

The Application of Constructivism in Teaching EFL and Worldviews Using MOOCs and SNS

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Abstract: A constructivist approach to flipped learning inspired students to activate their brains to create new knowledge and to reflect more deeply and consistently on their learning activities. The focus of this study is on evaluating the use of a variety of emerging technologies, from MOOCs to Open Educational Resources (OER), to determine their effectiveness in improving the EFL skills of native Japanese students, including their awareness of worldviews, as part of a blended-learning and flipped-lesson program. The used technologies included ATR CALL Brix, Facebook, Line, and online materials related to worldview studies. An empirical study was conducted to examine the overall effectiveness of the program in improving the TOEIC test scores of the target group of Japanese students. The investigation began in April 2016 and ended in January 2018, targeting 49 third year undergraduates. The participants were required to complete the course using emerging technologies and blended learning and flipped learning materials with their PCs, iPads, and smartphones. The TOEIC pre- and post-training results (n=50) indicated that the program had assisted the students in improving their overall English proficiency during the 10-month training period/per year from CEFR B1 level to B2 level. They also attended the AGU and NUS joint seminar in Singapore for a week. The analysis of the ISS data showed that there was a statistically significant gain in the mean ISS score after the programme, demonstrating that the programme had a positive effect on the participants' intercultural sensitivity. A post-course questionnaire also revealed the students broadened their perspectives, became more open-minded, and changed the way they viewed the world as a result of their exposure to the program.

1. Introduction

Mobile (m-) learning technologies such as the iPhone, iPad, podcasting, and video-casting, and others, are rapidly gaining popularity around the world as an effective means to enhance foreign language skills. M-learning is highly motivating to learners, as it offers them a rich, informal, contextual, and ubiquitous learning environment in which it is possible for them to control their learning time, situation 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 a personalized bond between the user and various platforms.

Recent innovations in technology have accelerated and expanded social media use, brought about the advent of social media, such as Facebook, Twitter, LinkedIn, and Instagram can be experienced efficiently and smoothly using hand-held devices. This growth in mobile social media has enabled us to increase the number of ideal learning opportunities considerably through experiential learning activities with the help of such technologies. According to the concept of constructivism, people construct their understanding and knowledge of the world and worldviews through experiencing environments beyond their most immediate lives and reflecting on those experiences (McCarty, Sato, & Obari, 2016). Social media can be used to enhance the construction of broader views.

In this paper, we introduced a case study carried out in 2016 to help determine the effectiveness of a blended and flipped learning program that incorporated ICT and mobile technologies to improve the English as a Foreign Language (EFL) skills of a group of native Japanese undergraduate students studying at Aoyama Gakuin University (AGU), a private university in Tokyo.

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2. Theoretical Background

M-Learning has indeed emerged as the next generation of e-Learning. One reason for this is due to the high availability of mobile devices worldwide. For example, nearly 100% of Japanese students 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 lead 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 purposes has numerous advantages over other methods. For example, there is seemingly a countless number of English news programs, language learning apps, podcasts, and videos that are readily accessible and free or reasonably priced. Web-based resources using Web 2.0 tools and mobile computing technologies can be easily integrated to promote collaborative learning activities.

In the field of the 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.

According to the concept of social constructionism, people create new knowledge and learn the most effectively through social interaction and the exchange of information for mutual benefit. Constructionism also holds that learning can happen most effectively when people are active in forming 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).

Mobile technologies have succeeded in transforming learning methodologies (Vinu, Sherimon, & Krishnan, 2011). One such methodology that has been adopted successfully 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. BL can increase the options that a teacher has for higher quality and quantity of interaction in a learning environment. Mobile devices and social media are a key to the next generation of his new wave of educational instruction. Digital content is also transformation and expanding as mobile technologies, and social media continue to gain more dedicated users (Wilson & Smilanich, 2005).

Flipped learning (FL) is also gaining in popularity within L2 learning circles more than ever before through the utilization of a variety of mobile technologies. In the traditional classroom instruction modal, the teacher was typically the central focus of a lesson and the primary disseminator of information during the class period. “Flipping” the classroom is both a pedagogical approach and a theoretical framework rooted in the constructivist and problem-based theories of learning. FL 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 (Webb, Doman, & Pusey, 2014).

3. Pedagogy of Mobile learning initiatives/innovations and MOOCs

According to the pretest and post-test TOEFL results of our students during the 2012 academic year, almost all showed little or no improvement, which was one of the primary motivations for us to carry out the present study using a BL/FL program incorporating m-learning technologies over the past several years. The current study focused exclusively on the learning program and the data results that were accumulated, organized, and analyzed, respectively, during the 2016 and 2017 academic year. As stated, our goal was to ascertain the effectiveness of BL/FL activities using mobile devices and MOOCs to improve our students English proficiency, including their writing, oral communication, presentation skills, as well as broadening their worldviews.

The study was conducted over two years during four academic semesters (April 2016 to January 2018). A total of 49

undergraduates participated in the study, all of whom were native speakers of Japanese studying at Aoyama Gakuin University (AGU) in Tokyo. The AGU students took the TOEIC test as a pretest in April and again as a posttest in January from 2016 to 2018. The TOEIC test provides reliable and widely-used data, and it was used in order to measure results as a measurement to determine if the students' scores would improve as a result of their exposure to the BL/FL activities, and thereby help ascertain the effectiveness of the overall program. The participants of this study also joined the joint seminar conducted in Singapore in September 2016, 2017 for eight days.

Research questions targeted in the study included the following:

- (1) Are BL/FL activities using MOOCs with mobile devices useful in improving the English skills of the target participants of the study?
- (2) Was the AGU and NUS joint seminar effective in nourishing the cultural attitudes and international understanding of AGU and NUS students?
- (3) Did AGU students change their worldviews in measurably and significantly after their exposure to the seminar course?

The BL/FL activities of this study included the following:

The students were asked to complete the following tasks:

- (1) view the online TED Talk of Rick Warren's "Purpose-Filled Life" using their iPads or smartphones, they were asked to write a 300-word summary, create PowerPoint presentations of their summaries, and discuss their summaries with a group of native English speakers from the U.S.; (2) study worldviews after viewing the online lectures (Harre, 2001) delivered by several Oxford University professors that focused on ontological and epistemological issues, and they were asked to deliver numerous PPT presentations and create digital stories with their iPads; (3) watch several lectures delivered by Dr. Wai Meng Chan of the NUS with their mobile devices to learn the definition of culture; (4) produce and present movies on world religions; (5) use online ATR CALL Brix for learning TOEIC; (6) engage in additional interactions and discussions throughout the duration of the course; (7) spend a week participating in a joint AGU/NUS seminar in Singapore; and (8) watch the selected English lectures on Asuka Academy MOOCs.

At the end of the academic year, a course questionnaire was administered to the students after their exposure to the BL/FL activities incorporating m-learning, to ascertain their impressions of the program, including their worldviews.

4. ATR CALL BRIX

ATR CALL BRIX is an e-Learning system developed by the Advanced Telecommunication Research Institution (ATR) and expanded by Uchida Yoko Co., Ltd. This is a client-server system that provides English learning contents by using Internet Explorer. Most of its system administrators allow students or employees to access the server remotely to offer users a ubiquitous learning environment. Through a sequence of ATR experiments, a bottom-up method was developed as an efficient way to learn English for native speakers of Japanese. 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 has been created, 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 gain higher scores on the TOEIC tests but also includes vocabulary development, shadowing practice, and dictation exercises with qualified TOEIC official contents in order to 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, all of which can be accessed from smartphones and

tablet devices to provide learners with a more ubiquitous learning environment (Obari, Nagae, Yamagishi, & Tanaka, 2013). Nearly 80% of a group of 90 students who used ATR CALL BRIX commented on its usefulness in improving their English.

5. MOOCs on learning social science

5.1 Result of MOOCs questionnaires

During the term, 100 students who took part in this study studied Asuka Academy MOOCs. They wrote summaries of the MOOCs contents they watched and presented their summaries with PPT slides in pairs or groups of 4. Students studied Asuka Academy MOOCs (Figure 1). 86 participants answered the following questionnaires at the end of the second semester.

- a. Are Asuka Academy MOOCs interesting to study? 76% (n=86) answered, “Yes, it is.”
- b. Are Asuka Academy MOOCs useful for improving your English proficiency? 76% (n=86) answered “Yes,”
- c. Are Asuka Academy MOOCs useful to broaden your worldviews? 87% (n=86) answered “Yes,”
- d. Is it useful to summarize the content of Asuka Academy MOOCs to improve your English proficiency? 85% (n=86) answered, “Yes, it is.”
- e. Does it improve your English proficiency to make a presentation with PPT slides after studying the content of Asuka Academy MOOCs? 71% (n=86) answered “Yes,”
- f. Is it more useful for improving your English proficiency to use Asuka Academy MOOCs than using TED Talks? 24% (n=86) answered “Yes,”
- g. Is it more fun to use Asuka Academy MOOCs than using TED Talks? 28% (n=86) answered “Yes,”
- h. Is it more useful to improve your English proficiency using Asuka Academy MOOCs than by using other learning materials? 55% (n=86) answered, “Yes, it is.”



Figure 1: Asuka Academy MOOCs (<https://www.asuka-academy.com>)

5.2 The worldview lectures by Dr. Yee and Dr. Rom Harre on the Facebook

The instructor took advantage of using Facebook to teach the worldviews with video lectures by uploading all the necessary documents and videos (Figure 2 and 3). During the term, 100 participants studied various worldviews by watching video materials on Facebook. All the participants of this study downloaded the video lectures to study superficially scientific worldviews and prepared short summaries and PPT slides for presentations in the class for further discussions. Facebook could be used as a type of MOOCs to study the short video lectures.

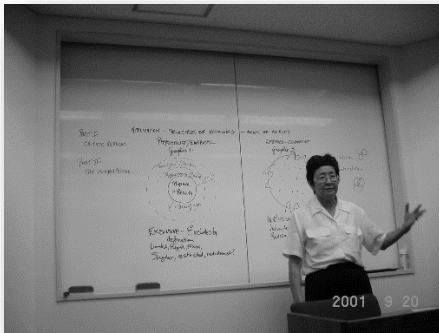


Figure 2: Dr. Yee

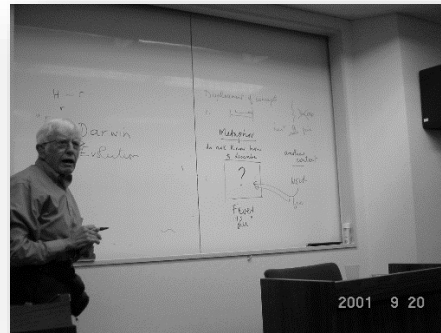


Figure 3: Dr. Harre

6. AGU and NUS Joint Seminar

The language exchange programme between the Faculty of Economics at AGU and the Centre for Language Studies at the NUS has been ongoing since 2009. The programme takes place annually at NUS as the main component of a field trip organized by Obari for his students and consists of a bilingual seminar, the AGU-NUS Joint Seminar, as well as visits and less formal interactional sessions hosted by NUS students. All third-year students took part in this unique seminar in September 2016 and 2017 over one week (see Figure 4). Before attending, AGU students spent several weeks during the first semester to prepare and practice presentations on Japanese culture in small groups of 5 to 6 students and later presented them for the NUS students. The NUS students, in turn, gave presentations on Singaporean culture in Japanese in front of the AGU students. This way students from both groups could mutually enjoy the precious balance of culture and language that was exchanged throughout the week-long seminar. Besides, the AGU/NUS students took part in several field trips to major historical sightseeing spots in Singapore (see Figure 5). The AGU students also visited Microsoft, the NEC ASIA Pacific Complex, and APEC (Figure 6) where they learned about globalization and ICT, which seemed to inspire them to want to more actively and effectively participate with the global society in the future.



Figure 4 AGU-NUS Joint seminar



Figure5: St. Andrew Cathedral



Figure 6:APEC and NEC ASIA Pacific

The programme takes place annually at the NUS as the main component of a field trip organised and consists of a bilingual seminar, the AGU-NUS Joint Seminar, as well as visits and less formal interactional sessions hosted by NUS students. The AGU undergraduates spend much time during the first semester of their academic year preparing presentations to be delivered by groups of five or six students in English at the joint seminar. The students may propose their topics, but these have to focus on aspects of Japanese culture and society. The NUS undergraduates, in turn, will give presentations on Singaporean culture and society in their target language, namely Japanese. This arrangement is designed to create a rich balance of language and culture. Although the programs in 2016 and 2017 almost were basically the same, 2016 study in details on how students changed their cross-cultural understanding. Dr. Wai Meng Chan, Ms. Satomi Chiba at NUS and Obari researched heightened cross-cultural understanding. Dr. Wai Meng Chan described the 2016 study as follows (Chan, Chiba, & Obari, 2018):

The 2016 language exchange programme, which provides the context for the current study, took place in September 2016, with 33 student participants from AGU and 17 from NUS. The joint seminar was conducted in two sessions on Day 3 and Day 6 of the eight-day visit for the AGU students. During the first session, there were ten 20-minute group presentations (5 in English by AGU students and 5 in Japanese by NUS students) on aspects of language and culture in Japan and Singapore, such as trends in society, number of childbirths and population ageing, marriage and partnership, and multilingualism, dialects and colloquialisms. Each presentation was followed by 10- to 20-minute discussions of the topic presented in mixed groups of AGU and NUS students.

The second session had a particular focus on a historical topic, namely, the invasion and occupation of Singapore during World War II by the Japanese Imperial Army (1942–1945). A documentary film, entitled “Battle for Singapore,” was shown, followed by mixed group discussions of the video content as well as the perspectives of World War II and the Japanese occupation held by both countries. Field trips were also conducted on Day 3 after the seminar presentations, with mixed groups of AGU and NUS students visiting various museums and historical sites relevant to World War II and the Japanese occupation, including the National Museum, two former British forts, the Japanese Cemetery Park, and the Civilian War Memorial. Students had the opportunity on these trips to interact less formally in Japanese and English and to jointly discover and exchange information about Singapore and its Japanese war past. Completing the eight-day stay for

the AGU students were visits to the Singapore offices of the multinational corporations, NEC and Microsoft, and the secretariat of the Asia-Pacific Economic Cooperation, as well as time to explore the country on their own.

In Table 1, we present the findings from the analysis of the ISS data. Using SPSS, the difference between the means of the pre- and post-visit ISS scores of all 30 AGU participants was computed. The mean of the pre-visit ISS scores was 80.70 (out of a maximum of 120). This rose by 5.47 to 86.17 for the post-visit ISS scores. A paired samples *t*-test shows this increase to be statistically significant at the 0.05 confidence level. The ISS data thus provide evidence that the participants had achieved gains in their intercultural sensitivity and, thus, IC, after the language exchange programme.

Table 1. Pre- and post-visit ISS scores

Mean of pre-visit ISS scores	Mean of post-visit ISS scores	Mean difference in pre- and post-visit ISS scores	Significance (paired sample <i>t</i> -test)
86.17	80.70	5.47	< 0.0001*

n = 30; maximum ISS score = 120; * significant at 0.05 level

In addition, there is ample evidence from the qualitative data collected through the pre/post-visit surveys.

In addition to gaining new knowledge about Singapore and its culture (or *savoirs* in Byram's model), the participants were relating and comparing their experiences of multicultural Singapore to their own native society when attempting to make sense of these experiences. The language exchange programme thus provided students with the opportunity to engage in and develop their *savoir comprendre* (or the skill of interpreting and relating new cultural knowledge to their existing knowledge (Chan, Obari, & Chiba, 2018).

In short, those who took part in the joint seminar were very much inspired by this program and changed their worldviews and the cross-cultural sensitivity to become more internationally minded or open-minded about the culture and their worldviews.

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7. Assessment of the Blended and Flipped Learning Activities

a. TOEIC Results in 2016 and in 2017.

The 2016 study (n=27) indicated that AGU students' pre- to post-training TOEIC scores increased from a mean of 623 (SD: 132) to 784 (SD: 87). 623 (SD, 132) to 784(SD, 87)

The 2017 study (n=22) indicated that AGU students' pre- to post-training TOEIC scores increased from a mean of 667 (SD: 151) to 767 (SD: 83).

Most of the students in 2016 and 2017 improved their TOEIC scores from pre-test to post-test as indicated in Figure 7 and 8.

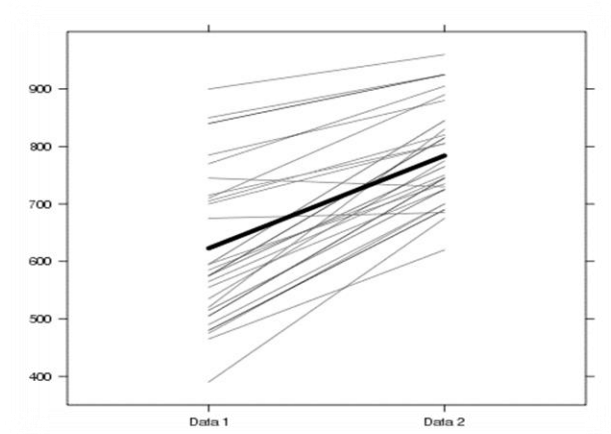


Figure 7: Improvement of individual score in 2016

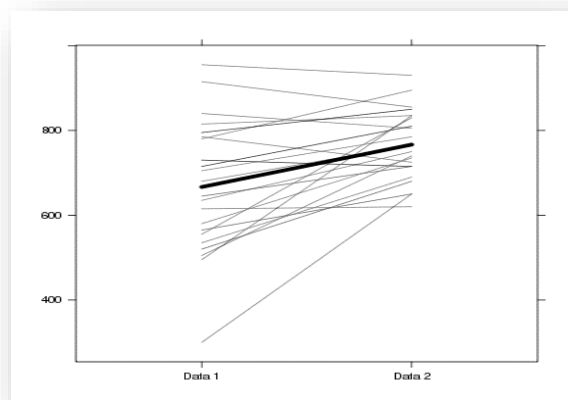


Figure 8: Improvement of individual score in 2017

The pre-/post-test results (2016, 2017) were analyzed using a t-test, indicating that the difference between pretest and posttest scores of both classes were statistically significant at a 1% level. This indicates that students improved their overall English proficiency.

b. Questionnaire

A post-course survey was administered to students after their exposure to the BL/FL program in 2016 and 2017 at the end of the seminar. Here are the patterns of responses to several of the survey questions:

- (1) “Was the program useful in improving your English proficiency?”, 88% of students felt that the online lectures were beneficial;
- (2) “Did you find the ATR CALL Brix program useful?”, 79% of students felt it was useful;
- (3) “Was SNS (Facebook, Line, and Twitter) useful in learning English?”, 92% of student felt it was useful in learning English.

In addition, according to the survey questions related to worldviews, all the AGU students responded that they had become more open-minded and flexible in trying to comprehend certain ambiguities in cross-cultural society and communication in the world, and they also found that they could expand their worldviews and had become more global-minded in their thinking as Table 1 indicated above.

8. Conclusions

An assessment of pre- and post-training TOEIC scores revealed that the various types of online materials and lessons included in this study had an empirically significant positive effect on the AGU students' English skills. Additionally, the students' listening and oral communication skills improved because of integrating MOOCs and the BL/FL activities that focused on a social constructivist approach to learning.

The post-course questionnaire revealed the students were satisfied with the variety of online course materials and programs and they were motivated by the BL/FL environment incorporating m-learning. The students' English oral summary improved after their exposure to online materials. Taken as a whole, these results indicate that MOOCs and BL/FL program using mobile technologies could be effectively integrated into our language learning curriculum at AGU and played a positive role in improving our students' overall language proficiency and expanding their worldviews.

Additionally, our personal observations of MOOCs and the BL/FL lesson activities revealed that the students were enthusiastic to use a variety of emerging new technologies. Though difficult to measure empirically, by all appearances, helped students to enhance their English skills. One could conclude that this positive effect was caused, in part, by students being able to access a multitude of learning materials from their mobile devices. M-learning appears to increase the amount of comprehensible English input the students received with the aid of revolutionary education/learning applications. It was also highly motivating to the students because M-Learning offers them a rich, informal, contextual, and ubiquitous learning environment that enables them to control their learning opportunities or occasions (time), environment (space), and speed (pace). Finally, the post-course questionnaire asking students about their worldviews revealed their perspective and understanding of the world had increased and enabled them to feel more confident in speaking English and in becoming more flexible and global-minded.

As for the joint AGU-NUS seminar trip to Singapore in 2016, it indicated that a short-term language exchange programme of 1-week duration could achieve a positive impact on students' intercultural competence. The analysis of the ISS data shows that there is a statistically significant gain in the mean ISS score after the programme, suggesting that the programme had a positive effect on the participants' intercultural sensitivity. After the language exchange programme, they had expressed not only a keen interest in other cultures but also gained a better appreciation of the different perspectives that other cultures may hold. The findings thus suggested that international language exchange programmes should be harnessed profitably by institutions of higher education to promote the development of intercultural competence. The findings further showed that opportunities for extended and meaningful interactions – as provided by the AGU-NUS Language Exchange Programme through the joint seminar, discussion sessions, and common field trips – were of paramount importance for fostering more profound insights into the foreign culture, and could lead to the formation of more positive attitudes and tolerance towards cultural differences (Chan, Obari, & Chiba, 2018).

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References

- Burr, V. (1995). *An introduction to social constructionism*. London: Routledge.
- Burr, V. (2003). *Social constructionism* (2nd ed.). London: Routledge.
- Byram, M. (2015). Culture in foreign language learning – the implications for teachers and teacher training. In W.M. Chan, S. Kumar Bhatt, M. Nagami & I. Walker (Eds.), *Culture in foreign language education. Insights from research and implications for the practice* (pp. 37–58). Boston: De Gruyter Mouton.

- Chan, W., Chiba, Reiko., Obari, H. (2018) International Language Exchange and Intercultural Development, THE ECONOMIC REVIEW (pp.105-129) Institute of Economic Research, Aoyama Gakuin University
- 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
- McCarty, S., Sato, T., Obari, H. (2016) Implementing Mobile Language Learning Technologies in Japan, Springer: Springer Briefs in Education.
- 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.
- 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.
- Obari, H., Nagae, T., Yamagishi, N., & Tanaka, Y. (2013, July 11). The effect of using online TOEIC related materials using mobile technologies. *Courseware showcase*, p. 198. World CALL 2013.
- 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.
- 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.
- Rom Harre (2001). What is scientific realism? (Rom Harre wrote this article especially for AGU students).
- Stockwell, G. (2012). Mobile-assisted language learning. In M. Thomas, H. Reiders, & M. Warshauer (Eds.), *Contemporary computer-assisted language learning*. London: Bloomsbury Publishing.
- Tanaka, F. (2010). A survey-based study of Japanese university student attitudes toward EIL and implications for the future of English education in Japan. *Asian Englishes*, 13(1), 48-71.
- Vinu, P.V., Sherimon, P.C., & Krishnan, R. (2011). Towards pervasive mobile learning – the vision of the 21st century. *Procedia - Social and Behavioural Sciences*, 15, 3067-3073. doi: 10.1016/j.sbspro.2011.04.247
- Webb, M., Doman, E., & Pusey, K. (2014). Flipping a Chinese university EFL course: What students and teachers think of the model. *The Journal of Asia TEFL*, 11(4), 53-87.
- Wilson, D., & Smilanich, E. (2005). *The Other Blended Learning*. San Francisco, CA: Pfeiffer Publishing.