

The Impact of Flipped and Active Learning Integrating Advanced Technologies on Teaching EFL to Japanese Undergraduates

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Abstract : The study focused on examining the use of a variety of emerging technologies, from voice recognition to web-based learning, to help determine the effectiveness of the blended and flipped learning activities. The study began in April 2014 and ended in January 2016, and targeted about 44 Japanese undergraduates who were required to complete the online and flipped classroom learning materials using a PC and mobile technologies for the purpose of improving their English language skills. The results indicated that the blended and flipped lessons helped students to improve their overall English proficiency in TOEIC and CASEC, and from 20% (2015) to 24% (2014) improvement on the OPIc computer speaking test over a period of 20 months.

1. Introduction

E-mobile learning technologies such as the iPhone, iPad, podcasting, and video-casting, and others, are rapidly gaining popularity as an effective means to improve foreign language skills around the world. E-mobile learning is highly motivating to learners, as it offers them a rich, informal, contextual, and ubiquitous learning environment, and ubiquitous learning environment in which it is possible for them to control their learning time, environment and speed (space and pace). M-Learning has other advantages over conventional teaching and learning methods, including the almost limitless number of English news programs, language learning apps, podcasting (audio series), vodcasting (video shows), and so forth, that can be easily accessible and downloadable for free or for little cost. Today, mobile devices are omnipresent and can be more easily customized, resulting in the creation of an emotional bond between the user and machine. Recent innovations in technology that brought about the advent of social media such as Facebook and Twitter to such popularity can be experienced smoothly with hand-held devices. Voice over Internet Protocol (VOIP) technology is no longer tied to the desktop or laptop computer.

In this paper, several case studies are introduced to find out the effectiveness of blended and flipped learning with the use of ICT and mobile technologies in teaching EFL.

2. Theoretical Background

In the field of second language (L2) learning, and in computer-assisted language learning (CALL) in particular, there has been an increasing body of research dedicated to the use of mobile devices in language learning in recent years. More technologically-oriented teachers and researchers use the term mobile-assisted language learning (MALL) readily as an extension of CALL, as if the term were familiar to everyone in the L2 field. Regarding the roots of MALL and its place in language learning, see Stockwell (2012b) for a detailed discussion. My purpose here as educators is rather to try and determine whether mobile-assisted learning holds benefits for our students, to see how and why students come to use this technology, and how mobile learning compares with more traditional classroom approaches.

Gardner (2007), in a study pertaining to language learning in Spain, revisits his construct of the socio-educational model first proposed in 1985, which emphasizes integrativeness – how well a student wants to interact with members of another culture—and his or her attitude toward a learning situation as being the keys to successful language learning. Ryan and Deci (2000) return to their earlier Self-Determination Theory and further theorize on motivations, intrinsic and extrinsic, claiming that autonomy plays a large role in the former, while with extrinsic motivation, attitudes toward the teacher, methodology, and the learning environment are factors that

promote or inhibit motivation.

E-Mobile or m-Learning technologies such as the iPhone or iPad, with Internet affordances such as podcasting, videocasting, and more, are rapidly gaining popularity as an effective means to improve foreign language skills around the world. Mobile learning is highly motivating to learners, as it offers them a rich, informal, contextual, and ubiquitous learning environment. Users can control the time, pace, and speed of their own learning, which is motivating and liberating for many learners. M-learning can also be 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 (Sherimon, Vinu, & Reshmy, 2011).

M-Learning has indeed emerged as the next generation of e-Learning. One of the reasons for this has been the high availability of mobile devices worldwide. 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 running in the background just a single program 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 language learning has numerous advantages over other methods, for example, the countless number of English news programs, language learning apps, podcasts, and videos that are easily accessible and free or reasonably priced. Web-based resources using Web 2.0 tools and mobile computing technologies can be integrated to promote collaborative learning activities.

3. Blended and Flipped Learning

According to Vinu, Sherimon, & Krishnan (2011), mobile technologies have succeeded in transforming learning methodologies. One such methodology that has received great attention in recent years is blended learning (BL). BL combines traditional face-to-face classroom methods with computer-mediated activities, resulting in a more integrated approach for both instructors and learners (Singh & Reed, 2001).

(1) Blended learning (BL) prevents learner isolation and reduces the number of dropouts.

(2) Stanford University has reported success in raising students' self-paced course completion rate from a little over 50% to 94% by incorporating the elements of BL through the scheduling of live events, facilitating interaction between instructors and peers, and providing mentoring experiences (Singh & Reed, 2001).

(3) A blended learning best practice survey conducted by the eLearning Guild (2003) revealed that 73.6% of respondents reported BL to be more effective than non-blended approaches (as quoted in Wilson & Smilanich, 2005, p.15).

Blended learning (BL) can increase the options for greater quality and quantity of interaction in a learning environment. Mobile devices and social media are a key to the next generation of educational instruction. Digital content has been experiencing a great transformation in its form and volume as mobile technologies and social media continue to spread widely. The Internet has become a vast potential learning platform in itself. By accessing digital contents or through connecting with other people through the Internet, users can acquire deeper as well as wider knowledge about various subjects.

Social learning, a style of learning reinvigorated by social media, is expected to be afford many new applications to learning through the Internet, particularly as the word spreads rapidly about Open Educational Resources (OER). Social learning makes it possible to share insights and connect the knowledge of all learners in an online community. Open Course Ware (OCW) can also provide more accessible platforms for learning communities. Social learning (Bandura, 1977) connects learners with other learners, which can now be accomplished effectively through social media and mobile devices such as smartphones and tablet PCs.

Having a consistently available time and place for learning, particularly where classmates can socialize and receive encouragement, advice, and feedback from a knowledgeable teacher, fulfils important conditions for learning, by building self-confidence and motivation. According to social constructionism, people create new knowledge and learn most effectively through social interaction and exchanging information for mutual benefit. Constructionism also

holds that learning can happen most effectively when people are active in making tangible objects in the real world. In this sense, constructionism is connected with experiential learning and builds upon the ideas of Jean Piaget (Burr, 1995, 2003).

“Flipping” the classroom is both a pedagogical approach and a theoretical framework rooted in constructivist and problem-based theories of learning. It involves reversing the traditional structure of the classroom, such that in-class time is dedicated to interactive activities and homework is dedicated to would-be in-class lecture materials. (2014, Kerry Pusey, Evelyn Doman, and Marie Webb)

The flipped classroom describes a **reversal of traditional teaching** where students gain first exposure to new material outside of class, usually via reading or lecture videos, and then class time is used to do the harder work of assimilating that knowledge through strategies such as problem-solving, discussion or debates. (Vanderbilt University, Centre for Teaching.)

Nowadays, flipped learning has become more popular in every field of learning. In this paper, learning materials are explained in section 4 and subsequent sections, TED Talks are introduced in section 7, and Newton’s m-Learning program is explained in more in detail. From section 8 and onwards, several case studies are introduced to discuss the effectiveness of blended and flipped learning environments.

4. TED Talks

TED is a foundation that, for the purposes of this book, makes professional quality presentations in many fields available freely from its Website <http://www.ted.com> or through various platforms including YouTube, podcasts, television, radio, and, significantly for the purposes of this chapter, mobile apps for smartphones, tablets, and other devices that can play digital videos. TED talks utilized for educational purposes typically feature innovative research presented concisely in less than 18 minutes, and made as interesting as possible with various media and appeals to human interest. Thus TED talks can serve as a relatively painless way for learners to explore a wide range of fields. For non-native English users at intermediate or advanced levels in listening comprehension, the recorded videos available online allow for control of the experience such as repeated viewing, and access to talks on the go with mobile

apps.

In my two case studies, students were required to watch 20 TED Talks and write 20 summaries within 300 English words, and were at times required to make several presentations about the contents with Powerpoint slides.

5. Globalvoice CALL software

One of the main goals of English education in Japan is to help Japanese speak English intelligibly so they can be more clearly understood while taking part in international communication. Several parameters such as speech duration, speech power, F0 (pitch), and the ratio of vowel and consonant length are all introduced to determine how much Japanese students can improve their English pronunciation and overall proficiency by using Globalvoice CALL software (pictured in figures 1 and 2 below).

Globalvoice CALL is software into which students input any words or sentences to practice their pronunciation via specialized speech training. This software can enable Japanese students to correct their pronunciation by helping them improve their prosodic and segmental features. About 84% of 150 Japanese EFL students who used this software reported it as being very useful for practicing English pronunciation and prosody (Obari, Kojima, Itahashi, 2015).

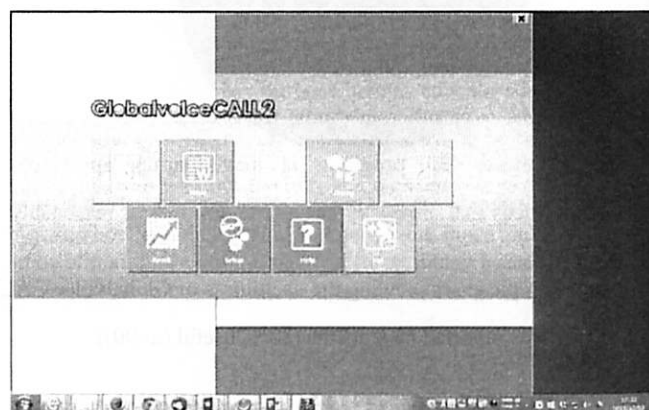


Figure 1: The display of the Globalvoice CALL software.

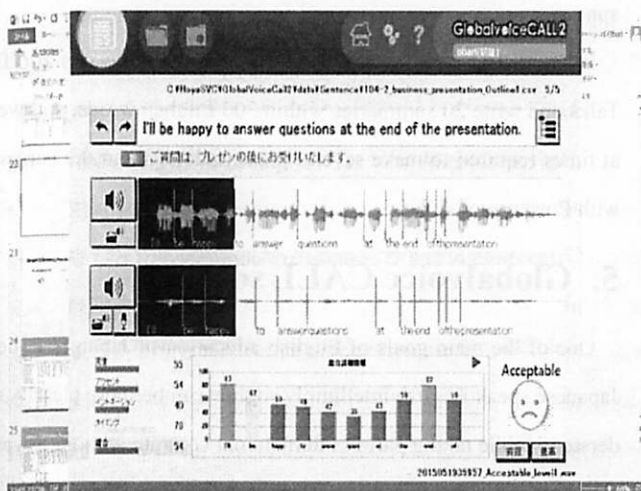


Figure 2: Display of English phonemes.

In the two case studies, students sometimes used this software to brush up on their weak English speech when they presented their TED Talks summaries, and so on.

Eighty-two percent of students who used this software felt it was very useful in learning English pronunciation (Figure 3).

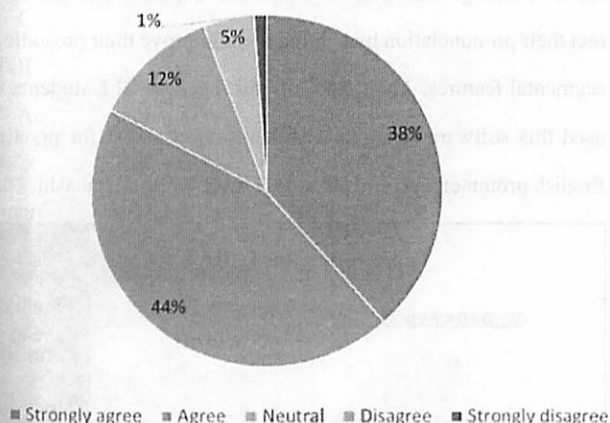


Figure 3: A pie chart showing the usefulness of Globalvoice CALL as reported by students (82 % useful (n=90)).

6. ATR CALL BRIX program

ATR CALL BRIX is an English e-Learning system which was developed by the Advanced Telecommunication Research Institution (ATR) and expanded by Uchida Yoko Co., Ltd. mainly into Japanese higher education institutions and companies. This is a client server system to provide English learning contents by using Internet Explorer®. Most of its system administrators allow students or employees to access the server from outside of their Intranet to

offer them a ubiquitous learning environment. Through a sequence of experiments by ATR, a bottom-up method was developed as an efficient way to learn English for Japanese people. This method was adopted for the ATR CALL BRIX for basic English skill training. For instance, a learner starts training by listening to a minimal pair contrast exercise, and then moves onto the next step of counting syllables of English words. For this basic skill training, a database of 15,000 English words have been made as well, including sample speech from over 30 native speakers of American English. Every item contains distractors for efficient vocabulary building (Obari, Suto, Kobayashi, Ogihara, & Lambacher, 2013).

This course is designed not only for practice tests to achieve higher scores on the real TOEIC® test. It includes vocabulary development, shadowing practice, and dictation exercises with qualified TOEIC official contents in order to build up and improve English skills. ATR CALL BRIX is thus an e-Learning system which helps learners enhance their English skills with its course for basic skill training as well as a TOEIC test preparation course for accessing a server from smartphones and tablet devices to provide learners with a more ubiquitous learning environment (Obari, Nagae, Yamagishi, & Tanaka, 2013).

As the following graph in Figure 4 indicates, 79% of students (n=90) who used ATR CALL BRIX commented on the usefulness of using this software to learn English.

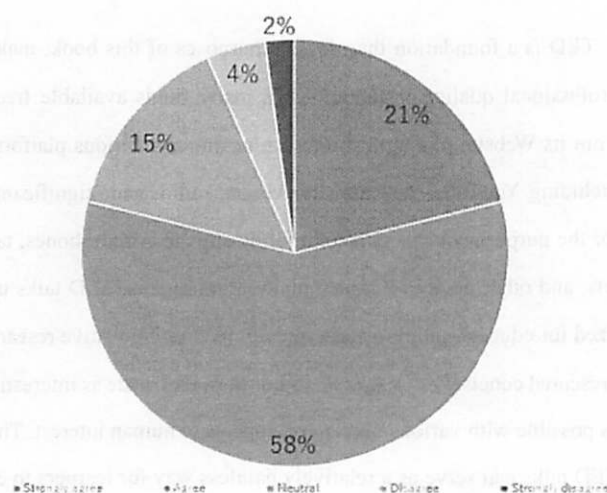


Figure 4: A pie chart showing the usefulness the usefulness of the software as reported by students (79 % useful (n=90)).

In our two case studies, all students were highly engaged in using the ATR CALL BRIX learning materials outside of the class, and they took several TOEIC tests.

7. Newton's m-Learning program

Newton's m-Learning TLT (testing, learning, and training) software is a type of Web-Based Training (WBT) developed for e-learning in academic settings. Individual learners are able to ubiquitously review their studies anytime, anywhere. Teachers are also able to uniformly manage the progress and results of their students' research activities. As a result, this software can be employed for assignments in everyday classes apart from CALL and PC labs, as it is conducive for learning regardless of the time or place when used with tablet PCs or smartphones, and claims the potential for improvements over traditional study modalities. The convenience of the software stems from the fact that the educational TLT software materials are an Internet-based form of m-learning, and are predominantly drill-based, problem exercise materials (Obari, Nagae, Yamagishi, & Tanaka, 2013).

First, the program extracts the necessary contents on the basis of each student's records in order to present them with their targeted assignments. The students' tests, learning, and teaching are then all repeated automatically, and their records are accumulated in reiterations of the learning cycle until they become proficient. The overall systems are called "TLT Software" and are the only computerized educational materials to have acquired patents in Japan and the US (domestic patent No. 3820421, US patent No. 5888071). The following three functionalities form the backbone of these patents:

- (1) Staged learning functionality: control of learning in three steps: Testing, Learning and Training (forming the initials for TLT).
- (2) Automatic learning functionality: automatically executes weak point extraction/repeat learning.
- (3) Automatic decision functionality: automatically determines true/false answers with the first sound character for an answer (one-touch input).

Furthermore, the systems control problem arrangement, question order, and step progression in the materials on the basis of these functions has been patented in both the US and Japan.

Newton's e-Learning materials for the TOEIC test enable studying commensurate with every proficiency stage possible, from beginner to mastery. Moreover, it contains a total of over 24,000 learning challenges. Overall, they are composed of two courses (A and B), each with the aim of improving TOEIC Bridge and TOEIC test scores. Also, both A and B courses are comprised of two Exercise Materials and Test Material types: A. the Exercise Materials include four sections: Problems, Basics, Dictation, and Vocabulary Training types, with exercises being presented in separate parts; B. the Test Materials provide fixed Web Test A/B tests (8 total times), and short Web Test A/B by Part tests (20 total times).

As the following pie chart (Figure 5) indicates, 81% students (n=90) who used ATR CALL BRIX commented on the usefulness of using this software to learn English.

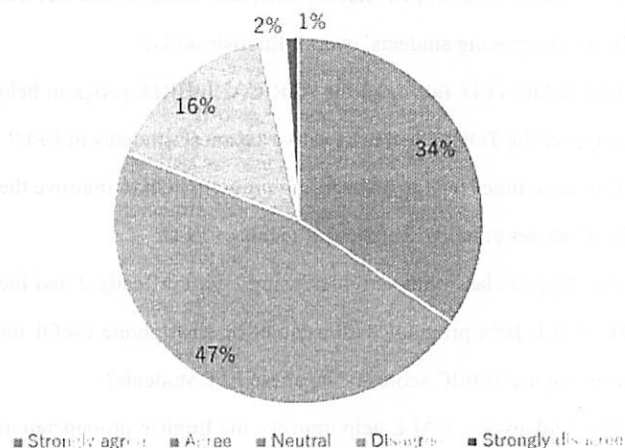


Figure 5: A pie chart showing the Usefulness of this software as reported by students (81 % useful (n=90)).

In our two case studies, all participants were highly engaged in e-Learning with this Newton's m-learning materials mainly with mobile devices outside of the class. All participants were encouraged to spend more than 50 hours of learning outside of the class, they were monitored every now and then to check the progresses of learning.

8. CASE Study 1 in 2014

The goal of this study 2014 is to report on the effectiveness of blended and flipped learning activities using mobile devices for the purpose of improving the English language proficiency of Japanese undergraduates, including their writing, oral communication,

presentation skills, and improvements on the TOEIC and OPIc Speaking tests. This study was conducted over a ten month period during two academic semesters (April 2014 to January 2015). A total of 25 undergraduates were the participants of the study. All of the participants were native speakers of Japanese studying at a private university in Tokyo. The students were administered TOEIC as a pretest in April 2014 and again as a posttest in January 2015. The purpose of this was to serve as a measurement to help determine if the students' scores would improve as a result their exposure to the BL and flipped classroom activities, and thereby help ascertain the effectiveness of the lessons.

8.1 Research questions

The research questions targeted in this study were as follows:

Are blended and flipped learning activities using mobile devices useful in improving students' overall English skills?

Can online TED Talks and the ATR CALL BRIX program help to improve the TOEIC scores of native Japanese students of EFL?

Can the online Newton m-Learning program help to improve the TOEIC scores of native Japanese students of EFL?

Are flipped classroom activities using Lecture Ready 2 and the ATR CALL Brix program with a tablet or smartphone useful for improving the TOEIC scores of Japanese EFL students?

Can Globalvoice CALL help improve the English pronunciation skills of Japanese EFL students in terms of prosodic and segmental features?

8.2 Pedagogy

The blended and flipped learning activities of this study included the following: (1) students watched the online digital textbook Lecture Ready 2 (Sarosy & Sherak, 2013b), using a PC and with their mobile devices; (2) students spent extensive time watching the lectures with the support of COOORI (Web-based language learning software downloadable from iTunes) during their commuting hours and later wrote a 300-word summary of one lecture per week; (3) students created PowerPoint presentations and presented oral summaries of the e-textbook lectures to their classmates both face-to-face and in front of the entire class; (4) students used Globalvoice CALL software along with their Lecture Ready 2 summaries to attempt to improve their English pronunciation in terms of segmental

and prosodic features before their presentations; (5) students used the online program Newton m-Learning with the use of a PC and mobile device during their free time; (6) students used the online program ATR CALL Brix in and out of the classroom during their free time with the use of a PC and mobile device; (7) students extensively watched online TED talks with the use of PC or mobile devices, (8) students spent extensive time watching TED Talks during their commuting hours and writing a 300-word summary of each lecture each week, (9) students presented oral summaries of the TED talks to their classmates both face to face and in front of the class, (10) students used Globalvoice CALL software; (11) students prepared for the special seminar between NUS and AGU and had a join seminar at NUS in Singapore; (12) students made special movies about world religions and presented them in the class.

At the end of the course, a questionnaire was administered to students after their exposure to the above activities for the purpose of ascertaining their impressions of the BL activities.

8.3 Assessments

To assess the results, a sampling of the data is summarized and interpreted in the following sections, including the results from TOEIC tests, which revealed that the students' overall English proficiency had improved after their exposure to the BL and flipped learning activities. Also included are some of the results of the survey administered to students for the purpose of obtaining feedback on how they felt about using the BL activities to practice their English language skills.

A sampling of the data results is presented below, including the results from TOEIC tests, which revealed that the students' overall English proficiency had improved after their exposure to the blended and flipped learning activities. Also included are some of the results of the survey administered to students for the purpose of obtaining feedback on how they felt about all the activities. Twenty-five students took the OPIc computer speaking test a total of twice (in April 2014 and again in January 2015) to measure their oral proficiency.

8.3.1 TOEIC Test Results

The TOEIC results revealed that the mean scores increased from a mean score of 577 (SD: 132) to a mean score of 758 (SD: 105),

which would seem to indicate that the students had improved their overall English proficiency. TOEIC pre- and post-test results were analysed using a t-test, indicating that the difference between pre- and post-test scores of both classes were statistically significant at a 1% level.

8.3.2 OPIc Computer Speaking Test Results

An increase of roughly 24% in the OPIc speaking test was observed between the pre-test and post-test. This improvement would seem to indicate that the utilization of a learning environment of blended and flipped lessons did help the students to improve their overall English proficiency (cf. figure 6 and 7 below).



Figure 6: A screenshot of the OPIc computerized speaking proficiency test.

	UP and DOWN			
	-1	±0	+1	+2
Advanced Low	1			
Intermediate High		3		
Intermediate Mid(3)		1		
Intermediate Mid(2)		4		3
Intermediate Mid(1)	1			
Intermediate Low	1	7	1	
Novice High		1	2	
	Number	UP/DN		UP%
My students	25	+9/-3	+6	+24.0%
Other Univ	19	+3/-4	-1	-5.3%
Junior Colleges	14	+5/-4	+1	+7.1%

Figure 7: OPIc computerized speaking proficiency test results. Improvements at each level (Pre vs. Post Speaking Test) 2014.

8.3.3 Questionnaire

A survey was administered to the participants after their exposure to the blended learning lessons incorporating Lecture Ready 2 and TED Talks through the use of mobile technologies. In response to the survey question, "did you find the digital Lecture Ready 2 (1)

useful in improving your English proficiency?" 91% of students felt that the online lectures were very useful. In response to the questions "did you find the ATR CALL Brix program (2), Newton m-learning program (3), and Globalvoice CALL software (4) useful in improving your English proficiency and pronunciation?", the percentages of students responding that they felt they were effective and useful were, respectively: (2) 82%, (3) 84%, and (4) 91%. Finally, in response to the question "to what extent did you use mobile technologies to study with the online Newton m-learning program?" 30% responded that they had used their mobile devices to study the online English programs.

8.4 Discussion and Conclusions

An assessment of pre- and post-training TOEIC and OPIc scores revealed that various types of online materials and activities included in this study had a positive effect on the students' overall English skills. Additionally, the students' listening and oral communication skills improved as a result of integrating blending and flipped learning activities through m-learning.

The questionnaire indicated they were satisfied with the variety of online course materials and programs and were motivated by the BL environment incorporating m-learning. The students' English writing and oral summary skills also improved after their exposure to Lecture Ready 2 and Globalvoice CALL software. Overall, these results indicated that blended and flipped learning using mobile technologies can effectively be integrated into the language learning curriculum and play a positive role in improving students' overall language proficiency.

9. CASE Study 2 in 2015

The second case study reports on the implementation of mobile devices in blended and flipped classrooms. Almost the same type of study such as the 2014 study was conducted over a ten month period during two academic semesters (April 2015 to January 2016). A total of 24 undergraduates were the participants of the study. All of the participants were native speakers of Japanese studying at a private university in Tokyo. The students were administered TOEIC, CASEC, and OPIc as a pretest in April 2015 and again as a posttest in January 2016. Results of several computerized assessment tests

such as TOEIC, CASEC, and OPIc indicated that the blended and flipped lessons facilitated the students' improvement in their overall English proficiency better than traditional approaches. The purpose of these tests was to serve as a measurement to help determine if the students' scores would improve as a result their exposure to the BL and flipped classroom activities, and thereby help ascertain the effectiveness of the lessons.

9.1 Research questions

The research questions targeted in this study were as follows:

- A) Are blended and flipped learning using ICT and mobile devices useful in improving students' overall English skills?
- B) Are flipped learning activities using a digital text of Lecture Ready 3 and the several projects of the world religions and Japanese cultural studies with a tablet or a smartphone useful for improving the TOEIC, CASEC, and OPIc scores of Japanese EFL students?
- C) Is SNS (Facebook) useful in learning EFL?

9.2 Pedagogy

The blended and flipped learning activities of this study included the following: (1) students watched the online digital textbook Lecture Ready 3 (Sarosy & Sherak, 2013b), with their iPads; (2) students spent extensive time watching the lectures with the support of COOORI (Web-based language learning software downloadable from iTunes) during their commuting hours and later wrote a 300-word summary of one lecture per week; (3) students created Powerpoint presentations and presented oral summaries of the e-textbook lectures to their classmates both face-to-face and in front of the entire class; (4) students used Globalvoice CALL software along with their Lecture Ready 3 summaries to attempt to improve their English pronunciation in terms of segmental and prosodic features before their presentations; (5) students used the online program Newton m-Learning with the use of a PC and mobile device during their free time; (6) students used the online program ATR CALL Brix in and out of the classroom during their free time with the use of a PC and mobile device; (7) students watched online TED talks with the use of PC or mobile devices; (8) students spent extensive time watching TED Talks during their commuting hours and writing

a 300-word summary of each lecture each week; (9) students presented oral summaries of the TED talks to their classmates both face to face and in front of the class; (10) students used Globalvoice CALL software; (11) students prepared for a special seminar between NUS and AGU and were required to join seminar at NUS in Singapore; (12) students made special movies about world religions and presented them in class; (13) Students studied the worldviews based upon the several lectures given by Dr. Yee and Dr. Harre and made several presentations about the contents with Powerpoint slides and further discussed the issues of the worldview study to form and compare their own worldviews including major world religions. It was partly the CLILL.

At the end of the course, a questionnaire was administered to students after their exposure to the above activities for the purpose of ascertaining their impressions of their learning activities.

9.3 Assessments

To assess the results, a sampling of the data is summarized and interpreted in the following sections, including the results from TOEIC tests and CASEC tests which revealed that the students' overall English proficiency had improved after their exposure to the BL and flipped learning activities. Also included are some of the results of the survey administered to students for the purpose of obtaining feedback on how they felt about using their learning activities.

A sampling of the data results is presented below, including the results from the TOEIC and CASEC tests, which revealed that the students' overall English proficiency had improved after their exposure to the blended and flipped learning activities. Also included are some of the results of the survey administered to students for the purpose of obtaining feedback on how they felt about all the activities. Twenty-four students took the OPIc computer speaking test a total of two times (in April 2015 and again in January 2016) to measure their oral proficiency.

A) TOEIC Test Results

The TOEIC results revealed that the results increased from a mean score of 639 (SD: 118) to a mean score of 727 (SD: 136), which indicated that the students improved their overall English

proficiency. The TOEIC pre- and post-test results were analysed using a t-test, indicating that the difference between pre- and post-test scores of both classes were statistically significant at a 1% level.

B) CASEC Test Results

The CASEC results revealed that the results increased from a mean score of 626 (SD: 90) to a mean score of 720 (SD: 65), which indicated that the students improved their overall English proficiency. The CASEC pre- and post-test results were analysed using a t-test, indicating that the difference between pre- and post-test scores of both classes were statistically significant at a 1% level.

C) OPIc Computer Speaking Test Results

An increase of roughly 20% in the OPIc speaking test was observed between the pretest and posttest. This improvement would seem to indicate that the utilization of a learning environment of blended and flipped lessons did help the students to improve their overall English proficiency (cf. figure 8 below).

	UP and DOWN			
	-1	±0	+1	+2
Advanced Low		2		
Intermediate High				
Intermediate Mid(3)				
Intermediate Mid(2)		4	1	1
Intermediate Mid(1)	1	1		+2=1 +3=1
Intermediate Low	3	7	1	
Novice High			2	
	Number	UP/DN difference		UP%
My students	24	+9/-4	+5	+20.83%
Other Univ.	19	+3/-4	-1	-5.3%
Junior Colleges	14	+5/-4	+1	+7.1%

Figure 8: The OPIc computerized speaking proficiency test results. Improvements are shown at each level (Pre vs. Post Speaking Test) in 2015

D) Questionnaires

A survey was administered to the participants after their exposure to the blended learning lessons incorporating Lecture Ready 3 and TED Talks, and other learning materials through the use of mobile technologies. In response to the survey questions, this time the following graphs came to the survey results (Figure 9~ Figure 15).

As the following graph (Figure 9) indicated, 92% of 24 students who studied TED Talks in writing several summaries, commented on the usefulness of using this software to learn EFL.

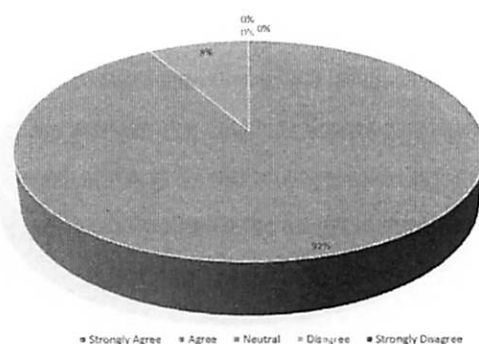


Figure 9: A pie chart showing the usefulness of writing a summary of TED Talks as reported by students (96 % useful (n=24)).

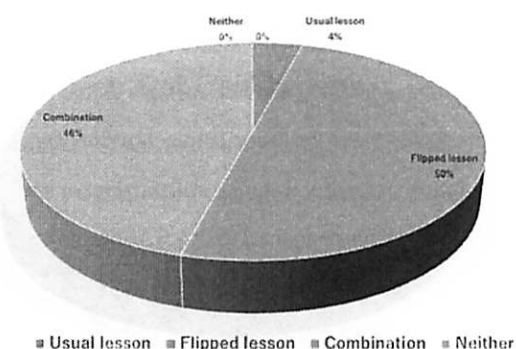


Figure 10. A pie chart showing the usefulness of Flipped lesson as reported by students ((n=24)-- Flipped 50%, Combination 46%, Usual lesson 4%).

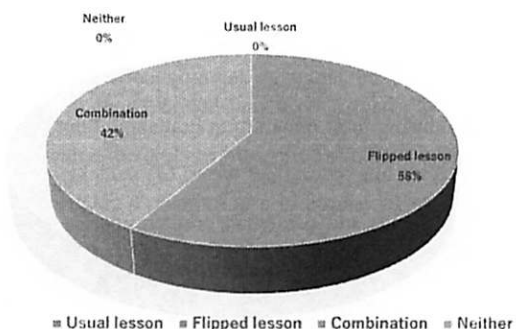


Figure 11: A pie chart showing the percentage of responses to the survey question "What kind of lesson could help you to improve English proficiency?" (n=24) -- 58% flipped, 42% combination).

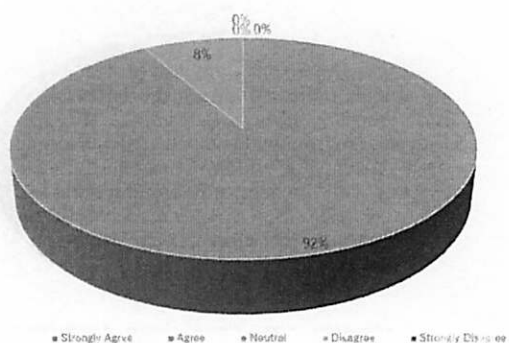


Figure 12: A pie chart showing the usefulness of autonomous learning as reported by the students (n=24), 100% useful.

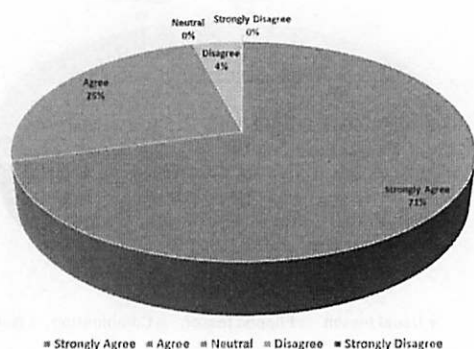


Figure 13: A pie chart showing the percentage of responses to the survey question "Does the PPTS presentation help you to learn EFL?," 96% useful (n=24).

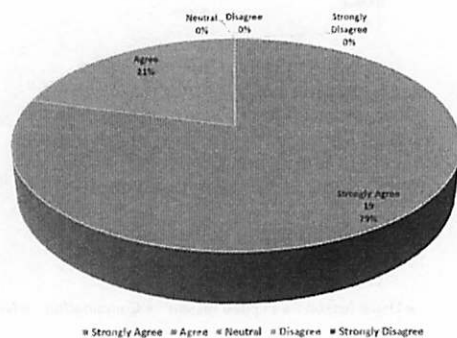


Figure 14: A pie chart showing the percentage of responses to the survey question "Does collaboration help you to improve English proficiency?," 100% useful (n=24).

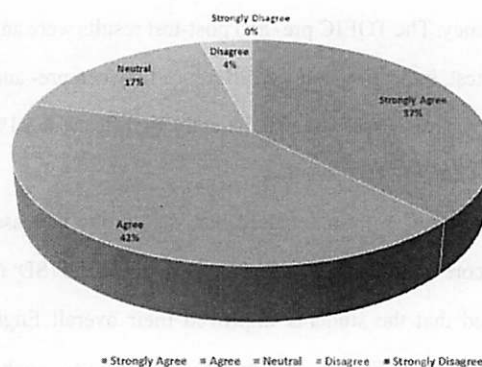


Figure 15: A pie chart showing the percentage of responses to the survey question "Does iPad help you to improve English proficiency?," Useful 79% (n=24).

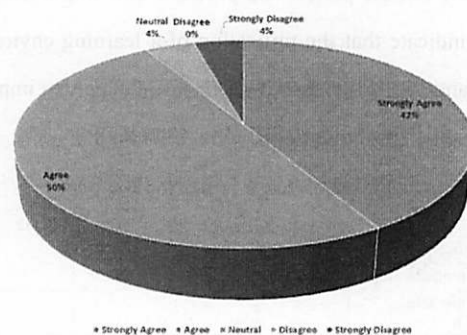


Figure 16: A pie chart showing the percentage of responses to the survey question "Is SNS (Facebook) effective to learn EFL?," 92% useful (n=24).

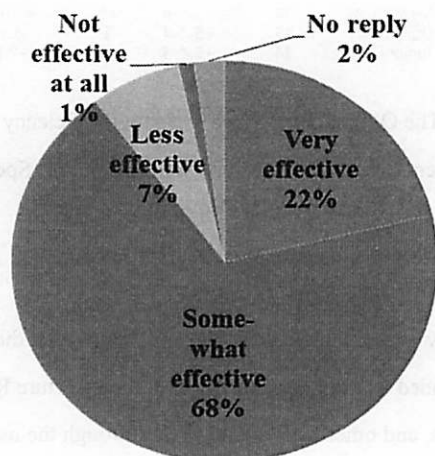


Figure 17: A pie chart showing the percentage of responses to the survey question "Is the use of a mobile phone effective in learning EFL?," 22% very effective, 68% somewhat effective (n=350).

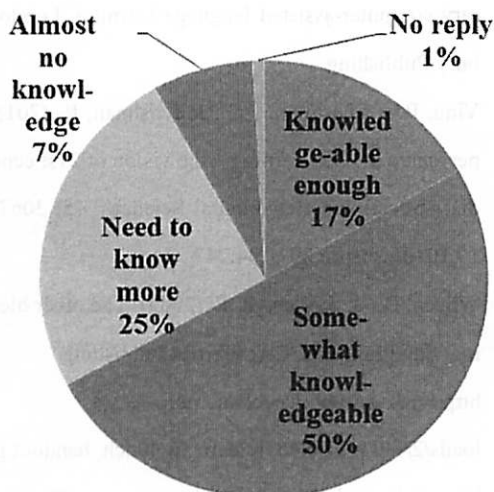


Figure 18: A pie chart showing the percentage of responses to the survey question "Do you have enough knowledge to utilize mobile devices for EFL?", 17% knowledgeable enough, 50% somewhat knowledgeable, 25% need to know more, 7% not at all, 32% of the respondents had no knowledge to use mobile phones to learn.

9.4 Discussion and Conclusions

An assessment of pre- and post-training TOEIC, CASEC, and OPIc scores revealed that various types of online materials and activities included in this study had a positive effect on the students' overall English skills. Additionally, the students' listening and oral communication skills improved as a result of integrating blending and flipped learning activities through m-learning.

The questionnaires indicated they were satisfied with the variety of online course materials and programs and were motivated by the BL environment incorporating m-learning. The students' English writing and oral summary skills also improved after their exposure to Lecture Ready 3 and Globalvoice CALL software. Overall, these results indicated that blended and flipped learning using mobile technologies can effectively be integrated into the language learning curriculum and play a positive role in improving students' overall language proficiency.

According to the questionnaires from Figure 9 to 18, the responses to each survey are very positive in learning EFL with mobile devices and in flipped learning environments.

10. Final Conclusions

As two case studies indicated almost the same results, blended and flipped learning environments helped students to improve their English proficiency with the help of ICT and mobile technologies. Students who took part in these projects were pretty much satisfied with the way 44 students were highly engaged in various types of learning activities.

Mobile m-Learning can be motivating to learners to help improve their foreign language skills, as it offers them a rich, informal, contextual, and ubiquitous learning environment. This case study focused on examining a variety of emerging technologies, from speech recognition to Web-based learning, to help determine the effectiveness of blended learning and flipped classroom activities. Various emerging technologies such as ATR CALL BRIX, a mobile learning-oriented TOEIC Practice program, Course Power, online TED Talks, and other learning materials were utilized, including an empirical study that indicated their effect on improving the TOEIC, CASEC, and OPIc scores of native Japanese speaking undergraduates.

Additionally, instructor observations of the BL and flipped lesson activities revealed that 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 students by offering them a rich, informal, contextual, and ubiquitous learning environment which enabled them to control their learning opportunities or occasions (time), environment (space), and speed (pace).

References

- [1] Burr, V. (1995). An introduction to social constructionism. London: Routledge.
- [2] Burr, V. (2003). Social constructionism (2nd ed.). London: Routledge.
- [3] Gardner, R. (2007). Motivation and second language acquisition. *Porta Linguarum*, 8, 9-20.

- [4] Gualtieri, M. (2011, April). Mobile app design best practices: When it comes to designing the mobile user experience (UX), context is king. Retrieved from http://www.forrester.com/rb/Research/mobile_app_design_best_practices/q/id/59132/t/2
- [5] Obari, H. (2013). Globalvoice CALL. Retrieved from http://voicetext.jp/gv/pro_gvc_case008.html
- [6] Obari, H., Kojima, H., & Itahashi, S. (2010). Empowering EFL learners to interact effectively in a blended learning environment. In J. Herrington & B. Hunter (Eds.), *Proceedings of the World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 3438-3447). Chesapeake, VA: AACE.
- [7] Obari, H., Kojima, H., & Itahashi, S. (2015). Investigating the effectiveness of Globalvoice CALL software to train English proficiency. *The Journal of the Acoustic Society of America* 04/2015. 137(4) 2272-2272.DOI:10.112/1.4920297.
- [8] Obari, H., Nagae, T., Yamagishi, N., & Tanaka, Y. (2013, July 11). The effect of using on-line TOEIC related materials using mobile technologies. *Courseware showcase*, p. 198. World CALL 2013.
- [9] Obari, H., Sato, T., Lambacher, S., Nozawa, N., & McCarty, S. (2014, August 11). Utilizing emerging technologies and social media to enhance EFL learning. A symposium at the International Association of Applied Linguistics AILA World Congress 2014. Brisbane Convention and Exhibition Centre, Australia.
- [10] Obari, H., Suto, A. Kobayashi, Y., Ogihara, T., & Lambacher, S. (2013, July 12). The effects of CALL software in teaching English pronunciation and TOEIC. *Courseware showcase*, p. 197. World CALL 2013.
- [11] Singh, H., & Reed, C. (2001). A white paper: Achieving success with blended learning. Centra Software.
- [12] Steve McCarthy, Hiroyuki Obari, Takeshi Sato. (2016). *Implementing Mobile Language Learning Technologies in Japan*. Springer.
- [13] Stockwell, G. (2012b). Mobile-assisted language learning. In M. Thomas, H. Reiders, & M. Warshauer (Eds.), *Contemporary computer-assisted language learning*. London: Bloomsbury Publishing.
- [14] Vinu, P.V., Sherimon, P.C., & Krishnan, R. (2011). Towards pervasive mobile learning – the vision of 21st century. *Procedia - Social and Behavioural Sciences*, 15, 3067-3073. doi: 10.1016/j.sbspro.2011.04.247
- [15] Wilson, D., & Smilanich, E. (2005). *The other blended learning*. San Francisco, CA: Pfeiffer Publishing.
- [16] http://marie-webb.weebly.com/uploads/2/7/6/8/27686813/learn_at_lunch_handout.pdf
- [17] <https://cft.vanderbilt.edu/guides-sub-pages/flipping-the-classroom/>

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