Mobile Technologies and Language Learning in Japan – Learn Anywhere, Anytime

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One of the most significant recent developments in educational technology has been in mobile learning (m-Learning). Since 2002, our group of mobile learning has been doing several projects to investigate the potential of mobile devices for English education. It is one of the projects undertaken by the research center for e-Learning Professional Competency (eLPCO) at Aoyama Gakuin University, which won a 21st Century Good Practice (GP) grant from Japan’s Ministry of Education, Culture, Sports, Science, and Technology. In this symposium, we cover a wide range of topics and share the results of our seven-year project on mobile learning: a comparison of mobile learning in the UK, e-Learning courses that enable students to use various mobile devices to facilitate communication and learning, current situation about mobile phone usage of university students in and around Tokyo, and empirical studies of English learning programs by mobile phones at universities in Tokyo.

1. Introduction

Considering the growing trends of mobility in our society, it is easy to see that gaining back some of the time we spend at the station, on the train, and even waiting for friends could be a great source of productivity. Such an idea is linked to the concept of the individual as autonomous learner and a life-long learning, to explore in-depth areas of mobile learning, or “m-learning” for short. m-learning combines the technologies of mobile communications with any electronically delivered material, and it has now been acknowledged as a successful means of raising the consciousness of the importance of "anywhere, anytime" learning in an increasingly connected world (Metcalf II, 2006). However, few studies have reported how integration into the present classroom actually takes place. We would like to show how various mobile devices will support and empower our learning, and foster autonomous learners in a foreign language classroom. We will also shine the spotlight on learning that interfaces with learners’ lifestyle and learning strategies, making learning more efficient for them.

Chapter 2 reports on mobile learning in the UK, focusing on e-university, Podcasting, and the social network system, and then comparing them with the campus network system at Aoyama Gakuin University in Japan. Chapter 3 explains the role of eLPCO, emphasizing both performance and learning orientation of wireless technology in relationship to performance support and blended e-learning model. Chapter 4 introduces interesting data regarding mobile phones and its usage of university students in Tokyo area. Chapter 5 elaborates on the results of six-year empirical study on learning by mobile phones.

2. Mobile Learning in the UK and Japan

Theme of this chapter is to discuss how a supportive environment for mobile learning can be created with available technology for various tasks ranging from teaching to assessment.

According to Professor Dutton who is the president of Oxford Internet Institute made an inaugural address entitled ‘Through the network (of networks)– the Fifth Estate’ in October 2007.1. He commented that the rise of the press and
development of radio, television and other mass media has created an independent institution in many nations that had become known as the ‘Fourth Estate’. However, he went on to say “Now we are in the fifth Estate, so Internet creates ‘platforms for new networks of individuals’ and ‘the basis for the pro-social networks.”

1) Medical professionals who could share information with other professionals and patients anywhere in the world;

2) Local government officials engaging with individuals on community websites – but also well beyond their constituencies.

Now we are in the ubiquitous age in the Fifth Estate. According to Martin Courtney, Computing, 01, July 2008, some 2.9 million people in the UK regularly access the internet from a mobile device – just six per cent of the adult. It means that mobile learning in UK is not so popular compared with that of Japan. In U.K. instead of mobile learning, Podcasting (Fig. 1) is very popular in many institutes with the integration of Web Learn System (Fig. 2).

In UK, they often use Social Networking System such as Face Book (Fig.3) and Sakai Learning Management System (Fig.4).

On the other hand, eLPCO of Aoyama Gakuin University has developed its own learning management system (Fig. 5) in collaboration with Japan Unisys. Integration of CCS (Cyber Campus System), CaLabo EX CALL System, and Mobile learning enhanced autonomous learning, and students made progress in English proficiency. The average test scores of Computerized Assessment System for English Communication (CASEC) improved from 517, pre-test in April, to 573, post-test in January in 24 week lessons.

3. e-Learning Professional Competency (eLPCO)
Mobile Learning Study Group (Task Force 26; TF26) belongs to a research center for e-Learning Professional Competency (eLPCO) at Aoyama Gakuin University (Fig. 6). In order to create a flexible learning environment and encourage anywhere, anytime learning, an organizational support system with e-learning professionals is essential for both instructors and students. And we believe such an environment will foster autonomous learners.

eLPCO provides such systematic learning supports to faculties and learners, and manages e-Learning Professional Cultivating Project, which had received the 21st Century Good Practice (GP) grant by Ministry of Education, Culture, Sports,
Science and Technology in Japan (2005-2007). The project aims to cultivate five e-Learning professionals, Instructional Designer, Contents Specialist, Learning System Producer, Instructor and Mentor at the university. Its curriculum consists of 26 courses offered from Liberal Arts, Law, Business, and Economics departments, which is an integrated program of different disciplines. The curriculum had been developed based on the research results of Asia e-Learning Network (AEN) research project from 2003 to 2004.

TF26 developed a course, “Introduction to Mobile Communications,” as a part of the program applying the instructional design theory. Teaching objectives of the course are to support students to be able to (1) identify features and usages of various mobile devices to promote communications, and (2) use mobile devices to learn English. The course provides the latest information on mobile learning based on our research results and hands-on practices of creating mobile learning materials.

4. Current situation about mobile phone usage of university students in and around Tokyo

To investigate the up-to-date environment of mobile learning, our group has conducted research since 2006, and the results of July 2008 are reported. The questionnaire was completed by 684 undergraduate students living in/around Tokyo.

First, the situations of info-communication service usage are notified. 80.7% of the students contract in one carrier, but the rest of them contract plural carriers. This is because each carrier provides different services, and the students use them wisely. With regard to discount service, 95% of the students registered some discount services, and 84.2% contract for unlimited packet use service (flat rate). This implies that infrastructure for mobile learning environments has been established at universities in Japan. The results also indicate that we can develop the contents without considering the students’ financial burden.

Next, comparisons of the preference between computers and mobile phones are reported. The details are shown in the following tables.

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<tr>
<th>Table 1. Preference in use of email</th>
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<td>computers</td>
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<tr>
<td>3.9%</td>
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<th>Table 2. Preference in English vocabulary learning</th>
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<tbody>
<tr>
<td>computers</td>
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<tr>
<td>20.3%</td>
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<th>Table 3. Preference in short training for learning</th>
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<tbody>
<tr>
<td>computers</td>
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<td>18.3%</td>
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From the data, it would be possible to say that more appropriate contents of mobile phones for language education are for short training, and for learning English vocabulary. Besides, it would be more effective to use email of mobile phones than that of computers.

Mobile phones have come to be exactly “wearable computers” in Japan. The security of them is now increased as much as that of computers. Furthermore, mobile phones have more convenient functions than those of computers. Mobile phones are always carried about by anyone anywhere at any time.

5. The promise of English Study by mobile phones

Many MP3 devices are developed these days, however, the only device that is really handy and functions for the multiple purposes is the mobile phone. The phone is a ubiquitous platform. We would like to share the results of our four projects; studying English with mobile phones during their commute or in a short spare time.

The first project was to ascertain the effectiveness of TOEIC (Test of English for International Communication) test preparation by mobile phones. It mainly consists of drill-and-practice programs of vocabulary study and grammar practice, and the learning management system provides immediate feedback to the learners. These results were compared between the two groups. We confirmed that both groups improved in their scores (full mark=50) and there was a significant difference between pre-test scores and post-test scores; computer group (P=0.0001), mobile group (P=0.007).

The second project was focused on watching video news programs by multimedia mobile phones to prepare and review the study in class. Flowerdew & Miller
(2005) state that video often promotes the motivation to listen; it provides a rich context for authenticity of language use; the paralinguistic features of spoken text become available to the learners (compared with radio) and it aids learners’ understanding of the cultural contexts in which the language is used.

We made many short video clips out of one news program believing that this kind of bite-sized study might attract students too busy to stick to an organized school or Web-based learning course, and made each clip finish in around one minute so that students can concentrate on them easily.

We conducted two kinds of test to check the effectiveness; vocabulary and comprehension test. Sample was 38 university students; 27 computer group and 11 mobile group. The result was that mobile groups got higher score than computer groups and show the improvement after one week.

And we confirmed that learning by mobile phones was as effective as the one by computers. The third project was adding captioning on the video clip to help low proficient learners understand the content easily. We conducted comprehension test to know exactly how much they actually understood learning by mobile phones.

Figure 7 shows students’ understanding increased with captioning and it proved that captioning on mobile phones was useful.

The fourth project was focused on English vocabulary learning, which many Japanese students believe to be very important to improving English ability. We prepared three different versions of contents: Version 1. an English word with Japanese translation, which is the traditional Japanese way of learning vocabulary; version 2. an English word with a picture clue, which combines a word with images and helps learners remember vocabulary; and version 3. an English word to memorize is highlighted in red in a sentence and the Japanese translation (Fig. 8).

We delivered a set of 50 words of each version to 136 students of seven different majors for three weeks and compared the test scores between pre-test and post-test (Fig. 9). Most groups improved their scores greatly and total scores of pre-test and post-test showed a significant difference statistically (P<0.0001). We also found from the students’ feedback that they preferred to learn vocabulary in sentences so that they can understand how the word is used for actual communication. Students are eager to improve communication skills even through vocabulary learning.

6. Conclusion

Our research result shows that technologies introduced in our project were effectively integrated in the language learning class to meet the needs of students in the age of ubiquitous. In mobile learning, learners could access to the learning materials when they wanted to learn and studied them at their pace, thereby learner autonomy was encouraged. Finally, we would like to emphasize the key role eLPCO plays in keeping this m-Learning community functioning smoothly.

Acknowledgments

We express our appreciation for all the support and collaboration we have received from eLPCO at Aoyama Gakuin and Media Lab., and Bizcom Japan Inc. (http://www.busicom.co.jp).

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