Liu, C.-C. et al. (Eds.) (2014). Proceedings of the 22nd International Conference on Computers in Education. Japan: Asia-Pacific Society for Computers in Education

Understanding English Language Learners' Experiences and Perceptions of Mobile Assisted Vocabulary Learning

Lu-Yu YEH[a], Hsiu-Ting HUNG[b*], Janice LIAO[c]
[a] *National Kaohsiung First University of Science and Technology, Taiwan*
[b] *National Kaohsiung First University of Science and Technology, Taiwan*
[c] *National Yunlin University of Science and Technology, Taiwan*
*hhung@nkfust.edu.tw

Abstract: Grounded in the field of Mobile Assisted Language Learning (MALL), this study aimed to explore students' experiences of using a vocabulary learning application as a self-study tool, and to understand their perceptions of the related learning experiences. With Taiwanese English-as-a-Foreign-Language (EFL) learners from a university as participants, the students were instructed to use the application via smartphones or tablet PCs to learn vocabulary for five weeks. During the intervention, the collected data included: self-reported learning logs, technology acceptance questionnaires, and semi-structured individual interviews. The findings revealed that both the tablet PC and the smartphone groups favored the vocabulary learning application, and their user experiences as well as perceptions yielded similar positive results, regardless of the mobile device utilized.

Keywords: Mobile Assisted Language Learning (MALL), vocabulary learning, English as a Foreign Language (EFL)

1. Introduction

Mobile Assisted Language Learning (MALL) is developing into a sub-field of Computer Assisted Language Learning (CALL), given the growing use of mobile technology for learning in recent years. Pioneering MALL studies focus on the use of early mobile devices, such as PDAs (Song & Fox, 2008) and cell phones (Stockwell, 2007; 2008; 2010). In these studies, mobile devices are criticized for posing challenges to learning because "inherent in the portability of mobile media are reduced screen sizes, limited audiovisual quality, virtual keyboarding and one-finger data entry, and limited power" (Chinnery, 2006, p. 13).

Current mobile devices, however, have much larger screens with higher resolutions, and allow learners to download a variety of applications (or apps) that can be used to learn foreign languages. With the rise of mobile technological advancement, limited research has been conducted on the potential of the latest mobile devices for language learning. The main type of mobile learning apps used in early MALL studies center on vocabulary learning, since these are easily accessible to most researchers who do not have the resources or abilities required to develop custom apps to suit their specific purposes. Due to limitations and earlier criticisms of previous MALL research, this study aims to fill the research gap by comparing the effectiveness of the new generation of mobile devices (i.e., smartphones and tablet PCs) on language learning. Therefore, this study also focuses on the use of a vocabulary learning app, EngKing, that is available for free via smartphones or tablet PCs.

The purpose of the study was to explore English-as-a-foreign-language (EFL) learners' experiences and perceptions of mobile assisted vocabulary learning. The following three research questions are addressed in this study: 1) What were the students' experiences of using the vocabulary learning app as a self-study tool, in terms of frequency of use and difficulty of use? 2) What were the

students' perceptions of using the vocabulary learning app as a self-study tool, in terms of perceived usefulness, perceived ease-of-use, and behavioral intention of use? 3) Did the students' overall experiences and perceptions of mobile assisted vocabulary learning vary significantly based on different mobile devices used?

2. Methodology

2.1 Setting

The research site was a content-based course at a public university in Taiwan. The title of the course is Science, Technology, and Society (STS), and its main objectives were to enhance students' understanding of STS issues in society, while improving their English vocabulary knowledge. In total, 50 students enrolled in this two-credit course in 2012, but only 21 students were recruited to voluntarily participate in the study, due to the limited availability of the mobile devices required for this study. All the participants were English majors with an intermediate proficiency level. The participants were aged from 20 to 21 years old, and only four of them were male.

2.2 Participants

Based on the purpose of the study, the participants were further divided into two groups: a tablet PC group and a smartphone group. The mobile devices for the tablet PC group were loaned to the 12 participants by the instructor for the duration of the study. By contrast, the 9 participants in the smartphone group used their own devices.

2.3 Research Design

Since EngKing is primarily designed to assist English language learners in vocabulary drills and practice, this app was deemed appropriate as a self-directed mobile learning tool for the purpose of this study. In the research design, both the tablet PC and the smartphone groups were directed to create their own personalized vocabulary notebooks based on the lessons in the STS course. Within the notebook, each word was added alongside its English definition, Chinese meaning, part of speech, and sample sentences. After the participants had customized their notebooks, EngKing could then be used to take personalized quizzes or tests in the following formats: 1) word definition test, 2) word definition and pronunciation test without clues, 3) word definition and pronunciation test with clues, 4) pronunciation test, and 5) spelling test. Each vocabulary quiz was based on at least 20 random words generated from the participants' personalized vocabulary notebooks. Thus, this self-testing feature of EngKing allowed the participants to practice according to their own needs.

2.4 Procedure

The procedure of this study lasted for a total of eight weeks. In week 1, both the tablet PC and the smartphone groups were required to attend a training session on EngKing. In weeks 2 to 6, all the participants were asked to use EngKing as a self-study tool out of class by creating their personalized vocabulary notebooks and utilizing the self-testing feature of the app to review the course content. As a way to monitor their self-study progress during this period, all participants were instructed to record in their learning logs that were collected on a weekly basis for a duration of five weeks. In weeks 7 and 8, a five-Likert scale technology acceptance questionnaire and a series of semi-structured individual interviews were used to gather the students' opinions. The questionnaires were administered to all the 21 participants, and a total of 8 participants voluntarily participated in the interviews. In brief, the collected data for this study included: learning logs, technology acceptance questionnaires, and individual interviews. The results derived from the descriptive statistical analysis and content analysis were used to answer the three research questions, which are presented in the following section.

3. Findings

3.1 Students' Experiences of Using the Vocabulary Learning App

The first research question examined the students' experiences of using the app as a self-study tool, in terms of frequency of use and difficulty of use. An analysis of the learning logs showed that the smartphone group used the app for slightly more time than the tablet PC group (at an average of 9 and 8.7 hours per week, respectively). The higher frequency of app usage may be attributed to the fact that the students used their own smartphones, which they always carried, and thus were more accessible to them for mobile learning. However, the tablet PC group inputted more words per week than the smartphone one, at an average of 32 words compared to 22. This may be explained, in part, by the observation that data entry on smartphones is comparatively more cumbersome. As for self-study with vocabulary drills on EngKing, both groups had the same frequency, with a mean of 14 times per week.

The participants' opinions regarding their difficulties when using EngKing to learn vocabulary were collected in the individual interviews. While the majority of interviewed students had positive attitudes toward EngKing, some stated that they encountered difficulties for the following reasons: 1) It was difficult to enter words using the small virtual keyboards on the mobile devices, especially with the smartphones. 2) This app did not check the students' spelling in their personalized vocabulary notebooks, and thus there was a higher possibility that they would learn the incorrectly spelled words rather than the words they initially had in mind. 3) Other entertaining apps, and even the Internet itself, would distract the students' attention when they tried to learn vocabulary using a mobile device.

3.2 Students' Perceptions of Using the Vocabulary Learning App

The second research question explored the students' perceptions of using the app as a self-study tool, based on Davis' (1989) Technology Acceptance Model (TAM), which entails three major concepts of perceived usefulness, perceived ease-of-use, and behavioral intention to use. The findings were derived from the five-Likert scale technology acceptance questionnaire administered at the end of the intervention (5= strongly agree; 4= agree; 3= neutral; 2= disagree; 1= strongly disagree). The responses of "strongly agree" and "agree" were combined and reported as agreements, and responses of "disagree" and "strongly disagree" were treated as disagreements in the following report.

Based on the results of the perceived usefulness subscale, 34% of the students agreed with the survey statement "I think using mobile based application would improve my performance in this course", while 57% agreed with the statement "I think using the app was useful to enhance my vocabulary learning", and 43% concurred that "I could conduct more vocabulary learning activities using the app than would otherwise be possible." Overall, approximately half of the participants had positive attitudes towards the usefulness of the app, while some of them remained neutral, and only a small percentage of them had negative feedback.

According to the results of the perceived ease-of-use subscale, 62% of the students agreed with the survey statement "I think the app was easy to use", while 29% agreed with the statement "I think using the app for vocabulary learning did not require much mental effort", and 57% concurred the statement "I think it was easy for me to learn how to use the app and use it skillfully." Overall, nearly half of the participants felt that the app was easy to use, while some of them held neutral attitudes, and only a small percentage of students felt it was difficult.

In terms of the subscale of behavioral intention to use, 53% of the students agreed with the survey statement "I intend to continue using the app in the future if it is made available to me", while 48% agreed with the statement "I intend to use the app for vocabulary learning as often as needed if it is made available to me", and 67% concurred with the statement "I would like to use the app in other courses if it is made available to me." Overall, a sizeable proportion of the students expressed a positive intention towards learning vocabulary using EngKing, and this result was more than double the number of those who expressed a negative intention.

3.3 Group Differences Based on the Different Mobile Devices Used

The third research question investigated whether group differences existed based on the different mobile devices used. In terms of the overall perceptions of mobile assisted vocabulary learning, a generally positive response was found from both groups. For the statement, "In general, I think learning English vocabulary through mobile technology is a wise idea", 77% of the participants from the smartphone group agreed with this statement, as did 67% of the tablet PC group. When comparing the two groups' differences with regard to the three major TAM concepts or subscales, the statistical results showed that the students' overall experiences and perceptions of mobile assisted language learning did not vary significantly based on different mobile devices used. Nevertheless, the smartphone group had slightly higher scores in the three subscales of technology acceptance questionnaire, compared to the PC group.

4. Discussion

Previous research indicated that the small size of the screens and keypads on mobile devices are major barriers to the user acceptance of apps on such technologies (Chinnery, 2006). However, the finding of this study revealed that the students' perceptions of mobile assisted vocabulary learning were actually better when using a smartphone rather than a tablet PC, although the differences were not significant. This finding is somewhat at odds with Stockwell (2007; 2008; 2010), as these earlier MALL studies found that higher scores were obtained when using a desktop computer compared with a mobile phone, and that the smaller screen and keypad with the latter were the main reasons for this. One possible reason is due to the advancement in smartphone technology that has taken place in recent years with regard to screen display and keypads. Another reason is that the smartphone group in the current study used their own mobile devices for learning, and thus the ownership and familiarity are possible factors that resulted in the higher self-efficacy among these users.

Furthermore, the finding that using mobile devices to learn vocabulary led to positive attitudes toward such learning is consistent with Jones, Scanlon, and Cloughs (2012), which showed that mobile devices provide both autonomy for self-directed learning and mobility in the learning process, offering a greater degree of freedom with regard to when and where one studies. In the current study, the majority of the participants noted the facilitative use of mobile technology in promoting their vocabulary learning, as it was able to enhance their learning interest by providing timely information whenever needed. Such devices can provide a learning environment that is more student-centered, without the need for scaffolding or facilitation from a real-life teacher (Facer, Joiner, Stanton, Reid, Hull & Kirk, 2004).

Despite their positive attitudes, the participants also noted some difficulties, such as inconvenience when inputting words, the lack of a spell-check function, and environmental distractions when using mobile devices to study. The first of these confirms one research finding by Gikas and Grants (2013), whose study indicated how virtual keyboards on small screens are difficult and frustrating to type. Moreover, many of the participants in the current study stated that they spent too much time creating their personalized vocabulary notebooks on the small or virtual keyboards without a spell-checker. Since the students were not provided with a vocabulary list by the instructor to serve as an integral part of the in-class materials, they had to rely on their English proficiency skills to find vocabulary items, thus requiring more time and mental effort. This study also found that distractions on mobile devices or from the environment are a potential threat to learners' concentration, as also noted in Thornton and Housers (2005) and Stockwell (2007). Many of the participants in this study reported that while they usually carried their mobile devices with them everywhere, they did not use them for studying until they found a quiet environment, which enabled them to stay focused and avoid distractions.

5. Conclusion

This study demonstrated that smartphones and tablet PCs have the potential to enable and enrich mobile learning. It can thus be argued that learning vocabulary via mobile technology can be

beneficial for learners by providing them with more exposure and opportunities to learn, whenever and wherever they want to. However, this study is limited in generalizability due to the small number of participants, based on the availability of tablet PCs. This study also used convenience sampling, which may have introduced some potential biases, as all the participants were selected from one available intact class, without any criteria based on proficiency levels, gender, and age. Future research may recruit more participants with a larger range of diverse backgrounds. For example, Wang, Wu, and Wang (2009) found that user acceptance of mobile learning could vary due to age and gender, and these factors may be investigated in future MALL studies.

Acknowledgement

This paper was supported by the National Science Council of Taiwan under the grant NSC 100-2511-S-327-001.

References

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

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13(3)*, 319–339.

Facer, K., Joiner, R., Stanton, D., Reid, J., Hull, R., & Kirk, D. (2004). Savannah: mobile gaming and learning? *Journal of Computer Assisted Learning*, *20*(6), 399–409.

Gikas, J., & Grant, M. M. (2013). Mobile computing devices in higher education: Student perspectives on learning with cell phones, smartphones and social media. *The Internet and Higher Education*, *19*(1), 18–26.

Jones, A. C., Scanlon, E., & Clough, G. (2012). Mobile learning: Two case studies of supporting inquiry learning in informal and semiformal settings. *Computers & Education, 61*(1), 21–32.

Song, Y., & Fox, R. (2008). Using PDA for undergraduate student incidental vocabulary testing. *ReCALL, 20*(3), 290–314.

Stockwell, G. (2007). Vocabulary on the move: Investigating an intelligent mobile phone-based vocabulary tutor. *Computer Assisted Language Learning*, *20*(4), 365–383.

Stockwell, G. (2008). Investigating learner preparedness for and usage patterns of mobile learning. *ReCALL, 20*(3), 253–270.

Stockwell, G. (2010). Using mobile phones for vocabulary activities: Examining the effect of the platform. *Language Learning & Technology*, *14*(2), 95–110.

Thornton, P., & Houser, C. (2005). Using mobile phones in English education in Japan. *Journal of Computer Assisted Learning*, *21*(3), 217–228.

Wang, Y. S., Wu, M. C., & Wang, H. Y. (2009). Investigating the determinants and age and gender differences in the acceptance of mobile learning. *British Journal of Educational Technology*, *40*(1), 92–118.