

## Development and Pilot Testing of a Blended-Learning Program for Medical English

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### Abstract

There is a growing need for effective English communication in medical settings in Japan, especially with Tokyo having been selected as the host city of the 2020 Summer Olympics. With the development of education in information and communication technology, blended-learning systems have attracted attention for medical English tuition; however, research in this field is scant. The goal of this study was to design and pilot-test a training program in medical English using blended learning. We implemented 3-month face-to-face and blended-learning classes, and we compared them using written tests and a questionnaire. In all, 51 participants (28 female, 23 male) were included in the data analysis; all of them were allocated to both the intervention group and control group. The subjects were mainly aged 18 years. The intervention group had a significantly higher test score than the control group. The questionnaire results indicated a positive response toward e-learning among the students; they had no difficulty in inputting Japanese on the computer nor with other aspects of using a computer. Our findings demonstrate the effectiveness of the present program and indicate that it may be a useful starting point for future studies related to revised versions of the program. However, additional research is necessary to determine the most effective type of training in this regard.

*Keywords:* blended learning, e-learning, English education, medical English

## Introduction

### *Background*

There is a growing need in medical settings in Japan for communication in English, especially with Tokyo having been selected as the host city of the 2020 Summer Olympics. In Japan's higher education institutions, it has become vital to learn medical English for health-care communication. To promote learning in various places, such as schools and homes, information and communication technology (ICT) has been developed to facilitate multimedia education in higher education institutions. Miyaji et al. (2009) defined a representative form of multimedia education, e-learning, as follows: "E-learning refers to an educational environment that allows students to study anytime and anywhere." This type of learning style involves studying on the Internet and using ICT. Following the introduction of computer-assisted language learning for students in Japanese universities, e-learning has been beginning to be prevalent. Despite the benefits of ICT, there are still few e-learning programs in Japan. The reasons for ICT not having prevailed in Japan include the uneven level of ICT literacy among Japanese students and students being unfamiliar with e-learning. These problems may be addressed by combining face-to-face learning with e-learning, i.e., blended learning. With blended learning, even if some students are unfamiliar with e-learning, they can receive instruction from a teacher in a face-to-face setting.

### *Blended Learning*

Blended learning is a learning style that combines several different types of media and learning methods (Singh, 2003). Miller (2004) maintains that blended learning is a combination of e-learning and face-to-face learning. Like Miller, we define blended learning in the present study as a combination of e-learning and face-to-face learning. Various blended-learning systems have been introduced in Japan. In the teaching of English, CALL (Computer-assisted language learning) is used to assist in teacher tuition and in presenting audio materials. By using CALL, students are able to take lesson contents home for review and further practice. In addition to CALL, various other online resources are used within and outside class. The contents are varied, and they include Web sites of online resources and online quizzes. Tei et al (2008) suggest that e-learning in Japanese universities is often conducted to supplement regular (face-to-face) lectures. E-learning allows students to review easily the content they studied in lectures, thereby allowing them to deepen their understanding of the subject matter. In the process of this e-learning review, students may also discover additional areas of interest that they can investigate by themselves, and this can also help expand their knowledge. Previous studies have found e-learning to be useful for accumulating knowledge and also for improving English-language skills and student motivation (Ota, 2012).

Fujishiro (2009) conducted a questionnaire survey after teaching a class using e-learning. The survey found that "e-learning contributed to the improvement of listening skills, motivation for speaking in English, and understanding in interactive communication." Their survey also determined that e-learning was effective for accumulating knowledge and improving listening and communication. When introducing e-learning to a school class, it may be inappropriate to conduct e-learning alone because students would lack the opportunity to interact and collaborate. Although students have the chance to collaborate online, if they are together in the same place they are able to engage in face-to-face activities. Accordingly, in higher education, blended learning tends to be favored over e-learning alone. To conduct both e-learning and face-to-face study would appear to confer educational benefits. Iwata et al. (2013) maintained that blended learning offers advantages over both face-to-face learning and e-learning. The advantage over

face-to-face learning is the ability to convey the same message to many students simultaneously. E-learning allows feedback to be provided to the class irrespective of time and place; e-learning also permits students to study at their own pace. Thus, blended learning utilizes the advantages of both face-to-face learning and e-learning.

### ***Previous Studies: Blended Learning in Teaching Medical English***

We conducted a literature review to clarify the current situation with respect to blended learning in teaching medical English. We identified six Japanese studies of blended learning. Iwata et al. (2013) conducted blended learning using CALL (in 2008) and employed an e-learning system developed by the Japanese company ALC (in 2009) and Moodle (in 2009); they evaluated the effect of the learning experience through a questionnaire. The results of the questionnaire performed after the tuition reflected a favorable response. Blended learning was found to be particularly effective in terms of class management, proactive class participation, and motivation in learning English. That study of Iwata et al. demonstrated that blended learning could positively affect the learning environment and promote class proactive participation. Another study (Kobayashi et al., 2008) found that blended learning was favorably accepted by students and helped improve their study motivation. Kobayashi et al. conducted a blended-learning program, which combined e-learning and face-to-face lectures toward acquiring medical English vocabulary at medical school. The authors found that the blended-learning program was very well accepted by the students. There is a growing need for a blended-learning system in Japan for teaching medical English; however, few studies have been conducted in this area.

### **Objectives**

The goal of this study was to design and pilot-test a training program for medical English education using blended learning.

### **Methods**

#### ***Participants***

The class participants in this study were first-year students at Teikyo University, Itabashi campus, Tokyo. The class consisted of about 50 students and comprised students from three departments: clinical laboratory, paramedic, and orthoptic. Upon enrollment, the students took an English proficiency test (devised by the university) and were divided into six classes based on English-ability levels. Accordingly, the English ability level in each class was approximately the same. The eligibility criteria were as follows: age >18 years; ability to complete over one-third of the course classes (30 classes in the course). For evaluation, students sit for the two exams conducted in May and November 2014. Students who missed either or both tests or failed to attend over one-third of the course classes were excluded from the evaluation.

#### ***Study Design and Program***

This study adopted a crossover, longitudinal design, in which the subjects underwent a sequence of different exposures. The students first took a series of face-to-face classes (control group) and then a series of blended learning classes (intervention group). Both face-to-face and blended-learning classes included 15 classes in total. The length of a complete series of face-to-face and blended learning classes was about 4 months (from April 2014 to July 2014 for face-to-face class, from mid-September 2014 to the beginning of January 2015 for blended learning classes). A 2-month summer vacation took place between the classes for the intervention and control

groups, which was able to operate as a washout period. Both the intervention and control programs were based on the typical 90-minute class periods at Japanese universities. The classes were held once a week for a total of 15 weeks per semester.

We designed a training program based on the eight factors identified by Bersin (2004): type of program; course objectives; participant familiarity with e-learning; budget; human resources; development time; frequency in upgrading the program; and infrastructure of the program. For both the intervention and control groups, the program was a compulsory class for university freshmen. The course objectives were the ability to read and understand English sentences about human body systems and memorize a thousand medical terms in 1 year. All the participants attended a lecture about ICT before the classes: they were therefore familiar with e-learning.

We did not require any budget or development time for the classes since all the face-to-face classes was conducted as part of a regular university course; also, e-learning systems, such as LMS (Learning Management System) and other online resources, were provided free of charge by the university. In terms of human resources, one teacher with experience in teaching medical English covered the entire program. The development time was 1 month prior to class commencement.

Different content regarding human body system was presented in each class. Two tests (once for each group) were given for both intervention and control groups in May and November 2014.

The program consisted of face-to-face classes, LMS, and online resources for the intervention group. The control group studied only in traditional face-to-face style. In the control group classes, the teacher used a conventional black- or whiteboard, PowerPoint, both.

The participants in both groups studied the basic skills of reading and vocabulary, with a content that focused on topics related to human body systems. The teaching materials for the classes were selected by the course director. The teaching materials were based on the textbook *Easy Medical English*, published by Igaku Shoin. The texts covered basic human anatomy together with some knowledge about physical examination.

The control group focused on understanding English passages by means of images and videos presented using PowerPoint. For the intervention group, some e-learning was included as extracurricular activities. The following tools were covered in the intervention group: (1) online word list (Quizlet), allowing students to study online and on their smartphones; (2) self-study tool (Quizlet) for help with dictation and spelling; (3) word quiz (Quizlet); (4) test-generating system (Quizlet); (5) online references (LMS); (6) self-study tool (LMS) for word-order tests; and (7) online bulletin board (LMS) for communication among students.

#### ***Instrument: Written Test and Questionnaire***

The primary outcome measure was the test score for both the intervention and control groups. We evaluated knowledge of medical English using a written test. We prepared an original written test with 100 as the maximum score. The test lasted 60 minutes and consisted of English-Japanese translation of medical terminology and short sentences related to medical practice. The written test was implemented in May and November 2014: the same style was adopted for the two tests, though they differed in terms of content. A comparison was made of the test results between the intervention and control groups. In addition to the written test, the students were asked to complete a questionnaire. We used a five-point Likert scale to assess the questionnaire items, which related to the students' impressions of blended learning and the learning content,

with the items ranging from “strongly disagree” (1) to “strongly agree” (5); this was a measure of the psychometric properties of the learning experience. A detailed description of the questionnaire appears in Table 1. The questionnaire was conducted once in January 2015.

**Table 1. Description of the questionnaire**

<p>Q1 : I am confident in my English.</p> <p>Q2 : I am interested in acquiring vocabulary in medical English.</p> <p>Q3 : I have a basic knowledge regarding anatomy and other medical backgrounds.</p> <p>Q4 : I expect the effect in this e-learning.</p> <p>Q5 : I would like to conduct e-learning.</p> <p>Q6 : I will use this learning system outside the class for the review.</p> <p>Q7 : Acquiring "Medical English" could help for learning professional medical knowledge.</p> <p>Q8 : I am negative to use computer for acquiring vocabulary in medical English.</p> <p>Q9 : It is hard for me to memorize words while using the display.</p> <p>Q10 : I am not good at using computer.</p> <p>Q11 : It seems difficult to input Japanese.</p> <p>Q12 : It seems difficult to input English on the computer.</p> <p>Q13 : It seems to be advantageous when someone who are familiar with handling computer use this learning system.</p> <p>Q14 : The online word test in Quizlet was useful for my study.</p> <p>Q15 : The test generating system in Quizlet was useful for my study.</p> <p>Q16 : The tool for word quiz in Quizlet was useful for my study.</p> <p>Q17 : The application of Quizlet (for iPad/smartphone) was useful for my study.</p> <p>Q18 : The reference provided by the LMS was useful for my study.</p> <p>Q19 : The quiz uploaded on the LMS was useful for my study.</p> <p>Q20 : The combination of face-to-face lecture and e-learning was useful for my study.</p>
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### ***Data analysis***

Differences in the scores between the two groups were analyzed using *t* tests for continuous variables and group comparisons were made. All the analyses were performed using PASW Statistics 21 (SPSS Inc, Chicago, IL, USA), and  $p < 0.05$  was considered significant. There were no differences between the intervention and control groups in terms of age, gender, or profession.

## **Results**

### ***Participants***

There were 51 participants (28 female, 23 male) for the data analysis, all of whom were allocated to the intervention and control groups. In those groups, all the participants were eligible for analysis. The subjects were mainly 18 years old. Their level of English proficiency was the second highest of six levels commonly used in Japan. All participants completed the questionnaire at the end of each course.

***Program Implementation***

The control program (face-to-face class) was implemented from April to July 2014; and after the 2-month washout period, the intervention program (blending learning) was conducted from mid-September 2014 to the beginning of January 2015. Details of the program content appear in Table 2. In both the intervention and control groups, the lectures focused on comprehending English passages by means of pictures and videos presented using PowerPoint. Both the intervention and control programs included some collaborative activities in the class, and additional resources were distributed in class.

**Table 2. Program content for the intervention and control groups**

	<b>Contents of Intervention (Intervention) (Date: April 14 to July 19, 2014 10:45-12:15)</b>	<b>Contents of Intervention (Control) (Date: September 22, 2014 to January 10, 2015 10:45-12:15)</b>
<b>In class (face-to-face)</b>	<b>[Lecture]</b> The lecture focused on understanding English passages by using pictures and videos presented with PowerPoint. <b>[Test]</b> A English-Japanese translation of the medical terminology and short sentences and took 60 minutes.	<b>[Lecture]</b> The lecture focused on understanding English passages by using pictures and videos presented with PowerPoint. <b>[Test / Questionnaire]</b> A English-Japanese translation of the medical terminology and short sentences and took 60 minutes.
<b>e-learning</b>	<b>[Practical Training]</b> (a)online word list (Quizlet) which allows student to study online and on the smartphone (b) self-study tool (Quizlet) for dictation, spelling (c) a tool for word quiz (Quizlet) (d) test generating system(Quizlet) (e) online references (LMS) (f) self-study tool (LMS) for word-ordering test (g) online bulletin board (LMS) for communication of the students.	<b>No e-learning</b>

Figure 1 shows detailed contents of the e-learning program, which included the following tools: (1) online word list (Quizlet), allowing student to study online and on their smartphones; (2) self-study tool (Quizlet) for help with dictation and spelling; (3) word quiz (Quizlet); (4) test-generating system (Quizlet); (5) online references (LMS); (6) self-study tool (LMS) for word-order tests; and (7) online bulletin board (LMS) for communication among students (Figure 2).

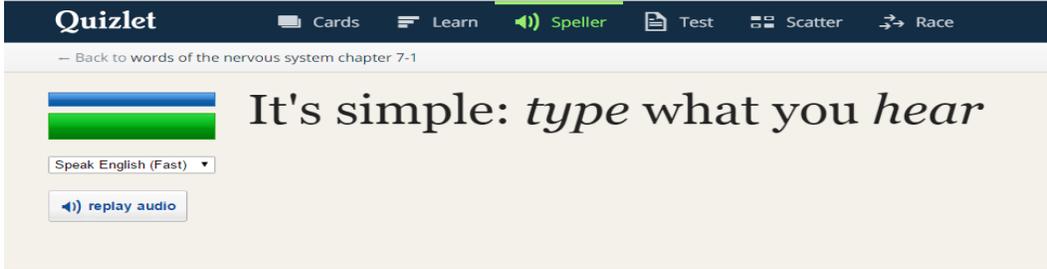
**Figure 1. Detailed content of e-learning program**

(a) Online word list (Quizlet) allowing students to study online and on their smartphones



Original	Alphabetical
brain	脳
billion	10億
neuron	ニューロン
nerve	神経
communicate	連絡する
chemicals	化学物質
neurotransmitters	神経伝達物質
spine	脊柱

(b) Self-study tool (Quizlet) for dictation and spelling



Quizlet Cards Learn **Speller** Test Scatter Race

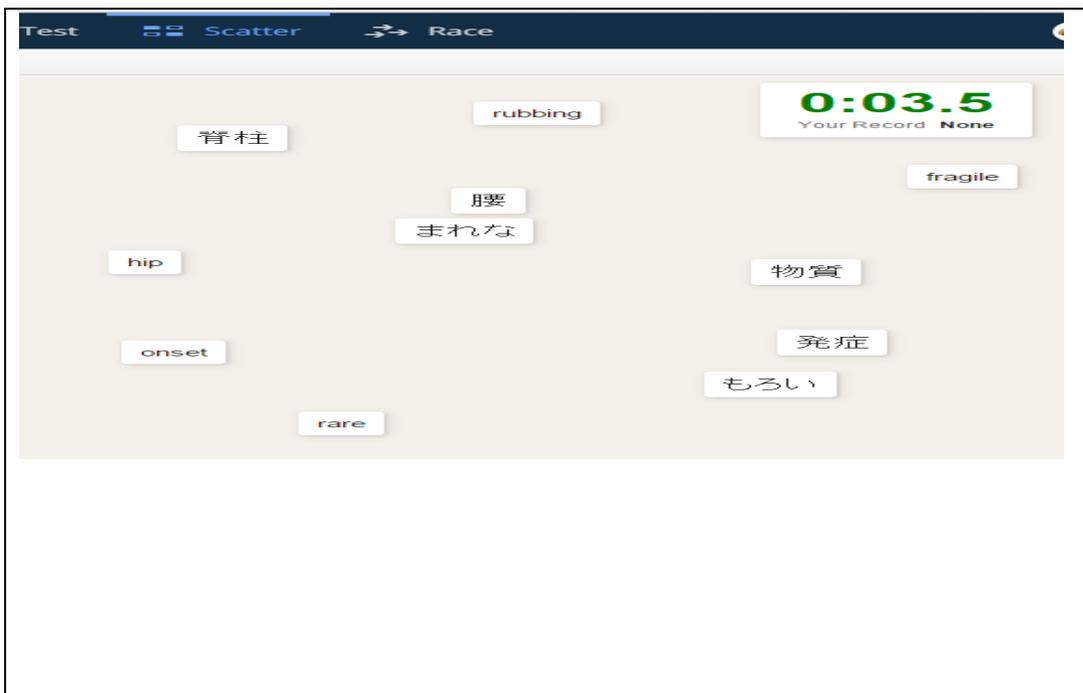
— Back to words of the nervous system chapter 7-1

It's simple: *type what you hear*

Speak English (Fast)

replay audio

(c) Tool for word quizzes (Quizlet): matching and typing



(d) Test-generating system (Quizlet)



(e) Online references (LMS)

**LMS 帝京大学**

ホーム 授業(コース) コミュニティ その他のモジュール

2014 英語 I (視能・臨床・救命1年2組) コンテンツ

コンテンツ

テストアカウント課題 ツール パートナーコンテンツ

**後期中間テスト資料**

利用可否の設定: 項目は現在利用できません。2014/11/11 23:59 以降利用できなくなりました。  
有効: 統計情報の取得

添付ファイル:

- 英語 I 後期1講 神経系.pdf (1,023.662 KB)
- 英語 I 後期2講 筋骨格系.pdf (1.16 MB)
- 英語 I 後期3講 皮膚および感覚器.pdf (1.646 MB)
- 骨粗しょう症と変形性関節炎 OC Osteoporosis Osteoarthritis.pdf (1.544 MB)
- 骨粗しょう症と変形性関節炎参考訳.docx (19.37 KB)
- 英語 I 後期中間 単語リスト.xlsx (15.995 KB)
- 英語 I 中間7~9章参考URL.docx (14.683 KB)

後期中間テスト範囲、7~9章の講義で使用した資料と、試験範囲の単語リストです。  
試験前の復習用に使ってください。

**中間試験7~9章復習テスト**

コース管理

コントロールパネル

- ファイル
- コースツール
- 利用状況
- 成績管理
- ユーザとグループ
- カスタマイズ
- パッケージとユーティリティ
- ヘルプ

(f) Self-study tool (LMS) for word-order tests

質問 5

5. 神経の一部は、脳から情報を運び、私達に筋肉を動かさせて体の動きを制御します。これらを運動神経といいます。

5. One part of a nerve carries information from the brain and lets us move muscles to control our body movements. They are called ( ) nerves.

質問 6

walking, with, with, a, paralysis, patient, difficulty, have, may

walking

with

difficulty

have

(g) Online bulletin board (LMS) for communication among students

In Figure 1a, the online word list (Quizlet) allowing student to study online and on their smartphones, various useful functions were available, including a read-aloud function and the ability to create custom-made lists. Students were able to highlight particular words or phrases by placing asterisks beside them. Then only starred items were displayed, and students could perform quizzes and tests for just those items.

In Figure 1b, the self-study tool (Quizlet) allowed students to type in what they heard during dictation. Through repeated input, the students were better able to remember the spelling of words.

The tool for word quizzes (Quizlet) in Figure 1c included scatter and race games. In the scatter games, some English and Japanese word pairs were scattered, and the student had to find the right pair and put them together by clicking on words in the box. After the game, the time required to find all the pairs was displayed. If the students wished, they could race against their classmates. This was intended to create a sense of togetherness and competition, thereby helping improve motivation. In the race game, students had to remove scrolled words by typing in the translation from the other language. Students were able to remove the scrolled words in any order as long as they did not scroll beyond the screen. This was a kind of time trial and helped students quickly remember the meaning of words.

The test-generating system (Quizlet) in Figure 1d consisted of four types of tests: written, matching, multiple choice, and true or false. The test could begin with either Japanese or English. Students could create these tests with a single click of the mouse and freely determine the duration themselves. They could repeat their custom-made test as often as they wished. The answer was displayed immediately upon completion of the test so that students could their percentage of correct answers.

The online references (LMS) in Figure 1e offered various resources, from PowerPoint slides to visual aids for part of the human body. LMS could be accessed only via the Internet from a personal computer using an ID and password, not from a smartphone.

The self-study tool (LMS) in Figure 1f was for word-order tests. The sentences used in the tests were extracted from medical textbooks. Original word-order tests were created by the teacher, and such tests are popular in Japan. Determining the correct word order demanded a proper understanding of grammar and sentence structure, and so these test are frequently used to assess students' comprehension of those elements.

The online bulletin board (LMS) in Figure 1g was for communication among students and permitted casual interchange after the class. The teacher instructed the class in its use by means of a bulletin board and conducted various class activities using that board. The teacher was also able to give homework by means of the online bulletin board.

### ***Written Test and Questionnaire Results***

Table 3 shows the results for the written tests. The average score in the tests was 59.00 in the intervention group and 73.00 in the control group. The highest scores were 96.00 in the intervention group and 91.00 in the control group. The lowest score was 17.00 for both groups. A significant intervention effect was seen in the total knowledge test ( $p < 0.00$ ), and the degree of freedom was 50.00. The results indicated significant differences between the intervention and control groups for the written-test score.

The questionnaire results showed revealed that almost all students were familiar with e-learning (Table 4). The highest mean score was obtained for question 14: “The online word test in Quizlet was useful for my studies” (mean, 3.83; SD, 1.04). The second-highest score was for question 7: “Learning medical English could help me acquire professional medical knowledge” (mean, 3.81; SD, 0.89). The lowest mean score was for question 11, “It is difficult to input the Japanese” (mean, 2.46; SD, 0.92), and the second-lowest score was for question 8, “I am

**Table 3. Results for the written test**

	Intervention		Control		p-value (t-test)	Degree of freedom
	mean	(SD)	mean	(SD)		
<b>Written test (total)</b>	<b>73.00</b>	<b>(15.84)</b>	<b>59.00</b>	<b>(15.82)</b>	<b>0.00</b>	<b>50.00</b>

disinclined to use a computer to acquire medical English vocabulary” (mean, 2.54; SD, 0.87).

**Table 4. Questionnaire results**

Questions	Mean	(SD)
Q1 : I am confident in my English.	2.65	(0.98)
Q2 : I am interested in acquiring vocabulary in medical English.	3.31	(0.95)
Q3 : I have a basic knowledge regarding anatomy and other medical backgrounds.	2.85	(0.74)

Q4 : I expect the effect in this e-learning.	3.60	(0.89)
Q5 : I would like to conduct e-learning.	3.56	(0.92)
Q6 : I will use this learning system outside the class for the review.	3.69	(0.99)
<b>Q7 : Acquiring "Medical English" could help for leaning professional medical knowledge.</b>	<b>3.81</b>	<b>(0.89)</b>
<b>Q8 : I am negative to use computer for acquiring vocabulary in medical English.</b>	<b>2.54</b>	<b>(0.87)</b>
Q9 : It is hard for me to memorize words while using the display.	2.92	(0.99)
Q10 : I am not good at using computer.	2.90	(1.12)
<b>Q11 : It seems difficult to input Japanese.</b>	<b>2.46</b>	<b>(0.92)</b>
Q12 : It seems difficult to input English on the computer.	2.81	(0.98)
Q13 : It seems to be advantageous when someone who are familiar with handling computer use this learning system.	3.67	(0.91)
<b>Q14 : The online word test in Quizlet was useful for my study.</b>	<b>3.83</b>	<b>(1.04)</b>
Q15 : The test generating system in Quizlet was useful for my study.	3.67	(1.02)
Q16 : The tool for word quiz in Quizlet was useful for my study.	3.60	(1.07)
Q17 : The application of Quizlet (for iPad/smartphone) was useful for my study.	3.65	(1.02)
Q18 : The reference provided by the LMS was useful for my study.	3.33	(0.81)
Q19 : The quiz uploaded on the LMS was useful for my study.	3.31	(0.75)
Q20 : The combination of face-to-face lecture and e-learning	3.50	(0.88)

was useful for my study.		
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### Discussion

Three main findings emerged from the present study. First, the written-test results for the intervention group showed significantly higher scores than those of the control group. This means that the intervention group was able to acquire more knowledge of medical English than the control group, which supports the efficacy of the intervention program. These findings indicate that blended learning provided a more effective learning experience for the participants than in face-to-face only learning.

The results of the present study are consistent with the findings of Garrison (2004), who found that blended learning has the potential to promote both effectiveness and efficiency in the learning experience. The present study found that the learning experience became more effective because the students were able to review and practice what they had learned in class using online resources. In addition, the blended learning in this study promoted efficient learning since various tools allowed the students to apply their knowledge in many different situations; the students were repeatedly exposed to the same topics in different media, which helped reinforce the content. These factors appeared to have a positive effect for the students and led to greater self-study time outside class.

From these results, it is apparent that blended learning positively changed the students' learning behavior. The result of the present study are supported by other studies, such as Yoshikawa et al. (2012) and Silva et al. (2011), which found that blended learning was more effective than face-to-face learning. To implement blended learning more effectively, it is necessary to make ongoing program improvements through structure review, implementation, and evaluation (Ono, 2015).

Second, the questionnaire results revealed a positive response among the students toward e-learning: they had no difficulty in inputting Japanese on the computer or with other aspects of handling the computer. These are in accordance with those of other studies, which have examined the use of computer quizzes or games as appropriate education tools for teenagers (Klopfer and Yoon, 2005). With this positive attitude toward the tools used in this study, employing ICT in classes for teenagers would help promote variety in class activities and also deepen understanding of class content. The present study also found blended learning using e-learning to be an appropriate learning style for younger people. Over 3 months of the term, the students were positive about using the provided e-learning materials. This could be attributed to the variety in the e-learning materials themselves. The use of various materials helps maintain student interest. In the present study, we provided all the materials to the students at the same time, but giving them one by one may be more effective. Future studies could address issues related to the timing and quantity of provided materials.

Third, the questionnaire results also revealed a positive response among the students, especially for Quizlet. There are several possible reason for this positive response to Quizlet. Quizlet is different from other e-learning tools in that it has application for smartphones and the iPad. Smartphones are the most popular medium for communication among Japanese teenagers. Quizlet could therefore be easily used by the participants: it could be accessed anywhere and anytime, such as when traveling on public transport. As noted earlier, Quizlet is not just a terminology database; it also has interactive aspects, such as word games and tailor-made tests. Participants can create their own tests for the vocabulary they have difficulty remembering,

allowing repeated practice. Participants are able to control how they do their learning with Quizlet. Earlier studies have shown that self-regulation can provide motivation for certain kinds of behavior (Bandura, 1997). The results of the present investigation suggest that Quizlet was a positive factor in motivating the participants' learning: they felt they could control their learning style themselves.

Some limitations with this study deserve mention. First, the number of the students was small. It is necessary to confirm the present results with more students using the same procedure. Second, the training time was short. Many university courses for medical English in Japan last a number of years. We need to confirm the efficacy of the present program over a longer time frame, which could result in more significant results. Despite these limitations, we believe that the developed training course was significantly effective in improving both knowledge and skills related to medical English.

Future studies should examine the relative proportions of e-learning and face-to-face study as well as the duration of related programs. The contents of such program also need to be investigated as well as the validity of associated tests. However, the present study represents a first step in evaluating blended learning in Japan. We expect that blended learning programs will be implemented among greater numbers of people and that their efficacy will be further demonstrated in future studies. The present study is novel in that we developed and pilot-tested a blended learning program in Japan by using both written tests and a questionnaire.

### Conclusion

This study suggests that the developed blended learning system could be useful in improving knowledge and ability in medical English. Furthermore, our results demonstrate the effectiveness of the present program and indicate that it may be a useful starting point for future studies toward developing a revised program; however, additional research would be necessary to determine the most effective type of training in this regard. The developed intervention could be a powerful tool for future research in devising effective programs. This training program could help bridge the language gap in Japan between medical professionals and English-speaking patients with limited Japanese proficiency by promoting the medical English knowledge and skills of those professionals.

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