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The Impact of Mobile Dictionary Use on Language Learning

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Abstract

Widespread use of mobile and wireless devices in education has led to revolutionary changes in the way teachers teach and learners learn. Due to their pervasiveness, mobile phones are considered as being potentially valuable learning tools. However, students' personal use of mobile phones and their apps for learning benefit is still open to research. This study thus investigated the impact of mobile dictionary use on language learning. Thirty-four lower-intermediate language learners participated in a pretest-posttest quasi-experimental study. They were divided into two groups (17 in each group) based on their choice to work with a mobile dictionary or a printed one for their language course. During the course, the experimental group used a dictionary installed on their mobile phones to do all their activities. Meanwhile, the control group worked with the printed version of the same dictionary. A teacher-made achievement test was used as the pre- and post-test. The result showed that, while controlling for the entry level language ability, the experimental group outperformed the control group in the post-test. The finding of the study underscores the vital role mobile phones play in extending learning out of the classroom anywhere anytime.

1. Introduction

The learning and teaching environments of the twenty first century are changing very fast due to unprecedented opportunities advancement of information and communication technologies have created for education. After around half a century of integrating computers into instruction, the rapid evolution of mobile devices is opening up a whole world of new learning experiences with technology.

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Mobile learning is a type of learning that takes place with the help of mobile devices (Kukulska-Hulme & Shield, 2008) and simply means learning anywhere and at any time. While at the beginning, mobile learning focused on the role of mobile technologies and devices in education, in the recent years mobile learning is characterized with the mobility of the user and the informal learning that happens out of the classroom (Sharples, 2006). In this case, any portable and palmtop devices such as portable media player devices, tablets, and mobile phones contribute to mobile learning.

From among the portable technological tools, mobile phones are the most commonly used devices for learning (Pęcherzewska & Knots, 2007) and due to their portability and accessibility many scholars now consider using them in the educational settings for learning and teaching purposes (Tayebinik & Puteh, 2012). Research shows that mobile phones can be used to leverage instruction (Roschelle, 2002), empower place-based learning (Squire, Jan, & Mathews, 2007), and amplify learning (Squire & Dikkers, 2012).

Mobile learning has certain benefits for language classes as well and allows language teachers to offer access to authentic content, communicative language practice, and task completion (Chinnery, 2006). While the effect of some mobile phone affordances such as Short Message Service (SMS), voice-messaging, cameras, video-recording and Internet access have spawned studies (e.g., Thornton & Houser, 2005; Jee, 2011), "few studies have investigated students' personal use of mobile apps for learning and the learning benefits" (Steel, 2012, p. 1). The purpose of the current study thus is probing into the effect of using mobile dictionaries on lower-intermediate EFL learners' language learning in contrast to using printed dictionaries.

1.1. Mobile learning

Mobile learning can be defined as "any educational provision where the sole or dominant technologies are handheld or palmtop devices" (Traxler, 2005). A mobile device is "any device that is small, autonomous and unobtrusive enough to accompany us in every moment" (Trifanova & Ronchetti, 2003, p.3). In accordance with the developmental history of mobile learning (Sharples, 2006) three aspects can be specified for this type of learning (El-Hussein & Cronje, 2010):

- Mobility of technology,
- Mobility of learning, and
- Mobility of learner.

Mobility of technology focuses on examining the possibility of using portable and wireless devices such as mobile phones, laptops, and tablets for educational purposes. The focus of mobility on learning is on the extensive use of mobile devices for learning outside the classroom. The third aspect focuses on "the mobility of the learner, the design or the appropriation of learning spaces and on informal learning and lifelong learning" (Pachler, Bachmair, & Cook, 2010, p. 41).

From among the devices that can be used for mobile learning, mobile phones have gained more attention due to their ubiquity among the youth at schools and universities, and their applications in education. The swift development of mobile phones in the last decade from simple phones to smart-phones, which can serve as a mini-computer, telephone, or camera, and transfer data as well as video and audio files, has made mobile phones efficient learning tools. Klopfer and Squire (2008) describe the affordances of mobile phones as:

- Portability: can take the computer to different sites and move around within a location.
- Social interactivity: can exchange data and collaborate with other people face to face.
- Context sensitivity: can gather data unique to the current location, environment, and time, including both real and simulated data.
- Connectivity: can connect handhelds to data collection devices, other handhelds, and to a common network that creates a true shared environment.
- Individuality: can provide unique scaffolding that is customized to the individual's path of investigation (cited in Squire & Dikkers, 2012, p. 447).

Research on using mobile phones in education shows that students consider mobile phones as useful learning tools; using mobile phones can amplify students' personal and academic interest; and they help students learn school subjects better (e.g. Squire & Dikkers, 2012).

1.2. Mobile Assisted Language Learning (MALL)

Mobile Assisted Language Learning (MALL) is any type of language learning that takes place with the help of portable devices. "MALL differs from computer-assisted language learning in its use of personal, portable devices that enable new ways of learning, emphasizing continuity or spontaneity of access and interaction across different contexts of use" (Kukulska-Hulme & Shield, 2008, p. 273).

Mobile devices are effective tools for language learning in general terms (e.g., Rosell-Aguilar, 2007; Fallahkhair, Pemberton, & Griffiths, 2007), have positive effect on the development of language skills (e.g., Chen & Chang, 2011; Chang & Hsu, 2011), heighten learners' language learning attitudes and motivation (e.g., Huang, Huang, Huang, & Lin, 2012), and support learner interaction, collaboration, and the co-construction of knowledge (Joseph & Uther, 2009).

The impact of MALL on language learning can be argued from both theoretical and research-based stands. Theoretically, it is suggested that MALL "addresses many of the major challenges of Second Language Acquisition (SLA), such as comprehensible input or "i+1" (Krashen, 1985), the interaction hypothesis (Long, 1983, 1996), corrective/facilitative feedback (Gass, 1997; Long, Inagaki, & Ortega, 1998), and learner autonomy (Benson, 2001)" (Jee, 2011, p. 162). Empirical studies also show that MALL influences language learners' vocabulary learning (e.g., Ogata, Yin, El-Bishouty, & Yano, 2010), promotes learner-learner interaction (Dias, 2002), increases students' communicative competence and language learning motivation (Cooney & Keogh, 2007), and promotes peer-assisted language learning (Lan, Sung, & Chang, 2007).

Research on MALL has mainly focused on teacher-led mobile learning and students' own use of mobile apps and the role of mobile apps in their learning have been taken for granted in the literature (Steel, 2012). Language learners use these apps quite frequently due to their "availability, convenience and low cost" (Steel, 2012, p. 1). Mobile apps include a variety of applications that help language learners to manage their time of studying more efficiently. One mobile application that is extensively used by students is mobile dictionaries. Advantages such as performing search; having a greater number of words, phrases, collocations, idioms, synonyms and antonyms; playing pronunciation of words; and showing images and videos related to the word's meaning can make mobile dictionaries a better choice instead of compact phrasebook or printed dictionaries among language learners (Joseph & Uther, 2009). In spite of the popularity of mobile dictionaries among students, research on the effect of this app on language learning is still scarce.

2. Method

2.1. Participants

Thirty-four lower-intermediate language learners participated in a pretest-posttest quasi-experimental study. They were divided into experimental (n=17) and control groups (n=17) based on their choice to work with a mobile dictionary or a printed one for their language course.

2.2. Instruments

Two instruments were used in this study: a language achievement test; and the Longman mobile and Longman paperback Dictionary.

2.2.1. The language test

The language test consisted of 5 parts including listening (20 items), vocabulary (30 items), grammar (30 items), reading comprehension (10 items) and writing. The test was administered twice, prior to the study and at the end of the course. The test was scored out of 100. All parts except the writing part had a multiple choice format, and thus

were scored objectively (1 for correct and 0 for wrong answers). The writing part included writing a short paragraph and was scored using a weighted rubric (Sokolik, 2003). The paragraphs were scored two times by the teacher.

The reliability of the first part of the test was estimated to be .86 and the intra-rater reliability of the writing part was .89.

2.2.2. Longman mobile and printed dictionaries

The experimental group used the fifth edition of Longman Dictionary of Contemporary English (LDOCE), mobile phone version (version 1.3), registered on September 2012. The control group used the second impression of the fifth edition of LDOCE printed in 2010.

2.3. Procedure

Both groups were pretested on their language ability prior to the course. For a 16-session semester the experimental group used LDOCE installed on their mobile phones to do all their activities in and out of the classroom. Meanwhile, the control group worked with LDOCE printed version to do their language activities. At the end of the instruction both groups were post-tested on their language ability.

3. Results

Table 1 summarizes the mean scores of both groups' pre-tests and post-tests. As Table 1 shows, the experimental group had higher mean score after the experiment (mean=85.29) in comparison to the control group (mean=77.35). In order to test whether this difference was statistically significant, a one-way between-groups analysis of covariance (ANCOVA) was conducted. Participants' scores on pre-test were used as the covariate in this analysis.

Table 1.Descriptive statistics of both groups' post-tests

Group	Mean	SD	N
Control	77.352	7.598	17
Experimental	85.294	9.026	17
Total	81.323	9.150	34

As Table 2 shows, the result of ANCOVA revealed that there was a significant difference between two groups in post-test [$F_{(1, 31)}$ =37.166; p=.000; partial eta squared=.545] in favour of the experimental group. Accordingly, the conclusion can be drawn that using mobile dictionaries has caused a higher level of language learning in comparison to using printed dictionaries.

Table 2. The result of ANCOVA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	2423.300	2	1211.650	110.428	.000	.877
Intercept	52.982	1	52.982	4.829	.036	.135
Pre-test	1887.270	1	1887.270	172.003	.000	.847
Group	407.801	1	407.801	37.166	.000	.545
Error	340.142	31	10.972			
Total	227623.000	34				
Corrected Total	2763.441	33				

4. Discussion

The aim of the current study was investigating the effect of using mobile dictionaries on language learning in contrast to using paperback dictionaries. The findings showed that EFL learners who used the mobile dictionary to learn English improved their language ability more than those who used the printed dictionary.

The finding corroborates previous research findings that generally computer-assisted language learning environments can have a positive effect on learners' achievement in learning English as a foreign language. Using technology promotes language learners' motivation, creates positive attitudes toward learning a foreign language (Rahimi & Hosseini, 2011), and lowers learners' anxiety in language classes (Rahimi &Yadollahi, 2011).

However, the innovative finding of this study is related to using mobile dictionaries in language classes and the learning that is extended to environments out of the classroom, into everyday activities, and learning anywhere at any times (Joseph & Uther, 2009) with the help of one mobile app. "Mobile apps offer a wide range of learning tools [to students] that can be downloaded to their mobile devices and used productively at opportune times in a variety of settings and on-the-go" (Steel, 2012, p. 1). In case of language learning this feature of mobile learning is a more practical help, as "extending language learning outside of classroom time, especially where in-class language practice time is limited, is essential to language acquisition" (Kennedy & Levy, 2009, cited in Steel, 2012, p. 2). Moreover, as foreign language learning needs frequent informal practice (Kukulska-Hulme, 2012), mobile phones provide ample opportunities for learners to have continuous connection with the target language.

Among mobile apps, using dictionaries is highly regarded by students (Kukulska-Hulme, 2012) because using mobile dictionaries is time efficient and help language learners acquire vocabulary and check verb conjugations (Steel, 2012). The affordances that are included in mobile dictionaries such as visual media (images, graphics), audio media (pronunciation), multimedia, and searching can also be the reason of better learning when students use mobile dictionaries (Joseph & Uther, 2009).

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