States of America

The flipped classroom approach was popularized within the United States over the past two decades, partially due to the attention that it has garnered through articles in numerous popular media sources (as cited in Brame, 2013; Prefume, 2015). This followed on the work of Bergmann and Sams (2012) who introduced flipped classroom design at the high school level with their influential *Flip Your Classroom*. In addition, it

has been brought to public attention through institutions such as the non-profit Khan Academy (Prefume, 2015).

According to a summary written by Brame (2013), at the university level multiple versions of flipped classroom design predate the current trend for flipping. For example, Walvoord and Anderson (1998) advocated an approach for a variety of subject areas that "turn the course on the head" (p. 88) by emphasizing first-exposure learning before class and then processing material within the classroom. As Brame also pointed out, Lage, Platt, and Treglia (2000) used an approach they called "the inverted classroom" to teach an introductory economics course. In the inverted classroom outside materials such as videos and slideshows with voiceover were used to give students first exposure to classroom materials resulting in "students [taking] ownership of their learning" (Lage, Platt, & Treglia, 2000, p. 37). A different approach, developed by Crouch and Mazur, involves what is called "peer instruction." This involves using first-exposure techniques as well as assignments to ensure students are prepared for class, coupled with peer instruction about difficult points in conjunction with short lectures on the part of instructors (Brame 2013; Crouch & Mazur, 2001). In conjunction with the spread of approaches such as these, symposia surrounding flipped approaches to teaching have been held at a number of prominent universities (Schell, 2016).

In the United States, one notable aspect of flipped pedagogy is that although flipped classroom approaches have been used in humanities classes, the preponderance of flipped methodological practice has been developed in conjunction with STEM (Science, Technology, Engineering, and Math) subjects. Despite the association between the flipped classroom and STEM, the benefits of the flipped approach are clearly applicable in a variety of teaching contexts. As Bergmann and Sams (2012) indicated, video and other first-exposure materials have the benefit of allowing students to replay their teachers, that is, to learn at their own pace and review the material that they have found difficult to understand. This could be useful in EFL contexts because students with different language abilities need varying amounts of time to absorb materials. Furthermore, the flipped classroom approach increases student-to-student interaction (Bergmann & Sams, 2012). However, one of the biggest potential benefits in relation to language learning has to do with the stepped retrieval pattern that this approach allows. Schell (2016), for example, summarized recent scholarship in cognitive science that has demonstrated that repeated acts of retrieval is the most effective way to deeply internalize new information. First-exposure activities, such as having students prepare for class by watching a video and answering questions about it, prepare students for retrieval events that will take place within the classroom. Retrieval is most effective when stepped at intervals, so that students have multiple opportunities to retrieve the same information over multiple lessons (Schell). Using a flipped methodology in conjunction with stepped interval retrieval would seem like an ideal tool for the EFL classroom.

Flipped Classroom Design in Asia

Chua and Lateef (2014) suggested that Asian education might have different characteristics compared with North American education with regards to the role of the teacher and that of the student. This cultural difference plays an important role in Chua and Lateef's investigation of flipped classroom design. They analyzed 12 case studies of flipped classroom design, from various academic fields, in Asian university classrooms

(e.g., Singapore, Malaysia, China, India, South Korea, Japan and others). All 12 studies reported on a class in which first exposure to theoretical aspects was presented online prior to class, and class time was used for discussion, problem solving or other applications of theory. Learners approved of the flipped classroom method, and wrote that in comparison to traditional lecture classes, they benefitted from the extra time with instructors. The instructors in these 12 case studies recommended flipped classroom design because of its ability to enhance learner engagement in class and increase support for slower learners.

However, there has been little research that focuses specifically on the role of flipped classroom design for language teaching in Asia. Kang (2015) compared the effectiveness of traditional and flipped classrooms of a general English course in South Korea. The EFL learners in the flipped classrooms showed statistically significant gains in general English, grammar, and vocabulary after 15 weeks, compared with the EFL learners in the traditional classrooms; the learners preferred the flipped class because it provided more interaction with classmates and the instructor; however, problems with learners who did not do their pre-class assignments were identified. Li (2016) investigated the effects of teaching design and the satisfaction of learners in a second-year oral English course at a Chinese university which used flipped classroom design. Li found that a large majority of learners indicated that flipped classroom design was effective in improving their oral English.

Flipped Classroom Design in Japan

In Japan, flipped classroom in language education has been researched particularly by members of the CALL community who have used this pedagogical approach in order to increase student engagement, autonomy and class-time efficiency. Loucky (2016) described flipped classes as, classes "that shift learning responsibility towards students and employ more media outside of class to help learners prepare to contribute more during classroom time" (p. 168). Obari and Lambacker (2015) compared the effectiveness of the flipped classroom to a traditional university classroom. The flipped classroom students showed a higher level of improvement on pre and post Test of English for International Communication (TOEIC) tests, although tests of significance were not reported. Obari and Lambacker attributed the improvement in learners' TOEIC scores to affective factors of the flipped classroom such as mobile learning being motivating and convenient for learners. While Obari and Lambacker's research is centered on TOEIC tests, it is likely that appropriate application of the flipped learning structure in conjunction with non-traditional delivery methods that allow students to learn when and where they want to will result in students spending more time on task and engaging in more meaningful EFL learning activities.

For Japanese education researchers, flipped classroom is a way of implementing active learning. However, one criticism of active learning is that in attempting to push students to verbalize learning, instructors reduce lecture time, resulting in less engagement with new information (Matsushita, 2018). To correct this imbalance Matsushita and others promote "deep active learning" of which the flipped classroom is one form. Mori (2018) stated, "The flipped classroom is a type of active learning course design that facilitates deeper understanding . . . through autonomous learning amidst interaction with others" (p. 107). Mori (2018) analyzed two case studies, one each in Natural Sciences and Information Sciences. In the former, at the

beginning of a new academic year, traditional lecture classes were replaced by flipped classroom design for students acquiring new knowledge. Although the students who had learned in the traditional classes and in the flipped classroom were believed to have similar abilities at the beginning of the year upon entering university, class scores were reportedly higher for students who studied using the flipped classroom. Mori (2018) noted that in the knowledge acquisition model, students are expected to identify a closed-ended solution, and therefore instructors can more easily support students' understanding. In the latter case study, students were doing investigative learning, which results in open-ended solutions. Mori (2018) cautioned that this latter model might encourage the emergence of free riders (i.e., students who do not complete the pre-class assignments and who coast on the efforts of others), thus instructors need to do more to support students as they work together.

Mori's (2019) analysis of 800 active learning lessons by Japanese teachers identified principles for effective student learning. First, learners should internalize new knowledge, then externalize that knowledge, followed by reflection in which they again internalize the knowledge. Second, learners should begin learning individually, then confirm that learning in a group, and then reflect individually, this time at a deeper level. These principles of flipped classroom design are illustrated in Figure 1.

	Before Class		**During Class**		**After Class**
Knowledge:	Internalize		Verbalize		Re-internalize
Learner:	Individual	→	Group	→	Individual
Result:	"I think I understand"		"We check. We struggle."		"I got it."

Figure 1. Flipped classroom design principles. Adapted from Mori (2019, February).

Elements of Flipped Classroom Design for Small Group Discussion

Pre-discussion Preparation

The first element of a flipped lesson for small group discussion is the pre-discussion preparation assignment. The purpose is for learners to gain knowledge on the topic and related vocabulary, and formulate opinions needed for the discussion. These first-exposure materials can be digital or texts, in the learners' L1 or L2. A key feature of pre-discussion preparation assignments is a mechanism for learners to show the instructor that the assignment is completed before class. Completion can be indicated through an on-line feedback form, a quiz at the beginning of class, or showing the instructor completed notes. Without a requirement to prove completion of the assignment, it is possible for students to avoid doing assignments, and thus be unable to fully participate in the group discussion. A case study of flipped classroom practitioners found that all agreed that "a critical factor in making an effective flipped course is that the students have learned the knowledge in the pre-class learning" (Long, Cummins, & Waugh, 2017, p. 188).

Collaborative tasks in class

The second step of flipped classroom design is in-class collaborative tasks that are designed so learners externalize information gained in the pre-discussion assignment. The purpose of this step is for learners to verbalize their in-process learning. A series of tasks can lead learners from checking the accuracy of their prepared answers, to simply expressing prepared opinions, and then on to a small group discussion. While tasks involving both open- or closed-ended solutions are possible, Mori (2018) found that learners more clearly understand task solutions and more actively engage during close-ended tasks. This being the case, it is likely that discussions with a close-ended task are most effective in causing all members of a discussion group to participate. Close-ended tasks can include solving a problem, agreeing on an order of elements, or forming consensus. Learners may struggle to use new language or concepts; however, peers and the instructor can assist in the discussion.

Instructor's summary

Following the in-class discussion task, the instructor summarizes the material. Mori's (2018) analysis of flipped lessons found that "teaching after learning" increased the effectiveness of lessons. The instructor's summary can allow learners to reconstruct their initial understanding into deeper understanding, along with giving authority to things learned individually or by peer instruction.

Reflection and deeper application tasks

Following the in-class discussion and instructor's summary learners can gain from a reflection assignment or writing assignment that requires even further processing of the discussion topic.

Flipped Lesson Examples

The following flipped lessons were created and implemented for first-year classes at a regional public university in Japan. The English abilities of students who enter this university range from CEFR A1 to B2+; however, most students are approximately at the CEFR A2+ and CEFR B1 levels. This band of abilities is similar to the EFL population at many Japanese tertiary educational institutions; thus, the authors of this paper believe that the following three lesson examples might be useful in various Japanese EFL contexts.

Lesson 1: Learning from Discussion Models

Pre-discussion Preparation

At the first stage of internalizing knowledge, students watched two videos, one modeling "bad discussion" and the other modelling "good discussion." These videos were developed by the authors and their colleagues, who played character roles in the videos. The idea behind providing the videos was for students to focus on the positive and negative formal features of discussions, rather than difficult content, so both videos featured a simple topic: ice cream. These videos were embedded in a Microsoft Form. Students answered questions based on their analysis of the videos. The "bad discussion" featured disengaged participants, mobile phone usage during discussion, non-sequitur replies, and a one-by-one order in which each person said their opinion before the conversation moved to the next person. The "good discussion" included organic

conversation in which all participants were engaged and added information and opinions based on what other people had said. We refer to this notion as "connecting and adding." Before watching the videos, students wrote a definition of discussion. Students then identified good and bad points of the videos, and finally answered a question about how their understanding of discussion had changed after watching.

Collaborative Tasks

At the group stage of verbalizing knowledge, students shared observations about good and bad discussion practices and wrote a group definition of discussion. After making this definition, student groups engaged in simple discussions similar to the ones in the videos watched outside of class. Students recorded these discussions and played the recordings back, analyzing their discussions by writing good and bad points in two columns. Student groups shared their findings with the class, and the instructor summarized the students' responses and offered this definition of discussion for comparison: "Discussion is two or more people exchanging ideas on a topic resulting in understanding the topic and each other better." The instructor highlighted that good discussions occur when participants connect to others' ideas and add their own information and opinions.

Reflection

Finally, at the individual stage of re-internalizing knowledge, students analyzed the script from the good discussion video in order to diagram the various incidences of connecting and adding. Through this activity students reflected on what they had discovered about good discussion, which likely helped students to internalize their understanding of good discussion practices.

Lesson 2: Learning with L1 Pre-Discussion Materials

Pre-discussion Preparation

A textbook reading referred to different kinds of on-line advertising and whether it helps consumers. The instructors thought that many learners might have limited background knowledge to understand the reading, and thus would not be able to discuss the topic. Thus, for time efficiency and to ensure that the learners understood the mechanisms behind on-line advertisements, L1 (Japanese) YouTube videos teaching two kinds of on-line advertising were selected as first-exposure material to internalize knowledge. The learners were assigned to watch five minutes of either "A video" or "B video" and to write a summary in English of the two different kinds of on-line advertising.

Collaborative Close-ended Tasks

In the following class, learners who had watched "A video" talked with each other and checked that their summaries were correct. Those who had watched "B video" did the same. Next, a person who had watched "A" paired with a person who had watched "B" and they described in English what they had learned. All the learners did the before-class preparation study, knowing that they would need to prove completion in the next class. With this newly acquired background knowledge about different types of on-line advertising, the learners were more likely to be able to engage with the textbook reading.

Deeper Application Task
In a subsequent discussion, students took on roles of consumers or shop owners and demonstrated their ability to talk about different kinds of on-line advertising from the perspective of the roles that they were playing. L1 pre-class materials proved to be an efficient and effective way to ensure learners gain the knowledge that they need to participate in L2 group discussion.

Lesson 3: Two Flipped Activities Before Discussion
The following lesson repeats the pre-class study and in-class collaborative tasks twice in order to prepare learners for a difficult discussion topic: artificial intelligence (AI) and job loss. The topic was introduced in the textbook and supplemented with a TED Talk by Noriko Arai entitled, "Can a robot pass a university entrance exam?"

Pre-discussion Preparation
The individual internalizing of knowledge occurred with the first-exposure material that included an English news article reporting on Arai's talk. The article summarized the main point of the TED Talk, allowing learners to acquire background information at their own pace. To prepare for the group stage of this series of lessons, learners read the news article and answered closed-ended comprehension questions. They also searched for biographical information about Arai in English or Japanese which was an open-ended task.

Collaborative Tasks
In the next class learners used these comprehension questions in a small group discussion to verbalize their new knowledge. Groups also shared information that they had found about Arai with the class.

Pre-discussion Preparation
To deepen their knowledge of the topic, the learners were given a second flipped lesson to prepare for group discussion. Again, at the individual stage, learners watched the 13-minute-minute Arai TED Talk, answered comprehension questions, and formulated their opinions on AI and job loss.

Collaborative Task/Deeper Application Task
In the following class there were small group discussions on the topic of AI and job loss. Students were able to discuss pros and cons of AI in society and add information from Arai's presentation. Students could talk based on their experience of the Japanese education system and give their opinions on education considering the increase of AI.

Feedback from Learners
In the above lesson related to AI and job loss, learners commented that the pace of the TED Talk was challenging for them, but the structure of the activity allowed for individualized learning. Because they were able to watch the TED Talk repeatedly, at their pace, they were able to understand the content.

Additional feedback from other learners regarding flipped classroom design was collected during Lesson 1: Learning from Discussion Models. Students indicated

that their understanding of discussion changed. For example, one student wrote, "My understanding of [discussion] changed. I thought talking is a discussion. But listening is also discussion. And I think natural reaction and follow-up question are important for discussion." Another student answered, "My understanding of discussion changed. I understand it is important not only to express my opinion but also to understand by listening to the opinions of others."

Conclusion

Although the flipped classroom is commonly associated with STEM subjects, our experiences show that the flipped classroom can also play an important role in foreign language classes. This is particularly true in the Japanese university context since discussion of academic topics, including expressing and responding to the opinions of others, is not a skill that most Japanese students have when they enter university. In this paper we reported on the use of flipped classroom design in English language classes in order to promote higher level small group discussion skills. Using three sample lessons as a demonstration of flipped classroom design in action, we have shown that it is both applicable to and effective in the English-language classroom.

Flipped classroom design provides students with time to learn background knowledge and vocabulary, and to formulate their opinions, a necessary part of preparing learners to discuss academic topics effectively.

Feedback from students, although not gathered systematically, indicated that students demonstrated new procedural knowledge as a result of flipped classroom design and that they reacted positively to this new pedagogical approach. While the positive reaction of the students is an important indicator, as language instructors, the concrete language development of our learners, such the fluency, accuracy and complexity of their language use should be the primary focus of research. Future studies should therefore compare the language use and language growth of Japanese EFL learners in classes using flipped classroom design with those in more traditional pedagogical settings.

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Bio Data

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