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The Role of Music and M-Learning in English: Vocabulary Gain Among Tertiary Students

Regina Dorairaju
Taylor's Business School, Taylor's University

Correspondence concerning this article should be addressed to Regina Dorairaju, Level L, Chancellery, University of Malaya, Kuala Lumpur, Malaysia, 50603. E-mail: regina_dorairaju@yahoo.com.sg

Manimekalai Jambulingam
Taylor's Business School, Taylor's University

Correspondence concerning this article should be addressed to Manimekalai Jambulingam, Level L, Chancellery, University of Malaya, Kuala Lumpur, Malaysia, 50603.
E-mail: Manimekalai.Jambulingam@taylors.edu.my

Undoubtedly, mobile technology has started to be visible in the field of education, as can be seen by the increasing number of publications that have appeared in recent years. This can also be proven with the existence of the new term in education – M-learning. Several types of mobile devices are accessible, such as wireless laptops, portable MP3 players, personal digital assistants (PDAs), and electronic dictionaries, although smart phones and iPads are the devices that have started to attract particular attention from educators. It is also noticeable that listening to music is one of the most important features in the aforementioned mobile devices. Against this backdrop, this study explores the benefits of integrating music and mobile devices in English vocabulary learning among tertiary students in a private university in Malaysia. As this study uses quantitative approach, a pre-test and a post-test were used to obtain data to analyse whether there was a gain in students' vocabulary knowledge after vocabulary lessons using English songs and mobile devices were conducted. In addition, a survey was used to show if students had a positive outlook in learning vocabulary through music and mobile devices. The findings of this study indicated that there was an increase in the students' vocabulary knowledge and students were enthusiastic to learn vocabulary. Integration of music and mobile devices provide more opportunities to enhance English vocabulary learning and act as a suitable tool for learning anytime and anywhere. Therefore, educators should find innovative ways to use mobile devices to teach the future students.

Keywords: music, vocabulary knowledge, m-learning

Mobile learning is a new discipline that is gaining more and more attention because of its promises for education. Mobile devices have great potential to provide supplementary practices for students both inside and outside a learning institution for they promised functions such as mobility, reachability, localisation, and personalisation. As there is a growing trend in adopting mobile learning in education, it is necessary to clarify what is meant by "mobile learning". Geddes (2004) defined mobile learning as the acquisition of any knowledge and skill through using mobile technology, anywhere and anytime which results in an alteration in students' behavior and knowledge.

There are many reasons for promoting the use of mobile technology in education. One of the primary reasons for the popularity of mobile devices is the widespread penetration into the market (Levy & Kennedy, 2005). This means that there is no need for the institution or educators to provide learners with

the said devices in order to incorporate a mobile learning component into their teaching context.

Added to this is the fact that mobile devices are relatively inexpensive compared with wireless laptop computers, and with functions such as Internet browsers that are available in current mobile devices, the possibilities of using mobile devices as tools for learning increases even further. Besides, mobile learning is considered as the application of mobile or wireless devices for learning when the learner is moving. Thus, flexible, accessible and personalised learning activities are considered as the advantages provided by mobile learning. This study investigates the role of mobile learning in English language learning; particularly in the use of mobile devices and music in enhancing students' vocabulary knowledge.

Materials and Methods

Literature Review

The following sections on the literature review sum up on M-learning and the acquisition of vocabulary using music. To be specific, What follows will provide insights into the functions and practices of M-learning in classrooms. We then further explain on the suitability of merging music and vocabulary lessons and how this could be conducted in M-learning.

M-Learning

Mobile technology, anywhere, anytime results in a change in students' behavior. Mobile learning is reflected as the use of mobile or wireless devices for learning when the learner is moving. Thus, flexible, reachable and modified learning activities are considered as the benefits provided by mobile learning. Sharples (2006) and Laurillard (2007) argued that a typical m-learning activity could build more opportunities for digitally-facilitated site-specific activities, and for ownership and control over what learners do. Thus, the key to understand mobile learning practices is to see how learners relate with mobile devices. In other words, it is the human experience (perception, cognitive, psychological and affective) that leads to the insight in understanding the new mode of learning.

Another obvious function of mobile devices is the way they allow contextual learning. According to Kukulska-Hulme (2009) mobile devices allow the information available in learners' location, and relevant to their needs, to be captured or delivered in real context. If the acquisition of new vocabulary items occurs at the authentic setting, learners will understand and use what they have learned with less effort. Next, the portability of mobile devices is another obvious benefit. They can be easily accessed in the classroom or outside of classroom. Learners can study manageable chunks of information in any place in their own time, thereby taking advantage of their convenience.

In line with that, Thornton and Houser (2005) compared the effect of different vocabulary learning modes; one using paper material and the other supported by mobile phones. The results showed that mobile phone group gained significantly more vocabulary than the paper group. The success of such vocabulary learning is mainly due to the "push media" effect, which promotes frequent rehearsal and spaced study, and utilize recycled vocabulary (Thornton & Houser, 2005). They argue that the regular delivery of target words facilitates the retrieval of the vocabulary. Nevertheless, according to Stockwell (2010) although the said research findings indicated that learners felt that these messages through the "push media" were very helpful for learning vocabulary, some indicated that they were too frequent.

Music and Vocabulary Knowledge

Over the years, there are many research findings that support the combination of music and language learning (Nelson, Wright, & Parker, 2015; Hi & Williamson, 2013; Legg, 2009). Successively, experts like researchers, philosophers, scientists, teachers and therapists have recognised the role of music for therapeutic and developmental functions. Many support the educational conjoining of language and music as there are numerous historical and developmental proofs of the relationship of music with language learning.

It is important to note that researchers have made some points regarding the positions of language and music; in terms of brain hemispheres and functioning. As described by Feric (2012), the term right-brain is used for emotional and artistic tasks and the term left-brain is used for rational and scientific tasks. Not only that, he further stated that music has a way of connecting the two hemispheres by utilising the left for language and the right for distinguishing music. Therefore, it is expected that music can effectively facilitate learners in language learning. Using music in language acquisition should promote interest in students, a natural context for vocabulary learning and extra-linguistic clues to meaning which are important in second language learning.

Not only that, music makes cultural ideas accessible to all students and increases the capacity of the working memory; while providing a setting for long-term recall of words and phrases. Feric (2012) added that music also creates a good atmosphere in the classroom; thus increasing students' motivation. Students relate to songs and find learning vocabulary through songs

interesting and amusing rather than boring. Likewise, language learners that lack familiarity with the target culture and have trouble expressing themselves can connect through the freeing influence of music. This is true especially with pop songs which are part of youth culture. These songs also tend to deal with problems relevant to learners as they know the singers and want to understand the words. Didactically songs are also useful in teaching the rhythm and the musicality of the language and the atmosphere created by the music enhances the ability of learners to remember vocabulary and thus shortens the study period.

Besides, songs also help to establish the prosody of the language and to enable the repetition of phrases in the classroom singing mode to further practice vocabulary. Learners enjoy the singing, and they are quite likely to rehearse it residually. The repeating of a song in one's head enables involuntary inner vocalisation of linguistic content, which then has the effect of deepening the memory traces of this content in the mind. Furthermore, they can take the music with them and learn and practice it on the move. And it helps improve the mood. Plus all these benefits can be achieved with the combination of music and m-learning. Looking into all the obvious suitability of combining m-learning and music, this study looks into the effectiveness of using music in mobile technology in English vocabulary learning among tertiary students.

Problem Statement

Some studies have suggested that while learners have a positive view of mobile learning, and feel that there are the potential benefits, not all learners are willing to engage in it. Learners in Stockwell's (2010) study, for example, wrote that the mobile phone was "not a tool for studying" and that they "couldn't get into study mode with the mobile" as reasons for not using the mobile phone to complete learning activities. Perhaps educators should look into the types of activities involved in the usage of mobile technology in vocabulary learning.

Here, it is important to note that GSM Arena team (2011) reported 95.3% of mobile device users listened to music daily and among them 80.2% were aged between 18 and 24. It suggests that students are spending time listening to music through their mobile devices like iPads or smart phones. To engage the present generation, educators should be innovative and use mobile devices in learning for activities which learners are familiar with such as listening to music. This study would highlight the importance of using mobile devices for language learning and suggest ways in which technology could be integrated in language learning. The findings would be significant for language educators as well as ESL learners.

Theoretical Framework

This section explains the theoretical framework adopted in this study. It is a general understanding that learners learn better from words and pictures than from words alone. This is the foundation for Mayer's Cognitive theory of multimedia learning (see Fig. 1). Multimedia learning refers to the use of visual and auditory teaching materials that may include video, computer or mobile devices. Likewise, cognitive theory of multimedia learning focuses on the effective use of multimedia in learning, with importance on using both the visual and auditory channels for information processing. The auditory channel deals with information that is heard, and the visual channel processes information that is seen and in combination more knowledge is gained. Thus, multimedia learning seeks to give instructors the ability to stimulate both visual and auditory channels of learners, resulting in better progress.

This theory is appropriate for this research as the songs that are forwarded to learners' mobile devices have both the auditory and visual channels that allow better learning of English vocabulary among students. Additionally, when students listen to the forwarded songs to complete English vocabulary worksheets, they could also relate to their prior knowledge and make the learning process much easier.

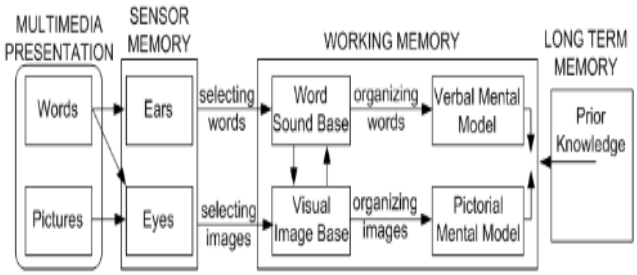

Figure 1. The cognitive theory of multimedia learning.

Note: Adapted from Mayer, R., Heiser, J., & Lonn, S. (2001). Cognitive constraints on multimedia learning: When presenting more material results in less understanding. *Journal of Education Psychology, 93*(1), 187-198.

Methodology

This study used a quantities approach. A pre-test and post-test were used to obtain data on students' vocabulary gain. Besides, a survey that investigated students' perception on using mobile devices and music in learning vocabulary was administered. The specific details of the instruments used are discussed below.

Pre-Test

The participants of 60 Diploma in Business students in a private higher education institution

took part in the pre-test by writing the meaning of 30 English words taken from three famous English songs - I'm Yours by Jason Mraz, Skater Boy by Avril Lavigne and Soak Up the Sun by Sheryl Crow (refer to Table 1). Participants' scores were recorded for the analysis purpose (Table 2). After that the target group went through three vocabulary lessons (which were conducted outside the classroom) using mobile devices and songs. The three songs mentioned earlier were forwarded to students' smart phones and tablets. By listening to the three songs downloaded into their mobile devices, the participants were asked to complete worksheets that were created for each song. To encourage m-learning, the participants were allowed to complete these worksheets at anytime and anywhere convenient to them. These worksheets required participants to complete the lyrics by filling in the blanks or identifying the wrong words used in the lyrics while listening to the songs.

Table 1
Words tested in the pre-test and post-test

I'm Yours by Jason Mraz	Skater Boy by Avril Lavigne	Soak Up The Sun by Sheryl Crow
divine	punk	fancy
intervention	baggy	lame
reckon	tags	crummy
moment	superstar	ride
godforsaken	slamming	gas
hesitate	soul	master suite
complicate	obvious	communist
nibble	rock	afford
vanities	backstage	soak up
virtue	studio	squat

Post-Test

For the post-test, after two weeks, the participants were again asked to write the meaning of the 30 words tested in the pre-test earlier. The participants' scores for the post-test are recorded for comparison in Table 2.

Survey

In addition, a survey questionnaire was distributed to all 60 participants. The questionnaire used a Likert scale and consisted of 10 statements seeking the participants' opinion on learning English vocabularies through music and mobile technology. The students were given one hour to complete the survey. The responses were collected from the students on the same day. The statements and participants' responses are shown in Table 3.

Table 2
Pre-test and post-test results

	Pre –Test		Post – Test	
Total Scores (full marks :30)	Number of Participants	Percentage (%)	Number of Participants	Percentage (%)
30	-	0	10	16.7
29	-	0	7	11.7
28	-	0	8	13.3
27	4	7	9	15
26	5	8.3	9	15
25	5	8.3	8	13.3
24	6	10	1	1.7
23	3	5	5	8.3
22	7	11.7	-	0
21	9	15	3	5
20	11	18	-	0
19 and lower	10	16.7	-	0

Table 3
Participants' opinion on the use of music for English vocabulary acquisition

		YES Percent	NO Percent	NOT SURE Percent
1.	I find it easier to understand the words in the songs	75.0	16.7	8.0
2.	I find it interesting to learn the words in the songs	71.7	13.0	15.0
3.	I learn new words any time of the day with mobile devices	75.0	10.0	15.0
4.	I can remember the word easily after listening to the songs	70.0	7.0	23.0
5.	I like to learn English vocabulary through music	73.3	8.0	18.0
6.	I have fun by learning English vocabulary through music	68.3	7.0	25.0
7.	Learning English vocabulary through music in mobile devices is enjoyable	71.7	12.0	17.0
8.	I can understand different accent of the English language	80.0	7.0	13.0
9.	I believe listening to music in mobile devices is the fastest way of understanding the language	71.7	7.0	22.0

Results and Discussion

The following table presents the pre-test and the post-test results.

Increased Vocabulary Gain

Table 2 presents the marks obtained by 60 participants in both the pre-test and the post-test. It is shown that no participant scored full marks (30) in the pre-test. In fact, the highest mark recorded was only 27/30. The majority of the participants scored 21 and below. In contrast, for the post-test, there was a drastic improvement as 10 participants scored full marks (30). In addition, the majority of the participants scored 29 (7 participants), 28 (8 participants), 27 (9 participants), 26 (9 participants) and 25 (8 participants). Besides, the lowest mark recorded in the post-test was 21 (3 participants). This difference in the results clearly indicates that there was an improvement made in participants' vocabulary knowledge after the three vocabulary lessons through music and mobile technology. This study attributes to the fact that using specific features of mobile devices such as music can promote learning and increase vocabulary acquisition among tertiary students. This study also suggests that students' vocabulary improved after the lessons using music and mobile devices.

The third table is the summary of the survey results indicating their opinion on the use of music and mobile devices for vocabulary acquisition.

Learners' are Enthusiastic about Using Music

Table 3 shows the participants' opinion learning English vocabulary through music and mobile devices. Participants are enthusiastic and find it easier to learn English through music by using mobile phones and tablets. The participants also expressed that learning English vocabulary through music via mobile technologies is enjoyable. The result that showed the increased vocabulary knowledge among learners supports the findings of Hsin and Cigas (2013) and Steffes and Duverger (2012) in which participants found it easier to learn vocabulary and they enjoyed learning English vocabulary through music and mobile technology. It is recommended that music and mobile technology when combined do bring positive effects to the growth of vocabulary knowledge among students.

Conclusion

This study demonstrated that music in combination with mobile technology can be an effective and enjoyable educational tool to engage and motivate ESL learners, particularly in learning vocabulary. In summary, the results of the pre-test and the post-test seemed to support the argument that ESL learners may increase their vocabulary knowledge when they learn vocabulary through music on their mobile devices. It was reported that the participants scored higher marks in the post-test after 3 vocabulary lessons using music and mobile devices. The survey conducted confirmed that participants appeared to have a positive outlook on music and M-learning. In general, this study recommends that learning English vocabulary using music in current mobile technology enhanced tertiary students' English vocabulary knowledge. Mobile technologies could provide more opportunities to enhance English vocabulary learning and act as a suitable tool for learning anytime and anywhere. Therefore, educators should find innovative ways to use mobile devices to teach the future students.

Limitation of the Resent Study

The limitation of this research provides directions for future research. It would be good to test mobile-learning in a larger sample size. The findings of this research are only based on a small sample size of 60 ESL learners. This research did not look into the challenges of implementing mobile learners across an institution involving a big group of ESL learners for a long term. An issue faced while implementing mobile learning is that the effectiveness of sending songs to some participants were affected by the Internet connectivity and the speed of different devices. This suggests that if mobile learning is implemented across an institution, the lessons may get delayed due to the Internet connectivity. Besides, to encourage M-learning, participants were allowed to complete the worksheets at anytime and anywhere convenient to them. It was difficult to monitor if the participants completed the vocabulary worksheets by themselves. Thus, this study is limited to self-reported data and researchers had to rely on the learners' own responses.

Next, further investigations are needed to assess the learners' long-term response because the short-term experience may affect learners' attitude towards a teaching method. Adult learners might have responded positively to the new style of vocabulary learning due to the novelty of their experiences. Last, this research only adopts quantitative methods. Qualitative findings about how learners use mobile devices for learning purposes may add comprehensive information to this new field and this could be done through interviews. Therefore, further investigation is needed in reducing the challenges that mobile learning poses for vocabulary teaching in an educational institution and make the finding enhanced.

Further Research

Given all these limitations, this research draws attention of researchers and practitioners to the application of M-learning and music and English language vocabulary learning. The findings and discussions presented in this paper, hopefully, will provide insights for those who want to integrate mobile technologies into language teaching and learning. It is recommended that researchers should focus on the challenges in mobile learning that involve a big group of learners and ways to overcome barriers that hinder the effectiveness of mobile learning should be conducted. In addition, it is also suggested that future researchers look into the usefulness of M-learning in enhancing the other skills of English language such as listening, speaking, reading and writing.

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