Innovative Learning Activities with the Use of Modern Educational Technology

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Abstract
This paper demonstrated how E-learning has been effectively incorporated at two universities in Japan: St. Marianna University School of Medicine and Aoyama Gakuin Women's Junior College. It includes discussion of (1) computer resources to set up an E-learning platform, (2) useful software to develop E-learning materials, (3) effective use of online forums to exchange messages and ideas, (4) types of learning activities which can be developed with the use of computer technology, (5) students' online participation, (5) evaluation methods, and (6) future goals to improve learning activities.

Keywords: E-learning, vocabulary, learner & teacher autonomy

Introduction

There is a growing trend in the use of e-learning technology for the support of learning and teaching in universities worldwide. At St. Marianna University School of Medicine, E-learning was incorporated into ESL courses for first- and second-year students in 2013. E-learning materials are mainly used to supplement in-class activities and to build academic vocabulary as well as to learn medical vocabulary.

At Aoyama Gakuin Women's Junior College, the author of this paper started to use E-learning at two linguistics courses for third-year students in 2014. In one of the courses (Introduction to Language Acquisition), E-learning is used to supplement in-class lecture and discussion. In the other course (Lecture on Teaching Vocabulary), students learned how to use software *Hot Potatoes* and developed exercises for learning English vocabulary while discussing ESL materials.

St. Marianna University School of Medicine

St. Marianna University School of Medicine is located in Kawasaki, Kanagawa, Japan. It is a private university offering an undergraduate program in Medicine. The program lasts for six years. English courses at the university are given in the curriculum of General Education as an integral part of the overall educational experience. English is a required course for students from the first- to fourth-year. The first- and second-year students attend two English classes each week, one on Wednesday, the other on Friday. Each class is instructed by different native Japanese instructors. The third- and fourth-year students attend one English class per week. The class size is between 25 and 30 students in each of the classes. Since E-learning is incorporated into the fist- and second-year, the discussion will henceforth be limited to these courses.

The major objective of the first- and second-year English program is to serve the needs of medical students, that is developing academic English, in this case, English for Medicine and Bioscience. In the Wednesday class, the primary focuses are to develop general reading skills, grammar, and academic vocabulary. Reading materials include excerpts from newspapers, magazines and journal articles. The students are required to submit assignments, such as outlines and summaries on about a bi-weekly basis. In the Friday class, the content is more about the students' specialty - Medicine. With the use of an illustrated guide as a textbook, students learn medical terminology in the major fields of medicine, such as the digestive system, the respiratory system, the cardiovascular system, blood and immunity, and so on. Most of the reading texts used in class are clinical case studies, such as short stories from 'Vital Signs,' a popular column featured in Discover Magazine.

St. Marianna's English program adopted *Moodle*, a free software platform and a learning management system. As of October 2013, 406 universities (68 national or public universities and 338 private universities) are using Moodle (Shirai and Harada, 2014). The URL for the St. Marianna University E-learning page is http://moodle.marianna-u.ac.jp/moodle/ .

Most of the exercises are made with the use of the software *Hot Potatoes* which is a suite of programs published by Victoria University and Half-Baked Software. It includes six applications which enable users to create interactive multiple-choice,

short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill exercises for the World Wide Web. Online exercises of the English course include exercises which deal with in-class content, exercises to build vocabulary, mainly words from Academic Word lists (AWL) (Coxhead 2000), medical vocabulary and combining forms. Below are samples of the online exercises for the first year students learning imaging techniques (Figure 1), the blood system (Figure 2), and immunity (Figure 3). See Miyakoshi (2015) for more details about exercises made with *Hot Potatoes*.

Figure 1: Translation matching exercises for learning imaging techniques.

Figure 2: Multiple-choice exercises for learning the blood system.

Figure 3: Fill-in-the-blank exercises for learning immunity.

Exercises are not the only tools in *Moodle*. From the course page, such resources as course syllabi, class schedules, study guides, and in-class worksheets are available for downloading. There is also a 'news forum' section where instructors can make a class announcement, or students can initiate discussion forums. When a user creates a 'news forum', the posted message is automatically sent to all the registered users of the course by email. The forum was initiated several times by instructors, such as, when there was a change in the quiz schedule. In addition, students can send a message to instructors through the forum site to ask questions regarding class or online exercises.

The grading methods employed for online exercises are weekly quizzes, midterm and final examinations. The students are instructed to study not only the words in questions but the entire sentences used in the exercises. Thus, the format of questions of quizzes, midterms and final examinations is not always the same as online exercises. For example, a sentence from a multiple-choice question of an online exercise may appear as a scrambled-sentence question on a quiz as shown in Figure 4.

Figure 4: An online exercise and a question on a quiz.

The students' access rate to the *Moodle* page is reasonably high. 94.74% of the second year students accessed the *Moodle* page at least once. However, their average completion rate of online exercises was relatively low, being only 47.68%. It is probable that many students prefer to print out the exercises and do them manually with pencil and paper rather than do them online. They may then check the answers with other students.

The students' performance improved as they practiced exercises over and over. Table 1 shows the numbers of times second year students completed one of the exercises, and Figure 5 shows the improved performance in relation to their repeated practice. When they completed the exercise for the first time, their average score was 71.9%, their score reaches 100% at their fifth completion. When students practice exercises online, the order of questions and the answers are shuffled each time the page loads. This result suggests the positive effects of the repetitive practice of exercises.

# of completion	1	2	3	4	5	6	7	8	total
# of students	42	14	18	5	2	0	0	1	82

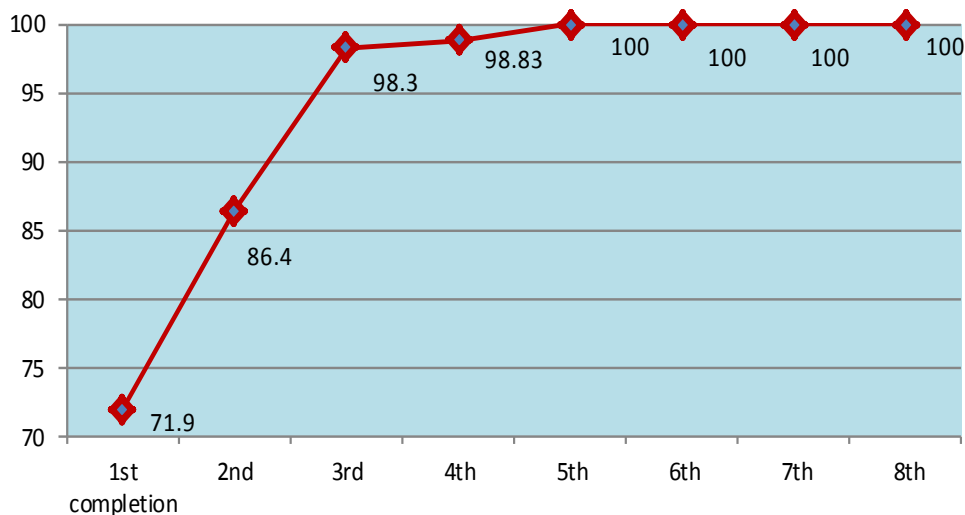Table 1: Numbers of trials attempted by students.

Figure 5: Average scores of the exercise.

Aoyama Gakuin Women's Junior College

Aoyama Gakuin Women's Junior College is located in Tokyo, Japan. The college offers two-year associate degree programs to female students to develop their positive human qualities under a system of two departments consisting of the Department of Contemporary Liberal Arts and Department of Childhood Studies. After completing the program, the students may enter a third-year program (which just started in 2014) to continue their study one or two more years. Upon completion of the third-year program, they may be able to earn a degree equivalent to a bachelor's degree.

The author of this paper is teaching linguistics courses at the third-year program as a part-time instructor. E-learning was incorporated in two of the courses: (1) Introduction to Language Acquisition, and (2) Lecture on Teaching Vocabulary in 2014-2015.

The software platform used at Aoyama Gakuin is *Course Power*. *Course Power* is another popular learning management system which was developed by Fujitsu, a Japanese leading electronics company. The Aoyama Gakuin *Course Power* portal page can be found at https://cp.aim.aoyama.ac.jp/lms/lginLgir/. Figure 6 is a course page for Introduction to Language Acquisition.

Figure 6: A course page for Introduction to Language Acquisition.

"Introduction to Language Acquisition" is a lecture-based course designed to provide an introduction to basic theories in child language development and adult second language learning, and to explore relevant research in the field of language acquisition and language pedagogy.

Supplementary reading materials are uploaded in PDF format from the course page. Much of the reading material consists of journal articles dealing with empirical research on Japanese language acquisition, and studies on Japanese students' acquisition of English as a second language. The textbook for the course (Patsy and Spada's "How languages are learned" the fourth edition) mainly discusses research on children acquiring English as a first language, or adults learning English as a second language. Since all the students registered for the course are Japanese, they are curious to know if the results found in the research on the acquisition of English can also be found in the acquisition of Japanese. So, when students learn about the developmental sequence of negation acquisition by English children in the textbook, for example, they are instructed to download and look though at home part of an article of Clancy (1986) to learn about the developmental sequence of negation acquisition by Japanese children. During the class, I briefly explain Clancy's study and encourage the students to find out similarities and differences in developmental patterns between Japanese and English children. When students learn about developmental sequence of *wh*-words in English, they also read Miyata (1991), one of the supplementary articles, to learn about developmental sequence of *wh*-words in Japanese. This way, online material helps the students deepen their knowledge and cultivate their interest in the field of language acquisition.

"Lecture on Teaching Vocabulary" is a lecture and practicum-based course that introduces the basic concepts of teaching and learning vocabulary in another language, and fosters skills to develop effective ESL materials for learning and teaching vocabulary.

In this course, students learn how to use the software *Hot Potatoes* as part of the practicum of developing ESL materials. First, the students are given the tutorial manual (http://www.marshalladulteducation.org/pdf/Hot_Potatoes_Tutorial.pdf) and I briefly explain about the software in class. Then creating six types of exercises (multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill exercises) is demonstrated on a laptop computer. After that, the students are given excerpts of exercises from vocabulary books, TOEIC preparation workbooks, high school textbooks, and so forth, and then are asked to make up *Hot Potatoes* versions of these exercises.

The students quickly become familiarized with the software and have little difficulty creating exercises, except that they typically need some assistance with the use of monolingual dictionaries, dictionaries of synonyms and antonyms, and other resources useful for creating exercises. After this, the students are asked to make up their own exercises of vocabulary of their choice. They often bring a small laptop to class when they would like to ask questions or when in-class discussion requires the use of the computer program. Around the end of the semester, the students give a presentation on their vocabulary exercises and submit a short paper on their project. As a course instructor, I have been very pleased with the students' work. Figures 7-10 are some of the exercises made by the students.

READING READINESS 1: KEY WORDS

Fill in the blank in each sentence below with one of these key words from this lesson's essay.

accelerate, absorb, coincidentally, deprive, emit, overwhelming, skeptic, trap,

1. An [_____] victory is one where the winner wins by a large margin, that is, by many points.
2. To [_____] a person of his freedom, is to take his freedom away.
3. A [_____] tends to doubt what he or she reads or hears.
4. To [_____] a car, you step down on the gas pedal.
5. If you [_____] run into an old friend at a museum, say, you didn't expect to see her there.
6. To [_____] a mouse or cockroach is to catch it.
7. When you [_____] information, you learn it and don't forget it.
8. Most flowers [_____] or give off a pleasant odor.

Figure 7: Fill-in-the-blank exercises created by a student.

Matching exercise

Match these expressions from the text with the items closest in meaning in the box below.

Check

fluctuate		group of companions
defy		peform in turn
rotate		refuse to obey
modest		treating some people better than others
cohort		only so-so
smash		hugely successful
stroke of genius		a brilliant idea
favoritism		keep changing

Figure 8: Definition-matching exercises created by a student.

次の語句を、日本語文の下線部の意味を表すように並び替えなさい。

昨日、美香は、帰宅途中でコンサートのチケットを失くしました。

_____ yesterday.

Check   Restart   Hint

_____
_____

home | way | her | mika | lost | her concert ticket | on

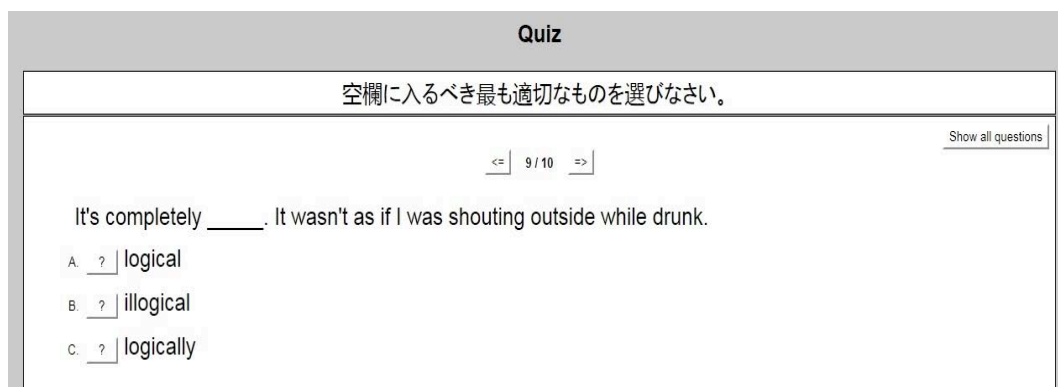Figure 9: A jumbled-sentence exercise created by a student.

Figure 10: A fill-in-the blank question for learning word families created by a student.

After creating the exercises, the students comment on their experience with the *Hot Potatoes* software. Overall, they provide positive remarks on their experience. They also give comments on how the *Hot Potatoes* software can be improved to facilitate vocabulary learning. Excerpts of the students' comments are as follows:

Creating exercises gave me a great opportunity to learn about word families which were not very familiar to me.

I learned that there are many words derived from a single word.

By creating exercises, I learned more words and understand them more deeply. I don't think I could study vocabulary as deeply as I did if I was simply solving exercises on workbooks.

I think learning adjective forms and negative adjective forms is challenging for Japanese learners of English because there are often more than one adjective and negative adjective forms on English, and there are differences in meaning.

Some of the sentences which I used in my exercises seem a little difficult. I wish the Hot Potatoes had a translation tool where Japanese translation would be given when learners mouse over a sentence. This would help learners answer the question.

I think that one of the possible improvements the Hot Potatoes can make is that when learners make a mistake while doing exercises online, the same question should come up over and over so they can work on the questions they couldn't answer correctly. This way, the learners would learn the words better.

Conclusion

In this paper, I have discussed how E-learning has been incorporated into the first and second year ESL courses at St. Marianna University, and the linguistics courses of the third-year program at Aoyama Gakuin Women's Junior College. E-learning has brought about a positive change in both universities. Since E-learning is student centered, content can be created to meet the learners' needs and interests. In addition, E-learning is flexible. Learning can take place anytime and anywhere, as long as the necessary equipment is available. E-leaning also provides consistent and effective

training. All the students may receive the same information, and their learning experience is positively reinforced.

The future goals for St. Marianna University are to improve the quality of the exercises in a way that would be more attractive to the students. It would be possible to include such materials as video scripts and audio-visual aids. It would also be possible to improve the feedback systems so that students can get appropriate feedback while doing the exercises. Another point which can be worked on is to make the system more interactive between students and instructors. The students should receive more encouragement to make use of the program's 'forum' to discuss any topic related to the course with other students and instructors. Increasing student involvement would lead to reinforcement of their learning experience.

At Aoyama Gakuin Women's Junior College, teaching how to use the *Hot Potatoes* software as part of a course is an innovative approach to train students to integrate their theoretical knowledge and practical skills. One of my immediate goals is to provide students with opportunities to present their work more easily and openly. It would be possible to start a course homepage where students can freely upload exercises they have created. Other students in the class can browse the exercises and give comments on them. This method would lead to an increase in students' awareness of the subject matters. It would also cultivate critical thinking skills in a supportive academic environment.

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