

Learning on the Move: The Use of Mobile Technologies for Language Skill Development

Chadaporn Chanprasert
chada254744@hotmail.com

Silpakorn University

Hnin Twint Han

hnin.t@bu.ac.th

Bangkok University

Abstract

At present, more information and communication technologies (ICTs) have been applied to increase the potential of instruction and facilitate students' learning. Especially, the concept of language learning via mobile technologies has widely spread during the past few years at higher education level. This article begins with brief definitions of mobile learning and basic explanations of mobile-assisted language learning (MALL). Then the paper continues to present different activities the author has found in MALL settings that demonstrate its effectiveness in supporting anytime anywhere learning. From reviewing literature, a number of research studies were undertaken to confirm the effectiveness of the mobile-assisted language learning on learners' language proficiency in terms of vocabulary, reading, grammar, listening, speaking as well as examining what students feel in a new learning environment. The paper ends with a discussion on mobile technology applications in language class regarding its development of future learning activities.

Keywords: Mobile Technologies, Mobile Learning, Language Learning

ឧបកិច្ចយោះ

ในปัจจุบันเทคโนโลยีสารสนเทศได้ถูกนำมาประยุกต์ใช้เพื่อเพิ่มศักยภาพด้านการเรียนการสอนและอำนวยความสะดวกในการศึกษาหาความรู้ให้แก่ผู้เรียนมากขึ้น โดยเฉพาะอย่างยิ่งในช่วงสองสามปีที่ผ่านมา นี้ แนวคิดเรื่องการเรียนภาษาต่างประเทศในโลกดิจิทัลที่ได้แพร่หลายอย่างกว้างขวางในระดับอุดมศึกษา บทความนี้เริ่มด้วยการให้คำจำกัดความของการเรียนรู้แบบเคลื่อนที่ และอธิบายเรื่องการเรียนภาษาโดยใช้เครื่องมือเคลื่อนที่ช่วยสอน (MALL) บทความนี้ยังได้นำเสนอภาระต่างๆ ที่ผู้เรียนพบในบริบทของการใช้เครื่องมือเคลื่อนที่ช่วยสอนภาษาซึ่งมีประสิทธิผลในการสนับสนุนให้เกิดการเรียนรู้ได้แบบไม่จำกัดเวลาและสถานที่ และจากการบททวนวรรณกรรมพบว่า มีงานวิจัยหลายเรื่องที่ศึกษาประสิทธิผลของเครื่องมือเคลื่อนที่ช่วยสอนที่มีต่อความสามารถทางภาษาของผู้เรียนในด้านคำศัพท์ การอ่าน ไวยากรณ์ การฟัง การพูด รวมทั้งศึกษาว่าผู้เรียนรู้สึกอย่างไรในสภาพแวดล้อมการเรียนรู้แบบใหม่นี้ ในส่วนท้ายของบทความเป็นการอภิปรายถึงการนำเทคโนโลยีแบบเคลื่อนที่ไปใช้ในชั้นเรียนภาษาเป็นการพัฒนาภาระรวมการเรียนเพื่ออนาคต

คำสำคัญ: เทคโนโลยีแบบเคลื่อนที่ การเรียนรู้แบบเคลื่อนที่ การเรียนภาษา

Introduction

Nowadays, we have to accept the fact that various kinds of technology are infiltrating themselves in front of us. As Cavus (2011) puts up, the brisk advancement of new technologies make change in the educational practice inevitably. Students in the 21 century are in the digital age; their lifestyle has been altered accordingly. They heavily depend on mobile technologies and always carry them everywhere. According to Burston (2013), mobile technologies include cell phones, pocket electronic dictionaries, personal digital assistants (PDAs), MP3 players, and tablet PCs. Since mobile technologies provide an unlimited learning that can strongly fit learners' learning habits, they become significant learning tools used by many instructors at all educational levels. Among these mobile technologies, cell phones have a huge impact on youths' lives (Moura & Carvalho, 2008). However, cell phones are not only beneficial for personal use; they can make learning activities more motivational, interesting, and different from traditional ones. The picture of students using cell phones in class as a teaching aid in doing an assignment becomes common. With Internet connection, they can find a few words to describe the picture and check grammatical mistakes from many websites. The use of cell phones for learning is deemed possible with a few reasons. Firstly, they are not expensive; all students can have them. Secondly, they are small and portable. Thirdly, materials sent via cell phones can be viewed as many times as students want. Then, the advance of cell phones provides students with more useful applications and devices. Lastly, with 3G-4G technological growth and Wi-Fi support, students can acquire a lot of knowledge very easily.

Mobile learning or m-learning is identified by Lan and Sie (2010) as a new type of learning model which allows learners to receive learning materials anywhere and anytime through wireless

telecommunication network and the Internet. The tools used to support m-learning include mobile technologies such as notebook computers, portable computers, Tablet PC, and cell phones. Mobile learning can increase opportunities for gaining new knowledge without any constraints of place and time. This concept is consistent with Low and O'Connel (2006) who states that mobile learning increases flexibility and gives feelings of freedom to students. Cavus and Ozdamli (2011) point out that since mobile learning builds on the learner's interests, experiences and needs, it places the students at the center of learning process. Students, therefore, play an active role in acquiring knowledge. They further explain about the learners' roles which covers six issues: accessing information in need, being responsible for their own learning, using their learning style, studying at their own speed, creating and sharing new information, and collaborating with peers. Meanwhile, the changing roles of instructors in mobile learning are emphasized on the ability to use required mobile tools and technologies, being advisor or facilitator, eliminating the barriers which may occur, and creating materials or activities to increase motivation of learners.

The involvement of mobile technologies in education has occurred in many disciplines and contexts, and language teaching field has no exception. The use of handheld computers or cell phones to support language learning is called "mobile-assisted language learning" or MALL. According to Kukulska-Hume (2009), MALL has attracted much attention since it is a new type of learning environment with a combination of mobile technology, learner mobility, mobility of content, and so on. The use of personal portable device, continuity of access, and communication across diverse contexts of use make MALL different from computer-assisted language learning (Kukulska-Hume & Shield, 2008). The importance of MALL is in accordance with what Chinnery (2006) used to

predict in that mobile-assisted language learning would certainly appear in future language learning research.

While MALL has introduced a revolutionary classroom practice, it remains questionable that their applications achieve the goal of language learning or not. Take a case of cell phones. Some instructors might feel uncomfortable to allow students to carry them to the classroom. They are not sure whether the phones are really used as a learning aid or not. Students' monitoring the phones may be because they are using social networks or playing games. The negative attitude may interrupt applying cell phones for language learning. This suggests that a trust is required when there is a change. Also, it is necessary for instructors to accept that cell phones can make learning more meaningful for their students. To keep up with the new trend and to successfully facilitate mobile learning, instructors should consider when and where to be appropriate (Sharma & Kitchens, 2004). That is, the new learning model requires an adjusted pedagogy that fits students' learning tools.

Effects of Mobile-assisted Language Learning on Language Skills

1) Learning Vocabulary via SMS, Applications and Databases

The critical significance of vocabulary is placed on two issues: establishing knowledge structure and facilitating communication (Coady & Huckin, 1997). Vocabulary acquisition requires more

efforts and time in second language (L2) than in first language (L1). L2 learners need at least 95 per cent coverage of the running words in the input in order to gain comprehension (Nation, 2001). The lack of sufficient vocabulary can be solved by mobile-assisted language learning (MALL). Nowadays, cell phones are becoming more commonly used in learning vocabulary, and many studies show the increase of adoption of the cell phone in the classroom. From reviewing literature, it is found that vocabulary learning through MALL is frequently conducted in two ways.

The first one is the use of SMS for transmitting short messages. One advantage of deploying mobile applications on SMS is that almost all cell phones are SMS enabled. As such, sending text messages by SMS is carried out to motivate students to learn and practice their vocabulary knowledge as demonstrated in many studies. Cavus and Ibrahim (2009) develop a system in a form of SMSs "to send technical English words together with the meanings to students." The finding indicates that sending words is useful for learners' vocabulary improvement. In some studies, MALL is compared with other approaches to see what works best for students. Lu (2008) investigates students' performance "after they learn two sets of English vocabulary through cell phones and by a paper-based format. The finding reveals that students who learn via SMS know more words than those learning with the paper-based tasks." Likewise, Choi and Jeong (2010) study

"the impacts of mobile Long Message Service (LMS) lessons on L2 English vocabulary learning. The experiment assigns college students into three groups: LMS lessons without student interaction; LMS lessons with instructor-student interaction; and a control group using paper materials. Using LMS lessons is found to be more effective than using paper materials for vocabulary learning, but no significant differences are found in performance between the two groups, namely LMS lessons with and without interaction." [Emphasis Added]

Furthermore, Saran, Seferoglu, and Cagiltay (2012) compared the effects of three content delivery methods on L2 English vocabulary development. These include 1) using mobile phone-based multimedia messages (MMS), 2) through web pages, and 3) by printed form. Students learn the definitions of words, word formation, sample sentences and right pronunciation from the MMS.

“the effectiveness of a mobile phone-based flashcard application for L2 English vocabulary acquisition used by students in an experimental group, compared to its printed counterpart used by a control group. The results from the posttest confirm that the flashcards on cell phones is more efficient in enhancing students’ vocabulary knowledge than the paper-based flashcards. Students also find learning English vocabulary through cell phones fun and useful (Basoglu & Akdemir, 2010).” [Emphasis Added]

A few studies indicate that systems or databases to acquire vocabulary knowledge are usually created for a specific group of learners. Butgereit and Botha (2009), create a system containing vocabulary lists for language instructors to encourage students to practice spelling the words. Similarly, another study uses “an Internet-based application (Hadeda) to create spelling lists for instructors and parents of school children. By using speech synthesis technology, the system generates audio clips and packages them into an application which can be downloaded to cell phones or accessed via the Internet. When children listen to the words, they are required to type them in for verification” (Butgereit, Botha, & Van Niekerk, 2009).

2) Practicing Grammar via Special Applications and Programs

The problem of using wrong grammatical structures can be solved by special applications or programs. Nowadays, some programs can provide students with practice on identifying errors and correcting them. In one study, Li and Hegelheimer

About 100 English preparatory school students participated in the four-week experiment, and the finding indicates that “*students who are sent MMS learn more words than those who study through the web pages and paper-based materials.*”

Another way to enhance vocabulary knowledge is to use an application or website as indicated in many pieces of research. A study investigates

(2013) create a web-based application called “*Grammar Clinic*” which is installed in cell phones to be used as an additional tool for learners’ self-editing activities. This application comprises fifteen common grammatical error types that students always make. There are ten items in each *Grammar Clinic* assignment. Students need to identify the only error in each item and select an error type from four choices. The final step requires students to correct the error. After finishing a set of grammar exercises, students can take a look at the score report totaling 10 points followed by useful feedback. In designing this application, many principles were taken into consideration. These include the nature of writing, the feature of mobility, and limitations of cell phones features such as small-sized screen. *The Grammar Clinic* application in cell phones allows students to do the assignments both in and out of class at their convenience.

Apart from special applications, a tutorial program is created in a few studies for grammar learning improvement. In a study, Ally, Schafer, Cheung, McGreal, and Tin (2007)

“teach L2 English remedial grammar to adult education learners with a tutorial program accessible via web-enabled mobile devices. The content of the program includes 86 lessons and exercises written in various formats (true/false, multiple choice, changing the order of sentences, matching). One hundred adult learners test the system via cell phones and are found to demonstrate slight improvements and have positive attitudes towards using a cell phone to learn English grammar. Cui and Bull (2005) create a prototype PDA-based smart tutoring system which helps to teach of L2 English verb tenses to L1 Chinese graduate students. the system is specifically designed to suit an individual. Interaction with users will be adapted to match a person’s current knowledge as a result of their quiz and some contextual factors (such as concentration level, time available to study) which are specified by users.” [Emphasis Added]

3) Podcasting for Listening Skill Development

Audio-visual media for language instruction has been developed from videotapes, CDs, DVDs to digital media such as podcasting which provides easy and convenient access to learning materials in and outside the classroom. When students have iPods, they will have an access to the websites to download podcasts of news broadcasts for listening practice. A number of learning theories including constructivist approaches, informal and lifelong learning, and mobile learning principles can be used to support the potential use of podcasting in language learning (Rosell-Aguilar, 2007). Learning the target language, context of use and culture from authentic materials helps to increase students’ learning experience, resulting in listening skill development. In addition, it is found that the use of podcasts fits Second Language Acquisition (SLA) theories since students can get into the communicative world of the target language community where they can focus on specific feature of language use (Little, 1997). Podcasts offer more chances to listen to comprehensible input as students engage in repeated listening which occurs as often as they like (Krashen, 2003). The more students have access to the target language materials, the more they will be able to use language appropriately. It can be concluded that

using podcasts as a resource for language learning activities has been accepted by many educators.

Many studies have highlighted the positive results of using podcasts for academic purposes so far. In a study, iTunes U application, the main educational podcasts, is used by Rosell-Aguilar (2013) as a repository for educational content. Students can make use of available resources to learn English so as to improve their ability. Another study conducted by Abdous, Camarena, and Facer (2009) reveals that instructors can evaluate students’ performance from podcasting activities which are assigned to do outside class. It is found that students have a better performance in their speaking and listening. Similarly, another finding indicates that sending podcasts to students’ smart phones via e-mail confirms the large gains in listening ability (Lin & Chen, 2012). This may be because they have a chance to acquire pronunciation accuracy of English native speakers. Apart from improved abilities found in the aforementioned studies, students in one study perceive that the podcasts are very effective in listening skill development (Lord, 2008). The participants realize a positive effect the podcasts have on their studying behaviors. The podcasts are deemed a helpful learning tool which leads to the improvement of language skills particularly in oral and aural skills. Likewise, students

are reported to have a high level of opinion on the quality of podcast materials, believing that the materials help them to learn more successfully (Rosell-Aguilar, 2013).

4) The Use of iPads for Oral Proficiency Development

According to Krashen (1981), exposure to the target language is crucial. It is believed that one needs to experience an extended stay abroad to become an advanced speaker of a foreign language since this opportunity helps to acquire advanced language proficiency. However, not everyone will be given such an opportunity, and staying in a foreign country does not always guarantee good performance. As Byrnes (2007) explains, it may not stay abroad that helps students, but rather the quality and extent of learning opportunities. With this concept, more attention has been paid to a well-designed instructional setting. Krashen (1981) states how fast a person learns depends on the amount and quality of comprehensible input he or she receives. Likewise, students can acquire advanced proficiency if they are exposed to the comprehensive input. To support this, Ellis (2005) puts an emphasis on the interaction that offers increased opportunities to negotiate meaning. One of his four key requirements, namely "*creating a context of language use where learners are attending to language*" suggests that instructors play an active role in instructional process. Mastery of a foreign language can be achieved when students try to communicate in order to make the input more comprehensible to each other. Assigning students to do tasks, or activities that involve real and virtual communications in English is one of the effective ways to make them be exposed to various accents or pronunciations (Kongkerd, 2013).

At present, creating such an environment can be easily done based on the concept of mobile-assisted language learning. Bennett (2011) points out that mobile technologies like iPads can increase

students' opportunities to learn languages outside class. This is because the features of iPads can facilitate interactions. The useful applications on iPads including the HD video cameras and Face-Time are useful alternatives for both teachers and students. Students can chat with other people using Face-Time while they may use video cameras to record speaking events. A study proves that spending time in video conversations, especially to practice listening and speaking proficiency works well at advanced levels (Lys, 2013). In addition, iPads provide other applications which students can download for language practice such as apps for writing and taking notes (*Notes*), apps for editing video clips (*iMovie*), apps for sharing information among students (*Glassboard*), dictionaries and translators. The recorded speech assignments can be evaluated by the instructor for feedback. Since these applications are user friendly and can be easily downloaded through iTunes accounts, they facilitate mutual convenience of learning.

5) Developing Reading Skills through Applications and Systems

A great number of researches have focused on how technologies can help reading become more manageable, comprehensible, and convenient for language learners. For instance, in a study, a "*PDA/web-based translation/annotation application*" is employed to improve students' English reading comprehension. This application can be used for extensive in-class reading individually or collaboratively (Chang & Hsu, 2011). Moreover, a "*prototype web-enabled PDA-based reading/vocabulary system (PIMS)*" is produced and tested with 15 English university students. With a fuzzy Item Response Theory algorithm, PIMS is able to determine users' reading abilities, suggest English news articles that suit a particular learner, and automatically identify unfamiliar words for further study" (Chen & Hsu, 2008). In another study conducted by Hsu, He, and Chang (2009), a "*PDA/*

web-based L2 English reading program is created for university students. It provides immediate translation via a link to an online dictionary where users make an individual word list to share with a partner or peer for collaborative reading". The result

reveals that reading abilities of the collaborative readers are better than those who read alone. Also, students can take more responsibility for their own learning. Wu, Sung, Huang, Yang, and Yang (2011) carry out

"a study to investigate the effectiveness of a reading-based L2 English learning system which uses PDAs or smartphones with RFID tag readers and WiFi network connectivity. This system can provide learners with appropriate reading texts in combination with other learning tools such as pronunciation and translation. The texts are proposed based on a learner portfolio through reading guidance algorithm. After the system is implemented for eight weeks with 113 university students, most of them agree that it is useful." [Emphasis Added]

Applications of Mobile-assisted Language Learning

With the emergence of 3G and 4G mobile technology, mobile-assisted language learning will play a more significant role in the future. Apart from the increased language skills, the other impact that MALL clearly have on students is autonomy or the ability to take charge of their own learning. MALL is considered an intervention which promotes learner autonomy. Students must be given control over learning so that they will have opportunities to direct their own learning. They know when, where and how to acquire knowledge. In order to make mobile learning works best with the language classroom, there are a few suggestions to be discussed as follows:

First of all, instructors need to know how each mobile technology can be fully integrated into the instructional process. Take cell phones as a good example. The advanced features make a smartphone different from a cell phone. A smartphone offers some sort of access to the Internet, with the capacity to send and receive e-mails while some cell phones can only send and receive text messages. Instructors need to be familiar with the operating systems installed in their phones such as Android, Apple's iOS etc. If everyone has a smartphone, a

variety of learning activities can be easily done. The other mobile technologies like MP3 players or iPods contain iOS apps along with iTunes, which are very useful for creating listening-based activities.

Secondly, instructors need to check applications and services provided on students' cell phones. Some may not be supported by their phones. Running certain activities might be impossible if students don't have applications on their cell phones. Instructors need to insure that students can socialize through Web 2.0 tools before asking them to join the Facebook or work together on Wiki pages. Accessing Internet services is also deemed necessary for some activities such as online dictionaries, encyclopedia and downloading materials.

Thirdly, instructors should understand how to build and tailor mobile-based learning materials for their students. For instance, they should know that podcasts could be accessed directly from a website or downloaded to cell phones, and many scholarly articles can be downloaded from many websites. A lot of useful vocabulary games are offered in certain applications. Some instructors may learn to use Google Drive to share information resources through mobile web-based services while the others may use Learning Management System (LMS) as a learning platform for students.

Lastly, students should be taught to practice more on advanced features of cell phones when MALL is applied to the course. Being able to use more than one application to access the information enables students to complete the assignments very fast. Some students do not know an application well although they have it. Therefore, they are not familiar with it. Instructors can explore every possible application for its usefulness to share with students. Please keep in mind that learning about applications is a big issue for someone who is not comfortable with technology. Therefore, instructions on how to use each application can be provided for practice before real use.

Conclusion

It is a great challenge to apply MALL theoretical framework to a real classroom practice. This will provide students with new and challenging experiences. The basic reason to support its application is that this kind of learning provides opportunities for students to practice language skills using technologies that they can take with them

everywhere. Knowledge can be acquired anywhere and anytime through a combination of mobile technologies and well-designed learning activities. Learning on the move, therefore, occurs with less restriction. The concluding remarks I would like to make is that the way to access information and acquire knowledge has been changed, so students and instructors should adapt themselves to this learning environment which places a lot of importance on technologies. Learning about technologies is a never-ending story since the world is moving at a fast pace. New digital tools are produced for us to use every year. So, when MALL is incorporated into the course, instructors should be sure that students are ready in terms of availability of mobile technologies and a real understanding of how to use mobile applications or devices. In this regard, the benefit students would gain from the use of mobile technologies in language learning is not only the increase of language skills but also digital literacy skills which are considered necessary at present. ♡

References

Abdous, M., Camarena, M. M., & Facer, B. R. (2009). MALL Technology: Use of academic podcasting in the foreign language classroom. *ReCALL*, 21, 76–95.

Ally, M., Schafer, S., Cheung, B., McGreal, R., & Tin, T. (2007). Use of mobile learning technology to train ESL adults. In: mlearn Melbourne 2007: *Making the Connection: Conference Proceedings* (pp. 7–12).

Basoglu, E., & Akdemir, O. (2010). A comparison of undergraduate students' English vocabulary learning: Using cell phones and flash cards. *Turkish Online Journal of Educational Technology*, 9(3), 1–7.

Bennett, K. R. (2011). Less than a class set. *Learning and Leading with Technology*, 39, 22–25.

Burston, J. (2013). Mobile-assisted language learning: A selected annotated bibliography of implementation studies 1994–2012. *Language Learning and Technology*, 17(3), 157–256.

Butgereit, L., & Botha, A. (2009). The noisy way to practice spelling vocabulary using a cell phone. In P. Cunningham and M. Cunningham (Eds.), *IST-Africa 2009 Conference Proceedings*, (pp. 1–7). Kampala, Uganda: International Information Management Corporation.

Butgereit, L., Botha, A., & Van Niekerk, D. (2009). Using cell phones to improve language skills: The Hadeda Project. *E-Infrastructures and E-Services on Developing Countries Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*, 38, 11–19. Retrieved January 5, 2013 from <http://researchspace.csir.co.za/>

Byrnes, H. (Ed.). (2007). *Advanced language learning: The contribution of Halliday and Vygotsky*. New York, NY: Continuum.

Cavus, N. (2011). Investigating mobile devices and LMS integration in higher education: student perspectives. *Procedia Computer Science*, 3, 1469-1474.

Cavus, N., & Ibrahim, D. (2009). m-Learning: An experiment in using SMS to support learning new English language words. *British Journal of Educational Technology*, 40(1), 78–91.

Cavus, N., & Ozdamli, F. (2011). Basic elements and characteristics of mobile learning. *Procedia - Social and Behavioral Sciences*, 28, 937 – 942.

Chang, C-K., & Hsu, C-K. (2011). A mobile-assisted synchronously collaborative translation-annotation system for English as a foreign language (EFL) reading comprehension. *Computer Assisted Language Learning*, 24(2), 155–180.

Chen, C-M., & Hsu, S-H. (2008). Personalized intelligent mobile learning system for supportive effective English learning. *Educational Technology and Society*, 11(3), 153–180.

Chinnery, G. M. (2006). Going to the MALL: Mobile assisted language learning. *Language Learning & Technology*, 10(1), 9–16.

Choi, E-J., & Jeong, D-b. (2010). The effects of college students' vocabulary learning by using mobile LMS lessons. *Multimedia-Assisted Language Learning*, 13(3), 279–302.

Coady, J., & Huckin, T. (eds.) (1997). *Second language vocabulary acquisition: A rationale for pedagogy*. United Kingdom: Cambridge University Press.

Cui, Y., & Bull, S. (2005). Context and learner modeling for the mobile foreign language learner. *SYSTEM*, 33(2), 353-367.

Ellis, R. (2005). Principles of instructed language learning. *The Asian EFL Journal*, 7(3), 209–224.

Hsu, C-K., He, Y-Y., & Chang, C-K. (2009). Evaluation of a MALL system integrating instant translation and shared annotation for ESL reading on PDA. In I. Gibson et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2009* (pp. 898–904). Chesapeake, VA: AACE. Retrieved from <http://editlib.org>

Kongkerd, W. (2013). Teaching English in the era of English used as a lingua franca in Thailand. *Executive Journal*, 33(4), 3-12.

Krashen, S. (1981). *Second language acquisition and second language learning*. Oxford, UK: Pergamon.

Krashen, S. (2003). *Explorations in language acquisition and use*. Portsmouth, NH: Heinemann.

Kukulska-Hulme, A. (2009). Will mobile learning change language learning? *ReCALL*, 21(2), 157–165.

Kukulska-Hulme, A., & Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL*, 20(3), 271–289.

Lan, Y. F., & Sie, Y. S. (2010). Using RSS to support mobile learning based on media richness theory. *Computers & Education*, 55(2), 723-732.

Li, Z., & Hegelheimer, V. (2013). Mobile-assisted grammar exercises: Effects on self-editing in L2 writing. *Language Learning and Technology*, 7(3), 135-156.

Lin, Y-T., & Chen, H-J. (2012). Investigating the effects of podcasts via smartphones on foreign language learning. In J. Colpaert, A. Aerts, W-C. V. Wu, & Y-C. J. Chao (Eds.), *The medium matters* (Proceedings 15th International CALL Conference) (pp. 446–449). Retrieved January 15, 2014 from <http://www.google.com>

Little, D. (1997). Responding authentically to authentic texts: a problem for self-access language learning? In P. Benson & P. Volley (Eds.), *Autonomy and independence in language learning* (pp. 225–236). London, UK: Longman.

Lord, G. (2008). Podcasting communities and second language pronunciation. *Foreign Language Annals*, 41(2), 364–379.

Low, L., & O'Connell, M. (2006). *Learner-centric design of digital mobile learning*. Retrieved January 22, 2013 from <http://online.cit.act.edu.au/mlearning/lowoconnell2006.pdf>

Lu, M. (2008). Effectiveness of vocabulary learning via mobile phone. *Journal of Computer Assisted Learning*, 24(6), 515–525.

Lys, F. (2013). The development of advance learner oral proficiency using iPads. *Language Learning and Technology*, 17(3), 94-116.

Moura, A., & Carvalho, A. (2008). Mobile learning with cell phones and mobile flickr: One experience in secondary school. In Sanchez Inmaculada Arnedillo (ed.), IADIS International Conference Mobile Learning (mLearning) 2008. Algarve, Portugal, 216-220.

Nation, I. S. P. (2001). *Learning vocabulary in another language*. Cambridge: Cambridge University Press.

Rosell-Aguilar, F. (2007). Top of the pods: In search of a podcasting “podagogy” for language learning. *Computer Assisted Language Learning*, 20(5), 471–492.

Rosell-Aguilar, F. (2013). Podcasting for language learning through i-TUNES U: The learner’s view. *Language Learning and Technology*, 17(3), 74-93.

Saran, M., Seferoglu, G., & Cagiltay, K., (2012). Mobile language learning: Contribution of multimedia messages via mobile phones in consolidating vocabulary. *The Asia-Pacific Education Researcher*, 21(1), 181–190.

Sharma, S. K., & Kitchens, F. L. (2004). Web services architecture for M-Learning. *Electronic Journal on e-Learning*, 2(1), 203-216.

Wu, T., Sung, T., Huang, Y., Yang, C., & Yang, J-C. (2011). Ubiquitous English learning system with dynamic personalized guidance of learning portfolio. *Educational Technology & Society*, 14(4), 164–180. Retrieved from <http://www.ifets.info>