Advantages and Disadvantages of Using Mobile Devices in a University Language Classroom

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Abstract

Advances in tablet computers and cell phone technology have greatly improved recently and such devices are now widely used. Language teachers have especially been interested in using these devices as a means of providing learning opportunities. Reading online content from eBooks or the Internet, listening to music and watching videos are all activities which support the learning of languages. There are, however, a number of problems that have arisen when using mobile learning in a language classroom. The smaller screen, for example, makes it difficult to read content and input text with the online keyboard. Technical problems such as difficulty connecting the Internet, hardware failures and software issues are all common problems. Moreover, distractions from students who do not stay focused on the assigned tasks are becoming a classroom management issue as well. Some of the advantages and disadvantages of using mobile devices in a language classroom at a university setting are discussed in this paper.

The Advent of Mobile Devices

A mobile device can be defined as a small handheld computer that has a touch display or a small keyboard for text input. Mobile phones, smartphones, tablet computers, eBook readers, personal digital assistants (PDAs), and other similar devices can all be defined as mobile devices (Kukulska-Hulme, Sharples, Milrad, Arnedillo-Sánchez, & Vavoula, 2009). Although handheld devices have been available commercially since Apple Computer released the Apple Newton MessagePad in 1993, Palm Inc. released the Palm Pilot in 1996, and Microsoft Corporation released the Tablet PC in 2001. Handheld devices were not very

popular and did not have a significant impact in the education market because they were technically ahead of their time (Runnels & Rutson-Griffiths, 2013).

The Newton was the first PDA to be released commercially and included basic software programs used for personal data organization and management. When it was first released, it generated a lot of excitement among computer enthusiasts, however, it never became commercially successful. One of the main problems was that it used handwriting recognition as the main method of text input but it was highly ineffective. The character recognition problems were initially so severe that it contributed to the unpopular image of the device and even though the software substantially improved, it was not enough to keep the device alive. The last Newton product was sold in 1998 (Honan, 2013).

Palm Computing released its first PDA in 1996, and the Palm Pilot the following year. Three years after the Newton was launched, the Palm Pilot sold millions of units over the next ten years. Although similar to the Newton, the Palm device was smaller, easier to use and had a better handwriting system. It was also cheaper and could easily connect to a computer. Due to its popularity mostly among business managers, journalists and educators, a large number of applications were released for the device, making it a versatile handheld computing platform. It was good for accessing contact information, word processing, spreadsheet and database programs. Eventually, the popularity of cell phones changed the market dynamics and the Palm evolved into a smartphone platform. Its popularity continued to increase until the fateful year 2007 when the iPhone was released by Apple Computer. By this time, the Palm Operating System (OS) was getting outdated and could not compete with the iPhone (Arar, 2009).

The iPhone was released by Apple Computer in the summer of 2007 and soon became a leading device in the cell phone market. This is noteworthy because all handheld devices manufactured by Apple Computer use the same OS, including the iPad, its tablet computer. The Human-Computer Interface (HCI) was so easy to use that it was accessible to computer novices and was highly intuitive (Karlson, 2007; Myers, 1998). The popularity of cell phones was such that it became easier for most people to have one and it soon became apparent that not only adults but

also children wanted to have them. Since the release of the iPod music player in 2001, Apple Computer has dominated the music player industry and the release of the iPhone contributed to the success of Apple handheld devices. The first generation iPod Touch was released in late 2007, marking the beginning of the handheld device for the education market (Apple, 2015c). This was a significant event for the language learner because of the ability of users to listen to podcasts, watch videos and read text on a handheld device for the first time. The first iPad was released three years later in 2010. The iPad could now be used by both educators and learners as not only video and audio recording tools, but could also be used as an eBook reader. A growing number of education-related applications were released and educational institutions became interested in using this mobile device as a learning tool (Banister, 2010; Ockert, 2014; Oostveen & Muirhead, 2007). Refer to Table 1 for a summary of the historical timeline of the development of mobile devices.

Table 1: Historical Timeline of Mobile Devices

Device	Year	Comments
Newton Message Pad	1993	First PDA on the market
Palm Computing	1996	First commercially successful PDA
Microsoft Tablet PC	2001	First tablet on the market
Apple iPod	2001	First commercially successful MP3 Player
Apple iPhone	2007	First smartphone from Apple - iOS released
Apple iPod Touch	2007	First non-phone PDA from Apple
Amazon Kindle	2007	First commercially successful eBook reader
Google Android OS	2008	First serious competitor to Apple iOS
Apple iPad	2010	First commercially successful tablet computer
Apple iPad Mini	2012	First small tablet computer from Apple

(Apple, 2015c; Arar, 2009; Honan, 2013; Microsoft, 2015)

Using Mobile Devices for Language Learning

As PDAs, cell phones, and MP3 players converged into more sophisticated mobile devices, the iPod Touch emerged as a mobile device with language learning possibilities. The first generation iPod Touch was equipped to perform a number of tasks, many of which could be used to accomplish a multitude of educational objectives (Banister 2010). Some of these tasks used programs such as YouTube for watching videos, iTunes for listening to music, Safari for browsing the Internet, and others. Although this seems like basic functionality in today's multimedia world, using these features on an iPod Touch was a new experience for teachers and students. Before the advent of the iPod Touch, the only way to view videos, listen to music and browse the Internet was with a smartphone or a computer. Thus, having a mobile device such as the iPod Touch was an excellent choice of technology since it was small, powerful and cost effective.

Integrating the iPod Touch into the Syllabus

In 2008, an English course was developed at a four-year liberal arts university in Japan as an elective for students in their second year. The goal of the course was to improve the students' English abilities by listening to music and watching movies. The class could have been held in a computer-assisted language learning (CALL) classroom, however, there were not enough CALL rooms available, therefore, a mobile-assisted language learning (MALL) classroom was suggested to solve this problem. The classroom would contain enough devices for all the students, and would be accessible for all courses. The proposal was approved and 40 first-generation iPod Touch devices were purchased for the MALL classroom.

In order to implement the use of the devices into the curriculum, a syllabus was devised that would incorporate the use of the devices during the class time. Some of the activities included listening to specific songs on the mobile device and having the students fill in the gaps in the lyrics. Other activities included asking students to look up information about the artists on the Internet and find out some information about the their biographies and other works, looking up the meaning of words from the lyrics and doing group activities. For the movies, students could

watch movie trailers of specific movies and answer questions about the content or script. Students could also watch specific movie clips and describe what they are looking at or transcribe part of a script. The content could be streamed from YouTube or other websites and information about the movie and cast could be obtained from the Internet Movie Database (IMDB). Some of the activities were obtained from a textbook (Kurokawa, 2008) while other activities were designed by the instructors of the course. The mobile devices were useful for letting the students work independently or in groups to develop their listening, reading and writing skills.

Student Response System

Online Student Response Systems (OSRS) are changing the way students can participate in a MALL classroom. Classroom response systems (CRS), have been used in the past such as "clickers" but now they can more easily be implemented in the classroom because they are web-based and allow students to use any mobile device to participate (Mork, 2014; Stowell, 2015). The device could be used to answer specific questions from a quiz, a test or a survey and the student could choose to answer the questions on the device. One effective method to use this is by using the Peer Assessment (PA) module of the MObile Audience Response System (MOARS), which is an open-source OSRS (Pellowe, Holster, & Lake, 2014). The teacher creates a survey with questions and responses and opens the PA module on MOARS. When MOARS is first used, teachers, course titles, student names and classes are added and assigned. Students will receive individual usernames and passwords from their teacher. MOARS can be used for quiz-type and survey activities through the web browsers of their mobile devices. The system will then create a shortcut for the survey. The data from all the students can be accessed from a computer which can then be exported to a spreadsheet program for data assessment. This easy-to-use system reduces the need for producing paper surveys and quizzes, and makes it faster and simpler for the instructor to gather the data from the students.

Mobile Devices Becoming Outdated

The first-generation iPod Touch was an effective device for the English through Music and Movies course when it was first introduced in 2008, however, after five years of use the hardware was breaking down and the software was becoming outdated. The batteries in all of the devices were not charging efficiently and an increasing number of the devices were becoming non-useable. Moreover, devices could not be updated beyond iOS 3.1 even though the current iOS is 9.1. Therefore, newer apps could no longer be used and some websites were becoming difficult to access. As the number of technical difficulties was increasing, it was apparent that a new set of devices was becoming necessary. The iPod Touch battery should retain 80% of its power after 400 cycles of charging (Apple, 2015b), however, it is understood that typical battery life of the iPod Touch is approximately three to five years. The cost of replacing the battery is not cheap and may not be a good solution considering the limitations of the aging hardware. Thus, it is generally accepted that a replacement device should be considered after five years of use.

Choosing the Device

As it became necessary to update the first-generation iPod Touch devices, the question about which device should be acquired was discussed. Several possibilities were deliberated, such as obtaining the newest generation iPod Touch, an iPad Mini, an iPad, an Amazon Kindle, an Android Tablet or a PC Tablet. Some of the factors affecting the decision were the size of the screen, the cost of the device, the ease of use, the applications provided, and the user interface (Runnels & Rutson-Griffiths, 2013). It was decided to acquire the iPad Mini for the following reasons: The cost was reasonable, the screen size was optimal for use in the classroom, the user interface was familiar to both the instructors and the students, and some productivity apps were freely available from the manufacturer.

The capabilities of the iPad make it an exceptional educational device. An audio recording tool and integrated speaker system make the device usable as both an information gathering and small group display device. Researchers have identified three classroom strategies for using a multimedia library for student access in the

classroom that take advantage of the iPad's mobile library (Reid & Ostashewski, 2011). These different teaching and learning strategies are: mobile small group demonstrations, large group demonstrations, and student-controlled playback-and-practice activities. These strategies make use of the large screen size, customizable iTunes playlists, and internal speakers for access to the mobile multimedia library.

After the decision was made to purchase the new iPad Mini devices, a vendor was contacted and the devices were installed in the classroom. After an initial period of verifying the equipment, a new classroom management system was installed by the vendor. The Apple Configurator is a software product supplied by Apple Inc. to make the management of multiple devices more manageable for the education market (Schmidt & Ho, 2013). To structure a manageable group of 10 to 150 iPads for classroom use, Configurator can be used to setup new iPads, install iPad apps, and manage individual settings. iPad device management has three stages: prepare, supervise, and assign. Each stage has a corresponding pane in Apple Configurator (Apple, 2015a).

Configuring the iPad Devices

The first step is to prepare the iPad devices for classroom management (Dummies, 2015). All the settings and apps that are needed for use are set by creating a configuration profile. This profile is a template that consists of a combination of settings that applies to a specific group of users, such as students, teachers, or administrators. Profiles can be used to set restrictions such as disabling app downloads and in-app purchases; disabling apps such as FaceTime and iTunes; and disabling the capability to change e-mail accounts, and many additional options. Profiles determine and set e-mail accounts, wireless network connections, policy for passcode length, Safari preferences, common user contacts and calendars, and so on.

The second step is supervision. Typically, the main computer is connected to a set of supervised iPads. When devices are connected, the configurations are decided. The iPads are listed in groups, which can be organized as needed.

The third and final step is to assign users that can be personalized with

documents and data. The Assign pane in Apple Configurator lists each user and group to install and retrieve documents.

Thus, the Apple Configurator can set up users and groups with different levels of use, data, apps and ability to change the settings.

Problems with the new iPad classroom

The upgrade of new iPads to the MALL classroom created several new advantages with the devices. The original iPod Touch devices did not have a built-in microphone for recording voice input, did not have a speaker for playing sound through the device, had a small screen, and the iOS could not be upgraded to the newest versions. The new iPad Mini resolved all of these problems, however, the Apple Configurator management system created new issues in the classroom. The instructors had been reporting issues where some websites could not be viewed with the new configurations, especially some important issues with the MOARS website were reported. Some of the students could not access the website and other problems were reported with networking issues. Moreover, instructors teaching other courses wanted access to the new iPads for their classes but wanted to configure the devices differently, with different apps installed and different settings for their classes. This involved a lot of discussion among those concerned with the administration of the devices. The solution to the problem could not be easily solved and the vendor that provides support for the devices had difficulty to solve these problems. One of the issues discussed was the possibility of a "firewall" that blocks unapproved websites from the Apple Education program. Other problems could have been with the classroom wireless networking issues, or perhaps students not entering the correct URL for the given task. It has been reported, however, that the Apple Configurator does have some stability issues and could have been the source of the problem (Schmidt & Ho, 2013). Based on the need to support 40 iPad Minis and to facilitate the management and use of the devices, a mobile device management (MDM) solution for the iPad Minis to configure and administer them is advisable. Schmidt & Ho (2013) confirmed reports that Apple's Configurator software is unstable, however, configuring the devices individually would be too

time consuming. The Apple Configurator is currently the only solution that allows for the management of multiple devices such as setting up and configuring the iPad Minis as a group. As of this writing, a new version of Apple Configurator has just been released, and it is hoped that the networking issues could be resolved with the software update.

Distractions

Mobile devices can be used to enhance classroom learning. Some of the useful features include the ability to access information, record data, and create podcasts (Chartrand, 2007). They can also be used as a way to gather data for classroom presentations and enhance interactivity in large classroom settings (Scomavacca, Huff, and Marshall 2009), and serving as an alternative to "clickers" used in personal response systems (Pellowe et al., 2014). It is also a trend that mobile devices are replacing traditional tools such as dictionaries, timers, and digital cameras.

Some educators, however, disagree that mobile devices should be allowed in the classroom. Some concern exists about the distraction caused by the use of mobile devices. Students may spend time texting, surfing websites or chatting online with their friends, which means that they are not paying attention to the teacher (Tindell & Bohlander, 2012). Research shows that test performance is significantly lower for the students who are distracted by mobile devices during a lesson, indicating that there is a loss of concentration if students are doing non class-related tasks (Chaklader & Bohlander 2009, Rosen et al., 2011). In addition to the student doing other tasks on the mobile device, it is also possible that the instructor can be distracted by a student's actions. This conduct causes problems for classroom management in general (Tindell & Bohlander, 2012).

Another concern relates to test cheating. The news media have reported a number of cases of students using cell phones to cheat on entrance exams in Japan (Fackler, 2011). The technology available through cell phones allows an individual to send answers to multiple-choice questions to other test takers or send pictures of test questions to friends who send back the response. With web-browsing devices,

it is possible to look up answers to questions, use dictionaries and other sources of information.

Advantages of MALL

Multimedia Ability: The ability to easily record and playback a student's voice and compare it to a native speaker's voice is a great learning tool for the language learner. Moreover, the ability to record and playback videos, is another asset for learning a language. Listening to music and watching videos are very popular exercises for students as well. The ability to create and listen to podcasts is another advantage for language learning.

Internet Access: Access to the Internet gives students the ability to search for and receive information about any topic. Searching the IMDB provides answers about movies and cast. Accessing YouTube allows students to watch and listen to music videos and movie clips. Online dictionaries and other information gathering tools are used widely by students in language classrooms.

Social Networking: Using social networking websites such as FaceBook and Twitter can be a positive way for students to share information, thoughts and ideas on a variety of subjects. Some students who may be shy in a classroom, may do much better in a social networking situation.

Immediate Feedback: Digital Devices can offer immediate feedback to their peers or their instructors with OSRS. Students can answer questions on a survey, a class exercise, a quiz, or a test. Specialized systems such as MOARS can automatically calculate scores and inform students and their instructors of their progress.

Disadvantages of MALL

Distractions: While students can access dictionaries and other online information for learning during class time, the same use is inappropriate during a quiz. Also, watching videos that are not related to the lesson, playing online games, and using social networks for connecting with friends but not in the target language are inappropriate uses of the device during class and may lead to class

disruptions.

Cheating: Looking at dictionaries or searching for answers during a quiz or a test is a serious academic offence and should be dealt with appropriately. However, it may be difficult to observe such an offence while using OSRS.

Disconnecting: Some educators believe that students spend too much time with digital devices, which contribute to an alienation of students in the classroom. They believe that language students should spend time in a classroom doing group activities that contribute to social interaction.

Technical Problems: Using digital devices in the classroom requires the instructors to spend a substantial amount of time planning for the lessons, training with the hardware before classes begin and spending some time during class to distribute the devices and returning them after class. The amount of time spent during class to teach the student how to use the devices is also a problem. Moreover, some technical problems may arise during class such as network failures and individual students having problems with the hardware require the instructor to troubleshoot the issues as well as instructing individual students on how to resolve problems.

Conclusion

Using mobile devices in a language classroom has some advantages and disadvantages. This paper has highlighted some of the detailed issues that students, teachers and coordinators might have before considering using a MALL classroom for a course such as presented here. From the early days of PDAs to the present day of iPads, there has been a tremendous improvement in the technology, the user interface and the ubiquitous use of the mobile device. The average lifespan of a mobile device was shown to be about five years before replacement for a new model. Mobile devices such as the iPad Mini are so technologically advanced that they can offer language learners and teachers a wide range of possibilities from using online content to developing original materials. This evidence is presented here so that an administrator or educator who is considering starting the use of a similar MALL environment may be better informed of the choices available to the

people concerned with the learning outcome.

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