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【Notes】

An application of Blended Learning for English Medium Instruction Programs at Universities in Japan

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1. Background of the Study

1.1. Japan's Increasing Emphasis on English Content Education

English Medium Instruction（EMI）is an increasingly popular teaching approach at universities. EMI is defined as "[t]he use of the English language to teach academic subjects in countries or jurisdictions where the first language（L1）of the majority of the population is not English"（Dearden, 2014, p.2）. In Japan, English classes in junior high and high schools are now taught using English as the language of instruction as a general rule（Ministry of Education, Culture, Sports, Science and Technology［MEXT］, 2014a）. MEXT（2014a）is also considering moving the starting year of obligatory English education in elementary schools from the current fifth grade to the third grade by 2020. In 2015 the Japanese government announced a plan to increase the number of the International Baccalaureate secondary schools by nearly six times, from 34 to 200 by 2018（MEXT, 2014b）.

This trend necessarily influences university level education. However, in contrast to the coordinated changes at junior and high schools, the evolution of university level English instruction in Japan has proceeded in a compartmentalized manner. Individual universities have developed their own language instruction regimes to cater to their unique needs, applying approaches similar to EMI, such as Content and Language Learning（CLIL）, Content Based Language Instruction（CBLT）, Task-Based Language Teaching（TBLT）, English for Specific purposes（ESP）, and English-Taught Program（ETP）. The approaches vary depending on whether the final goal is to teach two（or multiple）languages or a single language（cf. Jenkins, 2015）. Because university teaching approaches have developed in a trial and error

fashion, these English instruction variants need more qualitative and quantitative research to ensure maximum efficacy in university contexts.

English education at Japanese universities is not only a matter of English classes, but has become a factor influencing universities' overall academic policy. MEXT is directly supporting internationalization of universities in Japan（MEXT, 2012）. This phenomenon has been accelerating, but some challenges have been also reported, such as heavy faculty workload（Rappleye & Vickers, 2015）and students' lack of understanding（Shimizu, 2015）.

2. Problem Statement

Where Japanese students are taught academic subject matter in English,（a non-native language）, a heavy burden rests on university professors who have not necessarily amassed language teaching experience. In particular, when students' English proficiency levels are not sufficient for academic subjects taught in English, content-focused professors may encounter difficulties in teaching. These professors are often essentially being forced to become English teachers, a role to which they never aspired, and for which they may not be prepared. Professors in this position can become conflicted regarding whether to focus on content or language. Likewise, university students can lose a sense of purpose, wondering whether to focus on language or academic content.

In light of these academic trends in Japan, this study proposes that online education and English education should play important, cooperative roles in achieving the government's objectives of elevating students' English skills to globally competitive levels. An important tool to achieve this goal will be integrating technology into education.

2.1. Leveraging the Flipped Learning Model

The flipped learning teaching strategy could be a component of a solution to these problems. Flipped learning is one of the practical applications of blended learning; a model that alters the traditional roles of classroom and self-study. In the flipped learning model, students watch instructional videos or learn online outside of class, and then subsequently in class students collectively participate in interactive,

collaborative, and constructive activities with supportive scaffolding provided by a teacher. In other countries, the flipped learning model is increasingly being used at all levels of education, from elementary to university.

2.2. Flipped Learning Implementation in Other Countries

Flipped learning has a documented track record of good results. Bergmann and Sams（2012）reported their own experience in 2007, implementing flipped learning at a U.S. high school. Their results ignited the popularity of the model, as reported by Yoshida（2015）. Bergman and Sams created their own self-study video files for students to watch on their own prior to class time. As a result, the students became more efficient learners, and class time became more relevant, as students received greater individual attention from teachers. Test scores also improved. As another example, Fulton（2012）reported the case of a financially challenged U.S. public high school. Rather than paying for new textbooks, teachers at the school created their own materials and implemented flipped learning. The students' success rate on the state math test increased from 29.9% in 2006 to 73.8 % in 2011. Likewise, Green（2012）reports that the principal of a high school in the U.S. implemented "flipped classroom" in 2010, after which failure rates dropped by 33%, and student discipline cases decreased by 74%. Also, parent complaints dropped, from 200 down to seven by 2011.

Universities also have leveraged the efficacy of filliped learning. Freeman（2012）recounted that an instructor at the University of Washington reduced the class failure rates from 17% to 4%, and increased students' marks from 14% to 24% after he introduced flipped learning. The Stanford School of Medicine and the Graduate School of Business introduced flipped learning in order to help students use their time more effectively, and the positive results included a large increase of the attendance rate（from 30 % to 80%）, and higher test scores（from 41% to 74%）（Prober & Health, 2012）. Sales（2014）reported a case study of flipped learning in the University of Stanford, Law school in California. Sales saw the overwhelming workload of students; thus, she implemented a flipped learning approach. Attendance rose from 10-15% to 91%, and the feedback from both students and faculty was positive. North Carolina State University reported strong success of "flipped learning, including an increase in students' motivation（Beichner et al, 2007）.

The results are also positive in terms of teacher-learner interactions. Findlay-Thompson and Mombourquette（2014）compared a flipped classroom with two traditional lecture classes in an introductory business course at Mount Saint Vincent University. There were no grade differences, but students' perceptions of the flipped classroom were positive, in part due to more opportunities to interact with their professor. Love et al.,（2014）also reported similar results when he compared a flipped classroom and a traditional classroom in U.S. college algebra courses. Students' grades were similar, but perception of the flipped classroom was more positive.

However, not all research on flipped Learning at universities has produced positive outcomes. For example, Strayer（2012）reported that students in a flipped classroom in an introductory statistics course were less satisfied. He posited that the students, at introductory level courses, had not yet attained enough familiarity with the subject matter to appreciate the content, and thus may have been frustrated when they encountered tasks that were unclear. In another instance, the students who experienced online learning versus lecture-based learning in a research methods and statistics course were less satisfied with the online instruction（Crouch & Mazur, 2001; Frederickson, Reed, & Clifford, 2005）. Johnson and Renner（2012）found no significant differences between test scores in flipped and those in traditional computer applications courses. These neutral or negative results might be explained by the possibility that teachers were asked to implement flipped learning without an appropriate instructional design process including any perceived need（Kikuchi, 2015a）.

3. Research Purposes and Questions

There are three important aspects to keep in mind when contemplating implementing flipped learning in the context of language education（Berrett, 2012; Engin, 2015; Fraga & Harmon, 2015; Hung, 2015; Mehring, 2015; Schneider et al, 2013; Stracke, 2007）.

（1）Creation of Self-Study Content: Although in theory it might seem preferable to use the pre-study videos or contents created by teachers, in practice, however, this may generate significant stress for teachers.

（2）Scaffolding and Support from Teachers: If a teacher uses outsourced self-study content, online support from a teacher might be necessary in order to ensure student understanding. Thus, considering how and when a teacher should

support students is important.

(3) Cognitive Workload of Self-Study Content: There may be information processing theory algorithms that can be employed in order to work efficiently in flipped learning process. This is also related to the impact of flipped learning on students' English language performance.

3.1 Adapting Flipped Learning to Japanese Classes Taught in English

Determining optimum self-study content is a key challenge. Self-study content (the video programs students use for pre-class self-study) is one of the critical factors in the success in flipped learning. Flipped learning self-study content traditionally consists of videos made for students to watch, but could also include other media formats, such as audio recordings, slide shows, interactive charts, illustrations, etc. At many universities in the U.S., teachers use free online courses such as MOOCs (Massive Open Online Courses), and OCW (Open Course Ware) as their flipped learning self-study materials. Drawbacks to this approach can include diminished student motivation, and an imbalance of instructor classroom time (e.g., Blank, 2014; Bishop & Verleger, 2013; Ho et al, 2014; Noguchi, 2015; Sales, 2014). Subject matter applicability, content level and course schedule continuity of MOOCs materials also need to be considered, since the free online MOOCs materials are developed by different professors at different universities (Haber, 2013).

Regarding the second hurdle related to the classroom experience, scaffolding and support, flipped learning is believed to create the potential for active, engaged, student centered learning. Collaboration and scaffolding from teachers (e.g., Freeman, 2012; Fulton, 2012; Green, 2012; Prober & Health, 2012, Sales, 2014), and students' diverse learning styles can be taken into consideration (Lage et al., 1995). However, none of these advantages are automatic (Sams & Bergmann, 2012). It is essential that teachers are provided with instructions for implementing flipped learning on a theoretically sound foundation.

In terms of the cognitive workload of self-regulated content, flipped learning research demonstrates the importance of appropriate design and implementation for successful flipped learning. It can be said that flipped learning has great potential, but must be based on concrete strategies that integrate research and scientific findings in

the field of cognitive psychology, such as the Transfer Appropriate Processing（TAP）model of memory（Morris et al, 1977）.

According to TAP, humans can better remember what they learn if the cognitive processes that are active during the learning process are similar to those that are active during the retrieval process. In other words, "the kind of cognitive processing that occurs while performing learning tasks should ideally resemble the kind of processing involved during communicative language use"（Lyster, 2007, p. 43）. Along with TAP, Lyster and Mori（2006）propose the "counterbalance hypothesis." This hypothesis states that students are more likely to notice feedback if it is conveyed to them in an unconventional manner. This model would have potential impact on flipped learning in terms of the effect of self-study content absorbed outside of the classroom, prior to the interaction in class.

Following the TAP model, Lightbown（2008）suggests that this model can explain why the individual pieces of grammar leaned in isolation may not always be available for use in communication. In content classes taught in English, there is essentially no grammar instruction. Ideally students are expected to learn grammar incidentally, while their attention remains on the course subject matter. In reality, however, it is unlikely that all grammatical features can be acquired by declarative knowledge（Ellis, 2015）.

If the aim of the content classes taught in English is to impart accurate knowledge of grammatical features, form focused instruction will be necessary. How to achieve a directing of attention to form during interaction is currently an area of research in Second Language Acquisition. The popular classroom instruction supported by theoretical justification is a focus on form teaching technique, while providing corrective feedback from teachers in class; thus, giving what is the correct form implicitly or explicitly from teachers（e.g., Doughty & William, 1998）. Informed by the theory of TAP and these theoretical frameworks, the significance of research will be not only how to balance between lectures for outside of class and interaction in class, but also how to focus on both meaning（i.e., content）and form（i.e., grammar）in order to successfully implement flipped learning in Japan. This would also be related to the balance between usage of Japanese and English languages.

4. Literature Review

4.1. Limitations on Flipped Learning Research on English Education to Date

As is demonstrated by the exponential increase in the number of Google search results for the terms, "flipped learning" or "flipped classroom," flipped learning is now gaining attention worldwide. In contrast to this popularity, however, there is little scientific research documenting the effectiveness of this method. "Flipped learning" has not yet been fully evaluated, theorized and researched in general (Abeysekera & Dawson, 2015). The studies to date have been mostly in the fields of STEM disciplines (i.e. Science, Technology, Engineering, and Mathematics) (Berrett, 2012). In the field of English education and Second Language Acquisition, there is little research on flipped learning. This might be due to the fact that second language acquisition is not as easily identified or straightforward as the STEM disciplines. Searches in May, 2015 of the ERIC, ProQuest, JSTOR, PsycINFO, and Taylor & Francis Online database yield five peer-reviewed articles in the field of English language learning in higher education (summarized below).

The research highlighted in each paper was unique, but the results and implications were similar. All of them show flipped learning has positive results and high potential in the field of language education in general. In terms of benefits, flipped learning may be able to create student-centered activities, allowing students to be more responsible for their own learning, and facilitate individualized scaffolding. On the other hand, all studies reviewed here shed light on the importance of support and clear instruction from a teacher; both in class and outside of class. Simply instituting the flipped learning format is no guarantee of success.

As an introductory note regarding terminology, the Flipped Learning Network states the two terms, 'flipped learning' and 'flipped classroom', are not interchangeable, because "Flipping a class can, but does not necessarily, lead to Flipped Learning" (Flipped Learning Network, 2014). However, due to the varying term usages in the research papers, I will follow the term each researcher employs, and use these terms interchangeably without any distinction. Note also that one of the articles is in the field of French language education. It was originally not about "flipped learning," (termed in the article as 'blended language learning'). Nonetheless, the reasoning and suggestions in the paper may provide valuable implications to the

analysis of flipped learning.

Mehring（2015a）investigated the impact of flipped learning on Japanese English students, focusing on whether there were benefits, challenges, changes in study habits, and whether students experienced better communication opportunities. The participants were 37 Japanese first year students in Iwate, Japan, with TOEFL scores between 200 and 420. In this study, the students were asked to read four graded readers（easy reading books）, write the book reports, and complete online vocabulary and grammar quizzes. The students also made mini speeches and presentations, conducted a research project, and wrote a 1500-word report. The researcher did not clearly mention how the teacher managed classroom activities and which parts were used as homework study. It appears as if all the activities and work were pursued in a continuous manner without clear distinctions between in class and outside of class. The research was conducted through observations, routine review of students' journals, and two interview sessions. Data gained from these three sources were triangulated to determine the consistency of the findings. In the interview section of the research, the participants were told about the flipped learning and the purpose of the study. Through this study, the Japanese university students had positive learning experiences, including active learning through technology, satisfaction of diverse learners' needs, interaction and knowledge construction. The author concludes the experiences were positive in English class with flipped learning, but suggests the amount of workload as pre-class materials should be taken into consideration.

Hung（2015）examined a flipped classroom for English language learners at a university in Taiwan in order to examine its pedagogical prospects in language education. The research questions were "（1）How did flip teaching influence the students' academic performance? （2）What were the students' perceptions of and attitudes toward their learning experiences in the flipped classroom? and （3）What were the students' participation levels in the flipped classroom?"（p. 83）. The study used a quasi-experimental design to highlight the impact of 'flip teaching,' through a WebQuest active learning strategy. The number of participants was 75, and all were first year English major university students. They had no experience with flipped learning but one-third of them had blended learning experiences in their high schools. They were categorized at CEFR（the Common European Framework of Reference for

Languages) B1 level of English, and randomly assigned to three groups (25 students each); two experimental groups and a control group. One of the two experimental groups used WebQuests to provide a structured and enriched learning environment for learners. The other experimental group was in a semi-structured flipped classroom, using TED-Ed. The control group was in the non-flipped classroom, adopting task-based learning activities in class and assigned homework outside of class in a conventional manner. The research was carried out in eight weekly classes. After each lesson an assessment was given to all the groups. The assessments, study logs, learning experience questionnaires, and semi-structured interviews were conducted and analyzed. The highest satisfaction, the best assessments, and the strongest perceived learning engagement were all seen in the flipped classroom group. The study concludes that the flipped learning has high potential as an approach to English education, because it provides students active involvement and participation, but it also needs well-structured learning materials for successful implementation.

The research of Fraga and Harmon (2015) investigated students' perspectives of the flipped classroom model and examined the impact on student achievement. The participants were 51 undergraduate students in an education course in Texas, divided into two groups. The 26 participants in the control group were taught about word study in a conventional teacher-directed lecture class. The 25 students in the experiment group were taught in a flipped classroom. Neither groups had knowledge of flipped learning. First, both groups read the same texts at home. The treatment group learned through the five lectures on Moodle at home and took the accompanying quizzes posted on Moodle in class, in the presence of other students and teacher. The control group took quizzes that included answer keys to check their understanding by themselves. Using an inductive approach to qualitative data analysis, the questionnaire responses in three phases were examined. The results showed that the flipped learning participants liked this model of instruction for several reasons. One notable reason was the support and clarification provided during the class discussions. The majority of responses in terms of negative perception about flipped learning related to time management and confusion. The paper concludes the use of flipped learning may be influenced by student preferences for the type of instructional model, and the topic and fields. As a further research suggestion, they mention that an investigation should be done regarding the varying types of

online environments, including rapidly changing mobile technologies, which can be successfully used with flipped learning.

Mehring（2015b）reported on a flipped classroom in his content based lecture course, American Studies, taught in English at a university in Nagoya, Japan. This article does not provide any detailed information about the contexts, such as student data, but describes the class procedure as follows. First, students reviewed the materials on the topic, focusing on key questions provided before class. Then, they were asked to post their understandings on a class message board on Moodle. Finally, a project-based learning exercise was given in order to create authentic challenges where students collaborate, incorporate schemata and new learning to develop and build a public artifact while using English as the mode of communication and negotiation of meaning. The paper did not conduct the qualitative and quantitative research based results, but offered two suggestions in terms of flipped learning in a content-based class in Japan:（1）Step by step implementation in order to help learners familiarize flipped learning and reduce teacher preparation, and（2）encouragement to complete pre-class materials or assignments.

Stracke's（2007）article does not directly deal with English education, but focuses instead on the reasons three students dropped a blended language learning class for French beginners at the University of Munster, in Germany, which provides important implications to my analyses. The students were expected to work individually to prepare for lessons via a CD-ROM, and classroom sessions were used for communicative activities. None of the learners or teachers in the class were previously familiar with a CD-ROM. The study took a phenomenological approach to describe the participants' experience from their point of view. The observation, questionnaire, and interviews were conducted as triangulation. The questionnaire was issued for two semesters and interviews administered for four years. All participants but three had a positive view of the blended learning experience. The three dissenting students all dropped the blended learning class after a few weeks（this paper did not mention how soon），and became the focus group of Stracke's paper. The author concludes that the study indicates three critical reasons for the three students' negative reactions to the class:（1）A perceived lack of the paper medium for reading and writing,（2）the rejection of the computer technology as a language learning tool,

and（3）a perceived lack of support and connection between the face-to-face and commuter-assisted components. Even though as the author admitted the number of participants was small and leads to the limitation of generalizations, the results may shed light on how best to structure flipped learning.

Finally, I will add here my study conducted in 2014 in terms of the balance between Transfer Appropriate Processing（TAP）and counterbalance instruction（Kikuchi, 2015b）, One class was asked to watch form-focused instructional five-minute videos at home, and the other class was assigned to watch five-minute job interview videos in English（i.e., content-based instruction）. In both classrooms on campus, the participants worked in groups, interactively and collaboratively on some English tasks, with scaffolding supplied as necessary. There was no significant difference in terms of students performance（t（56）=1.12, p=0.267）, but the questionnaire showed many positive flipped learning experiences in both classes.

5. Discussion and conclusion

From the view of Bloom's Taxonomy, flipped learning allows students to spend more time in higher levels of learning, such as creating, evaluating, analyzing, and applying, in the company of other students and a teacher. Therefore, the time spent in the lower levels such as understanding and remembering occurs mostly outside the classroom.

My review of flipped learning literature reveals two important points. First, although in theory it might be better to use self-study materials / content created by teachers, the reality, in Japan at this time, is that this added responsibility may create too much stress for teachers whose core teaching knowledge and experience relates to the course content, not necessarily the English language. Therefore, finding ways to reduce teacher stress stemming from content creation is a critical issue. The second point regards scaffolding and support from teachers. If ready-made self-study content is utilized, online support from a teacher might be necessary. How and when a teacher should support students, and the nature of the content are other issues to consider.

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