Successful EFL teaching using mobile technologies in a flipped classroom

Hiroyuki Obari[1] and Stephen Lambacher[2]

Abstract. Two case studies evaluating the effectiveness of a flipped classroom compared to a traditional classroom were performed. The studies were conducted from April 2014 to January 2015 at a private university in Tokyo, targeting 60 first-year and 25 third-year undergraduates, respectively. In the first study, an assessment of pre- and post-treatment Test of English for International Communication (TOEIC) scores revealed students exposed to the flipped lessons improved from a mean of 474 (*SD* 111) to 649 (*SD* 96), which was greater than that of the control students who improved from 484 (*SD* 123) to 617 (*SD* 115). In the second study, students were exposed to flipped lessons for 24 weeks using a variety of materials such as the 'Lecture Ready II' digital text with iPad, COOORI e-learning software for learning words and phrases related to the digital text, ATR CALL Brix e-Learning, Newton e-Learning, and TED Talks. An assessment of pre- and post-treatment TOEIC scores and Oral Proficiency Interview by computer-based (OPIc) speaking test results showed students improved from a mean of 577 (*SD* 132) to 758 (*SD* 105), an improvement of 24% in just the speaking test. Surveys administered after exposure to the flipped lesson activities indicated students were satisfied with their flipped classroom lessons and motivated by the Blended Learning (BL) environment that incorporated mobile learning.

Keywords: flipped classroom, mobile technologies, OPIc assessment, blended learning.

1. Aoyama Gakuin University, Tokyo, Japan; obari119@gmail.com

2. Aoyama Gakuin University, Tokyo, Japan; steve.lambacher@gmail.com

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1. Introduction

In a reversal to traditional learning, the flipped classroom is a unique educational environment which is quickly gaining in popularity among educators worldwide. In a flipped classroom, students learn the course lectures (i.e. through online videos, course materials, etc.) before they come to class, and spend the bulk of classroom time asking questions and being engaged in interactive discussions. Mobile learning (M-learning) technologies, such as the iPhone, iPad, podcasting, and video-casting, and others, are also rapidly gaining popularity as an effective means to improve foreign language skills around the world. As mentioned by Obari and Lambacher (2014), m-learning is "highly motivating to learners, as it offers them a rich, informal, contextual, and ubiquitous learning environment" (p. 267). Users can control the time, pace, and speed of their own learning which is motivating and liberating for many learners. M-learning is also more personalized than other methods of computerized instruction, as mobile devices can be more easily customized, resulting in the creation of an emotional bond between the user and machine.

M-learning has indeed emerged as the next generation of e-learning. One reason is the high availability of mobile devices in industrialized countries. For example, nearly 100% of Japanese own a mobile phone, with the number of smartphone users in Japan rapidly increasing (Obari, Kojima, & Itahashi, 2010). The smaller screen size and touch interface of smartphones and tablets also leads to more focused learning, as the learner typically has just a single program running at any given time, as opposed to the more common multitasking operations found on desktop and notebook PCs (Gualtieri, 2011). The use of mobile technologies for the purpose of language learning has numerous advantages over other methods, for example, the countless number of English news programs, language learning apps, podcasting, and video-casting that are easily accessible and reasonably priced or for free.

In our study, web-based resources using Web 2.0 tools and mobile computing technologies were integrated to promote collaborative learning activities. Lecture Ready 2 digital text, Newton m-Learning, ATR CALL Brix program are very useful online "learning resources available and [are] very conducive to mobile [(m-)] learning, whereby learning takes place at any time and at any place due to the swift development of mobile technologies" (Obari, 2013, p. 195; see also Obari et al., 2013).

The goal of the present paper is to examine the effectiveness of BL and flipped learning activities integrating m-learning for the purpose of improving the

TOEIC scores and the overall English language proficiency of native Japanese undergraduates, including oral communication and presentation skills. We were particularly interested in seeing if the use of a BL and flipped classroom would be more motivating to students and effective than a traditional classroom setting in improving their overall learning experience and improving their language skills.

2. Methods and evaluation

2.1. Case study 1

Case study 1 was carried out from April 2014 to January 2015 at a private university in Tokyo, and targeted 60 first-year Japanese undergraduates. An experimental group was exposed to flipped classroom lessons for 24 weeks using the textbook 'Lecture Ready I'. Students watched course video lectures and online English learning materials using a mobile device before coming to each class, and then created classroom presentations using PowerPoint for interaction and discussion in small groups during the regular classes. In contrast, a control group of students were taught using traditional methods with the same textbook and no flipped lessons. The control group watched the video lectures and answered the textbook questions but only during the regular classroom periods.

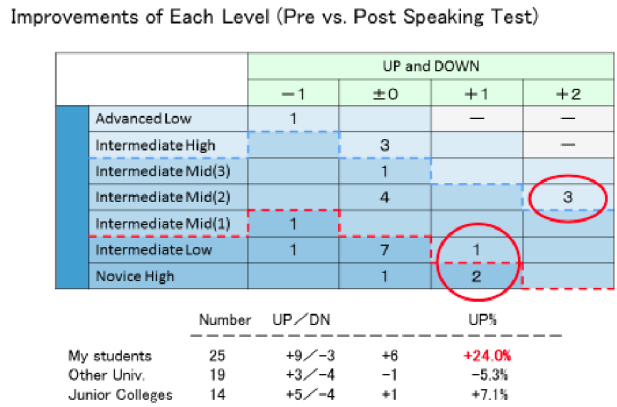
An assessment of pre- and post-treatment TOEIC scores showed that students exposed to the flipped lessons improved from a mean score of 474 (*SD* 111) to 649 (*SD* 96), which was greater than the control students who improved from 484 (*SD* 123) to 617 (*SD* 115). At the end of the eight-month training period, the experimental group had completed nearly 80% of the course content and substantially improved their overall reading, listening and oral communication skills through the online English lectures with flipped lessons.

2.2. Case study 2

Case study 2 was conducted during the same period as study 1 (April 2014 to January 2015) and targeted 25 third-year Japanese undergraduates. The purpose was to ascertain the effectiveness of flipped lessons and independent studies using iPads. This group was exposed to flipped lessons for 24 weeks using a variety of materials such as the 'Lecture Ready II' digital text with iPad, COOORI e-learning software for learning words and phrases related to the digital text, ATR CALL Brix e-Learning, Newton e-Learning, and TED Talks. Students were required to watch the video lectures of 'Lecture Ready II' and then create PowerPoint slides in preparation for classroom presentations and discussions with their iPads before

each class. Students shared their presentations and interacted with each other during the regular classes in small groups using their iPads. In addition to 'Lecture Ready II', the students studied the online course materials independently with their iPads.

Figure 1. Results of OPIc speaking assessment



An assessment of pre-treatment and post-treatment TOEIC scores and OPIc computer-based speaking test results showed that students improved from a mean score of 577 (*SD* 132) to 758 (*SD* 105), an improvement of 24% in the speaking test (see Figure 1). Also, the surveys administered after their exposure to the flipped lesson activities to evaluate their effectiveness indicated students were more satisfied with the flipped lessons and motivated by the BL-learning environment incorporating m-learning.

3. Discussion

Two case studies examining the effectiveness of flipped lessons incorporating blended learning were carried out. The results of both studies showed the flipped lessons were more effective in improving students' TOEIC scores and English oral proficiency. An assessment of pre- and post-training TOEIC and OPIc scores revealed that the aforementioned target activities had a positive effect on the students' overall English skills. In addition, the students' listening and oral communication skills improved as a result of integrating blending and flipped learning activities. Students delivered presentations based on their digital and paper textbook, and they also created several digital stories. The survey administered after their exposure to the BL and flipped lesson activities indicated students were satisfied with the variety of online course materials and motivated by the BL

environment incorporating m-learning. The students' English oral summary skills also improved after their exposure to the online Lecture Ready II and Globalvoice CALL software.

In examining why the flipped lessons incorporating BL and m-learning were so effective, it could be that the activities, which enabled students to work both in and out of the classroom and to actively explore their learning environment, succeeded in motivating students in wanting to study harder than they would have otherwise. Additionally, Japanese university students seem to have a preference for using mobile devices when learning English, and the m-learning component made it easier for students to regulate their own language learning, thus making their overall experience much more fun and enjoyable.

4. Conclusions

Taken as a whole, these results would seem to indicate that BL and flipped learning activities using mobile technologies can effectively be integrated into the language learning curriculum and play a positive role in improving the language proficiency of second language learners. Additionally, instructor observations of the BL and flipped activities revealed the students were excited by using a variety of emerging new technologies, which enabled them to effectively learn English by accessing a variety of learning materials from their mobile devices. M-learning helped to increase the amount of comprehensible English input with the aid of revolutionary education/learning applications. It was also highly motivating to the students by offering them a rich, informal, contextual, and ubiquitous learning environment in which it was possible for students to control their learning time, environment, and speed.

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