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THE EFFECT OF SMS-BASED L1 AND L2 GLOSSES ON EAP STUDENTS' ACADEMIC VOCABULARY LEARNING AND ATTITUDES

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Abstract. *There has been a rise in the use of technology in English for Academic Purposes (EAP) instruction. The integration of mobile learning can offer a plethora of learning opportunities for EAP students. This study set out to uncover the effect of SMS-based learning on EAP students' academic vocabulary learning and attitudes. An experimental design was employed. A total of 60 EAP students of agriculture were randomly assigned to three groups, each group contained 20 students. Based on their EAP textbook, a total of 120 academic words were sent to them through SMS for a period of four months. The first group received the academic words along with the Persian and English definitions (PED), the second group received text messages containing the academic words and the Persian definitions (PD) and the last group received the academic words and the English definitions (ED). The results showed a significant difference among the test scores of the three groups. Further t-test analyses indicated that the PED group scored significantly higher than the other groups. Post-study questionnaires revealed that all the groups had generally positive attitudes towards SMS-based learning of academic vocabulary. The perceived factors which might affect students' SMS-based learning of academic vocabulary comprise the length of the text message, the language of the text message and definitions, and the frequency of receiving text messages containing academic vocabulary. The findings will have implications for EAP practitioners, decision-makers, and educational authorities across the world.*

Key words*: SMS, EAP students, mobile learning, attitudes, academic vocabulary*

1. INTRODUCTION

The implementation of mobile learning has created a plethora of opportunities for students and teachers to set realistic and efficient learning and teaching goals and objectives (Alexander, 2004; Chao & Chen, 2009; Kearney, Schuck, Burden, &Aubusson, 2012; Liu, Zhao, Zheng, & Jin, 2008; Paul, 2008). The integration of mobile learning offers several benefits and merits for students and facilitates the process of learning significantly. The most remarkable affordances of mobile learning include opportunities for ubiquitous learning, flexible learning, easy access to learning materials, ubiquitous and convenient access to the Internet (Al-fahad, 2009; Bin Hashim, Ahmad, & Ahmad, 2010; Kukulska-Hulme, 2009; Rekkedal & Dye, 2007; Valk, Rashid, & Elder, 2010). Despite these benefits and advantages, mobile learning may create challenges and limitations for students. These limitations comprise the small screen size, students'

reluctance to use mobile devices for academic purposes, and lack of interaction and communication (Dieterl, Dede, & Schrier, 2007; Kim & Kim, 2012; Thornton & Houser, 2002). Similarly, learning through SMS has attracted the attention of a large number of educational researchers and scholars (Cavus & Ibrahim, 2009; Levy & Kennedy, 2005; Lominé & Buckhingham, 2009; O'Shea, 2005; Riordan & Traxter, 2005). In addition to its educational applications, SMS is a popular communication tool among people throughout the world (Schick, 2007). Therefore, it can be concluded that the SMS technology is an effective learning technology for both educational and communication purposes. Furthermore, the integration of SMS in educational contexts may provide ubiquitous contact among teachers, students, and other educational stakeholders (Moura & Carvalho, 2010).

2. SMS-BASED LEARNING: THEORETICAL BACKGROUND

SMS can support teachers and learners to teach and learn more effectively. The integration of SMS learning can promote interactivity between teachers and students (Markett, Arnedillo Sánchez, Weber & Tangney, 2006; Scornavacca, Huff & Marshall, 2009: So, 2009). The opportunity to have ubiquitous interactions with a low cost has encouraged numerous teachers and students to consider SMS-based learning as a viable learning and teaching aid. According to Scornavacca (2006), using SMS for learning purposes can create student-centered environments in which students can control their learning pace and quality. Mellow (2005) introduces three learning modes through SMS. The push mode enables teachers to send learning materials to students. The pull mode enables students to choose or order the learning materials which are supposed to be sent to them. In the interactive mode, both teachers and students are able to exchange information and feedback in an interactive manner. Specifically, SMS-based learning can offer several benefits for language learners. One significant benefit of SMS-based learning for language learning contexts is associated with vocabulary learning. As Nation (2001) argues, in order to learn vocabulary effectively, students should have repeated encounters with a word, retrieval of words in a receptive form, and generative use of vocabulary in various contexts and situations (cited in Kennedy & Levy, 2008). Kennedy and Levy (2008) believe that SMS-based learning of vocabulary can meet the vocabulary learning conditions which Nation (2001) has pointed out. Moreover, SMS is an appropriate tool to motivate students to attend to the meanings of words (Nation, 2001). Alemi and Lari (2012) note that it is possible to provide synonyms, examples and native language equivalents of words in SMS-based learning of vocabulary. The other feature of learning vocabulary through SMS is that providing short texts and input would be motivating and easy to learn for language learners. Gasaymeh and Aldalalah (2013) propose a theoretical framework in which SMS can facilitate students' learning and understanding. In a behavioristic view of learning, SMS can be used as a stimulus-response tool in which students receive the stimulus and will provide a response to it. Meanwhile, reinforcement can be provided for students through the SMS technology. Furthermore, SMS-based learning can be considered from the perspective of cognitive learning theory. Therefore, SMS can help students store learning information and instructional materials in their long-term memory. Moreover, SMS-based learning may foster students' learning through connecting their prior knowledge to the new

information. From a constructivist point of view, SMS is an appropriate learning tool which can involve students in the process of learning and create learner-centered environments. SMS-based learning can also encourage students to have collaboration to learn and seek for scaffolding. One factor which can be a facilitator for learning is personilisation. Personilised learning can create learner-centered environments in which the system conforms to the learner rather than the learner to the system (Sharples, Taylor, & Vavoula, 2005). SMS-based learning can create contexts in which students are involved in personalised learning and they can learn in different contexts and situations, follow their learning process, and gear their learning to their personal needs, preferences, and abilities (Petersen & Markiewicz, 2008). Students can benefit from personlisation in that they can continue their learning and receive learning materials outside the realm of the classroom. SMS-based learning has the potential to provide students with appropriate learning materials outside the classroom and give students input which is related to their needs and preferences. Concerning vocabulary learning through SMS, Zhang, Song, and Burston (2011) argue that SMS-based learning of vocabulary is in line with noticing hypothesis which is proposed by Scmidt (2001). Noticing is a required condition for vocabulary learning and it is the conscious attention that the student pays to the vocabulary in order to store vocabulary in the long-term memory. Through noticing, the input can be processed and turned into intake. As a result, SMS-based learning of vocabulary can motivate students to be aware of the input and process that input. In addition, Zhang, Song, and Burston (2011) believe that when students have a more active role in their vocabulary learning, they can make more effective associations and form-meaning mappings. SMS-based vocabulary learning can help students to play an active role in vocabulary learning.

2.1. Literature review

Even though a massive body of studies have undertaken regarding the implementation of mobile learning in educational contexts (e.g., Chen & Denoyelles, 2013; Hussein & Nassuora, 2011; Khwaileh & AlJarrah, 2010; Kottari, Kamath, Saldanha, & Mohan, 2013;Kim, Rueckert, Kim, & Seo, 2013; Percival & Percival, 2008), only limited research has been directed towards the use of SMS for students' learning. The overall findings associated with the effectiveness of mobile learning in educational contexts indicate that teachers and students express general satisfaction with and acceptance of this learning approach. In light of the findings of previous research, teachers' and students' perceived that the benefits of mobile learning comprise engagement of students in class activities, improvement of learning, increased levels of interaction, improvement of students' retention, and opportunities for ubiquitous learning. In terms of research on SMS-based learning and students' attitudes towards it, previous research has shown that the implementation of SMS-based learning can foster students' learning significantly.

Moreover, students have shown positive attitudes towards learning through the SMS technology (Hayati, Jalilifar, & Mashhadi, 2013; Mahmoud, 2013; Motallebzadeh, Beh-Afarin, & Daliry Rad, 2011; Nwaocha, 2010; Sarani & Ayati, 2013; Song, 2008). More specifically, the use of the SMS technology improved students' vocabulary and idiom learning, writing skills, and collocation learning in language teaching and learning contexts. Generally, the majority of researchers have reported the positive effects of SMS-based learning on students' achievement and attitudes towards learning.

Flowerdew and Peacock (2001, p. 8) define English for Academic Purposes (EAP) as "the teaching of English with the specific aim of helping learners to study, conduct research or teach in that language". These courses are strictly planned based on the specific needs, preferences, and learning styles of university students. In other words, EAP courses should be learner-centred rather than being teacher-centred (Hyland, 2006). The use of technology is one of the alternatives which can create interactive environments in EAP courses so that students can learn autonomously. Several studies have stressed the integration of technology and computer-assisted language learning (CALL) into the EAP curriculum (Arno, 2012; Arno & Rueda, 2011; Bulter-Pascoe, 2009; Dashtestani, 2014; Jarvis, 2004; Jarvis, 2009). Likewise, the issue of teaching and learning academic vocabulary has attracted the attention of EAP researchers and scholars across the world (Coxhead, 2000; Hyland & Tse, 2007; Nation, 1990).

2.2. Rationales for conducting this study

In recent years, many language teaching researchers and scholars have taken interest in the teaching and learning of academic vocabulary (Tajino, Dalsky, & Sasao, 2009). Unlike other studies which explored students' attitudes towards the integration of SMS-based learning in general vocabulary instruction, this study set out to investigate both students' attitudes and achievement concerning learning academic vocabulary. Learning academic vocabulary is more difficult than learning general vocabulary (Sibold, 2011). Hyland and Tse (2007) argue that EAP teachers look for various materials and techniques to facilitate students' learning of academic vocabulary. For university students, learning academic vocabulary may be a challenging and complicated task (Li & Pemberton, 1994). Many academic words are not frequently used and it is not easy to learn them through incidental teaching. Therefore, it is essential that academic vocabulary be taught to students through some direct teaching approaches (Worthington & Nation, 1996). Some studies have also shown that EAP students perceive that academic vocabulary is the most important need of EAP students (Elisha-Primo, Sandler, Goldfrad, Ferenz, & Perpignan, 2010; Mazejko, 2011).

As a consequence, SMS-based learning can be regarded as an efficient tool for learning academic vocabulary (Alemi & Lari, 2012). More specifically, SMS-based learning of academic vocabulary can provide learners and teachers with a direct approach to teaching academic vocabulary (Worthington & Nation, 1996). Although a massive body of research has been undertaken to examine students' vocabulary learning through the implementation of SMS-based learning, no empirical study has been conducted to identify the effectiveness of SMS-based learning for learning academic vocabulary. Investigating students' attitudes towards SMS-based learning of academic vocabulary can provide valuable insights for EAP teachers and practitioners into a new approach which can promote students' level of academic vocabulary knowledge.

The other aim of this study was to unravel the effectiveness of the use of L1 glosses, L2 glosses, or both L1 and L2 glosses for learning academic vocabulary through SMS. Despite an abundance of research on learning vocabulary through SMS, there is a paucity of research on the type of linguistic gloss that might be most efficient for students' learning. In Iran, mobile learning has gained much popularity among students and

teachers (Yousefzadeh, 2012). In addition, many educational institutions and universities have started using SMS as a learning tool, especially for the field of language learning. Some institutions send the words and their L1 equivalents, while some others send the English equivalents and definitions. To date, no study has been carried out to assess the effect of the language of SMS-based glosses on students' learning and attitudes. Identifying the appropriate linguistic gloss for SMS-based learning of academic vocabulary can help educational planners and authorities to plan more effective measures and techniques for EAP instruction in Iran and other countries. Therefore, this study was conducted to examine the perceptions of three different groups of EAP students towards three methods of presenting academic vocabulary through the SMS technology. The findings may have implications for the instruction of academic vocabulary in the EAP context of different countries and educational settings. To achieve the aims of this study, the research asks three specific questions:

1. Is there any significant difference among students' learning of academic vocabulary using the three methods of presenting academic vocabulary through SMS (i.e., PED, PD, and ED)?
2. What are the attitudes of the three groups of EAP students towards the three methods of learning academic vocabulary through SMS? Is there any significant difference among their attitudes?
3. What are the perceptions of the three groups of EAP students on factors which affect SMS-based learning of academic vocabulary?

3. METHOD

3.1. Participants

A total of 60 EAP students, including three groups of 20 students, participated in this study. The undergraduate students were selected from a state university in Tehran, the capital of Iran. To ensure their English proficiency, an IELTS test was administered to the participants and those students whose total band scores ranged from 5.5 to 6.5 were considered for participation in the study. The participants' age range was 20-24. The students studies agricultural engineering and were selected from six EAP courses. Only male students were included in the sample. All the students who participated in this study had smartphones or mobile phones and had used mobile phones for at least two years. The students were randomly assigned to three groups, each group contained 20 students.

Two instruments were used in this study. The first instrument of this study was a 20-item multiple-choice test of academic vocabulary. The words were taken from the EAP textbook English for the Students of Agriculture, published by SAMT, an organization for researching and composing University textbooks in the humanities in Iran. Several steps were taken to design the test. Initially, a panel of seven EAP teachers, those who taught students of agriculture at the same university and were familiar with the textbook, were invited to develop a list of test items. A bank of items was developed. Afterwards, the content of the items was evaluated by a jury of four university professors of applied linguistics who were experts in language testing and four university professors of EAP.

A total of five evaluation sessions were held by the jury of experts and the researcher. The items were evaluated both quantitatively (checklists) and qualitatively. Several

amendments and modifications were implemented to the items and inappropriate items were deleted based on the comments of the jury. A Cronbach's alpha-internal consistency of 0.83 was achieved which indicated a satisfactory rate of reliability. The academic vocabulary items of the test were chosen from 120 academic words which were sent to students' mobile phones through the SMS technology. Following the administration of the test, a post-study questionnaire was administered to the participants. The questionnaire comprised three sections. The first section explored students' demographic information. The second section of the questionnaire consisted of eight items which were based on five-point Likert-scale items from 1. Strongly disagree to 5. Strongly agree. The last section of the survey included four multiple-choice items on EAP students' perceptions on factors which affect SMS-based learning of academic vocabulary. More specifically, the questionnaire was constructed based on reviewing previous research on SMS-based learning. A jury of four professors of applied linguistics who were experts in educational technology, and four professors of EAP commented on the content of the items of the questionnaire. The items were evaluated both quantitatively (checklists) and qualitatively. Several amendments and modifications were implemented to the items and inappropriate items were deleted based on the comments of the jury. The questionnaire was piloted with a similar group of EAP students and a high level of Cronbach's alpha index (0.78) was achieved which was regarded satisfactory for the purposes of the study.

In terms of ethical considerations of this research study, a consent letter was constructed based on the guidelines mentioned in Mackey and Gass (2005). The consent letter was submitted to all the participants and the relevant information on confidentiality, voluntary participation, purposes of the research, and anonymity was included in the consent letter. The Persian version of the questionnaires was submitted to the participants since English is a foreign language in the Iranian educational context and might have caused misunderstanding on the part of participants.

3.2. Procedures, research design and data analysis

This study lasted for a period of four months (a university semester in Iran). After selecting the 60 participants of the study, they were divided into three groups, each group consisted of 20 students. The first group of EAP students received 120 academic vocabulary items through text messages. Both Persian and English definitions (PED) were included in the text message. The EAP students received one text message containing one academic word every day. The second group of students who were called the Persian definition (PD) group received a total of 120 academic words, one academic word everyday, in a period of four months. The text messages sent to the second group members contained the Persian definition of each academic word. Finally, the last group of students received the same 120 text messages containing 120 academic words along with their English definitions (ED). An experimental design consisting of three experimental groups were considered for the purposes of this study. In addition to this, a descriptive design, including post-study questionnaires, was considered in the second phase of the study. The rationale for the experimental design was to assess students' learning through the three different methods of SMS-based learning. The descriptive design was employed to examine the perceptions and attitudes of the participants toward SMS-based learning of academic vocabulary. The use of two instruments provided both confirmatory and supplementary data. To identify the differences among the three groups

of students' test scores, the test of Kruskal-Wallis was run. Furthermore, to analyse the differences between the test scores of each two groups of students, independent t-test analyses were performed. To analyse the data from the questionnaires, the descriptive statistics, including the mean and standard deviation, was employed. For each questionnaire item, the test of Kruskal-Wallis was run to explore the difference between the perceptions of the three groups of students. Finally, the percentages were used for analyzing the data received from the multiple-choice items of the questionnaire. All the analyses were conducted through using Statistical Package for the Social Sciences (SPSS).

4. FINDINGS

4.1. EAP students' learning of academic vocabulary through SMS

Table 1. The difference among the three groups of EAP students' academic vocabulary test scores

	Mean	Standard Deviation
PED Group	16.25	1.71
PD Group	14.85	2.18
ED Group	13.75	2.12
Chi-Square = 12.027		
P= 0.002*		
P≤ 0.05		

The results of subsequent independent t-test analyses regarding the difference between the test scores of PED and PD groups show that there is a significant difference between the PED and PD group's test scores (p=0.030) (Table 2).

Table 2. The difference between the test scores of PED and PD groups

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.602	.442	2.256	38	**.030****	1.40000	.62048	.14390	2.65610
Equal variances not assumed			2.256	35.965	.030	1.40000	.62048	.14156	2.65844

The results of subsequent independent t-test analyses regarding the difference between the test scores of PED and ED groups show that there is a significant difference between the PED and ED group's test scores (p=0.000) (Table 3).

Table 3. The difference between the test scores of PED and ED groups

	Levine's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	1.765	.192	4.097	38	.000**	2.50000	.61022	1.26467	3.73533
Equal variances not assumed			4.097	36.365	.000	2.50000	.61022	1.26285	3.73715

The results of subsequent independent t-test analyses regarding the difference between the test scores of PD and ED groups show that there is no significant difference between the PD and ED group's test scores (p=0.115) (Table 4).

Table 4. The difference between the test scores of PD and ED groups

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
VAR00009	Equal variances assumed	.124	.727	1.615	38	.115	1.10000	.68114	-.27889	2.47889
	Equal variances not assumed			1.615	37.972	.115	1.10000	.68114	-.27892	2.47892

5. EAP STUDENTS' ATTITUDES TOWARDS LEARNING ACADEMIC VOCABULARY THROUGH SMS

Table 5 indicates that the three groups of EAP students held positive attitudes towards learning academic vocabulary through SMS. The perceived benefits of the SMS-based learning of academic vocabulary included increase in students' motivation and retention of vocabulary, decrease of students' anxiety to learn academic vocabulary, and easy access to academic words.

Table 5. EAP students' attitudes towards learning academic vocabulary through SMS

		Mean	SD	P
Learning academic vocabulary through SMS is interesting for me	PED Group	4.55	0.6	0.19
	PD Group	4.5	0.83	
	ED Group	4.1	0.96	
I want to continue learning academic vocabulary through the SMS technology	PED Group	4.5	0.76	0.33
	PD Group	4.25	0.79	
	ED Group	4.1	0.84	
Learning academic vocabulary through SMS improved the retention of words	PED Group	4.05	0.88	0.57
	PD Group	3.75	0.97	
	ED Group	3.90	1.02	
The words that I received through SMS were the ones that I needed	PED Group	3.99	0.99	0.63
	PD Group	3.85	1.26	
	ED Group	4.30	0.73	
Learning through SMS increased my motivation to learn more academic vocabulary in the future	PED Group	4.1	0.72	0.94
	PD Group	4.03	0.99	
	ED Group	3.9	1.16	
The definitions provided were easy to be understood for me	PED Group	4.37	0.8	0.85
	PD Group	4.2	0.67	
	ED Group	4	1.18	
I had less anxiety to learn academic vocabulary through SMS compared to learning it in the class by teaching	PED Group	3.8	1.05	0.24
	PD Group	3.85	1.13	
	ED Group	3.35	0.96	

		Mean	SD	P
Learning academic vocabulary	PED Group	4.55	0.6	0.19
through SMS is interesting for	PD Group	4.5	0.S3	
me	ED Group	4.1	0.96	
I want to continue learning	PED Group	4.5	0.76	0.33
academic vocabulary- through	PD Group	4.25	0.79	
the SMS technology	ED Group	4.1	0.S4	
Learning academic vocabulary	PED Group	4.05	O.SS	0.57
through SMS improved the	PD Group	3.75	0.97	
retention of words	ED Group	3.90	1.02	
The words that I received through	PED Group	3.99	0.99	0.63
SMS were the ones that I needed	PD Group	3.S5	1.26	
	ED Group	4.30	0.73	
Learning through SMS increased	PED Group	4.1	0.72	0.94
my motivation to lean more academic	PD Group	4.03	0.99	
vocabulary in the future	ED Group	3.9	1.16	
The definitions provided were easy	PED Group	4.37	O.S	0.85
to be understood form	PD Group	4.2	0.67	
	ED Group	4	1.18	
I had less anxiety to learn academic	PED Group	3.S	1.05	0.24
vocabulary- through SMS compared to	PD Group	3.S5	1.13	
Learning it in the class by teaching	ED Group	3.35	0.96	
I could have access to the words	PED Group	4	1.03	0.3
everywhere and anytime	PD Group	3.9	1.18	
	ED Group	3.55	1	

5.1. EAP students' perceptions on factors which affect SMS-based learning of academic vocabulary

Based on the values shown in Table 6, the EAP students prefer to receive shorter text messages, receive messages every day or three times a week, receive messages containing both Persian and English definitions, and receive multimedia features and examples in SMS-based learning of academic vocabulary.

Table 6. Students' perceptions on factors which affect SMS-based learning of academic, vocabulary

Length of the message in SMS-based learning of academic vocabulary	
I would like to receive shorter messages	**76.66% *****
I would like to receive longer messages	16.66%
I don't have any idea about this	6.66%
Frequency of receiving messages in SMS-based learning of academic vocabulary	
I would like to receive messages every day	**51.66%*****
I would like to receive messages three times a week	35%
I would like to receive messages once a week	10%
I want to receive messages once or twice a month	0
I don't have any idea about this	3.33%
Language of the definitions	
I prefer Persian definitions	11.66%
I prefer English definitions	23.33%
I prefer English and Persian definitions	**63.33%*****
I don't have any idea about this	1.6%

Other factors	Yes	No	No idea
Phonetics should be added to the definitions	23.3	18.3	58.3
The part of speech should be added to the definitions	10	36.6	53.3
Examples should be added to the definitions	**78.3****	5	16.6
Multimedia should be added to the definitions	**71.3****	15	13.3
Word histories should be added to the definitions	21.6	38.3	40

6. Discussion and Conclusion

This study was conducted to examine the perceptions of EAP students on SMS-based learning of academic vocabulary. Several key findings, which can contribute to our knowledge of SMS-based learning, were identified and presented. The findings of the study indicated that the three groups of EAP students who participated in this study adopted generally positive attitudes towards the implementation of SMS-based learning of academic vocabulary. This finding is commensurate with studies which have pointed out that SMS-based learning can be an effective approach to learning languages (Kukulska-Hulme & Shield, 2008; Levy & Kennedy, 2005; So, 2009). It is crucial that EAP course designers and planners take students' learning perceptions and attitudes into account and strive to design leaner-centred and interactive EAP courses which are compatible with the needs, attitudes, and preferences of students (Hyland, 2006). Obviously, technology-enhanced learning can improve the Iranian EAP instruction and provide more tremendous learning and teaching opportunities for students and teachers.

Similarly, the results of the tests showed that learning academic vocabulary can be enhanced through the use of SMS. More specifically, it was revealed that the inclusion of definitions in both the native language and target language can improve the learning of academic vocabulary through SMS. The reason for this issue may be dependent on the fact that providing the definitions in the native language and target language can provide students with more comprehensible input so that learning can be improved when students receive the input in both languages (Krashen, 2003). On the contrary, providing monolingual definitions, either in the native language or the target language, would provide less comprehensible input for EAP students. Therefore, it can be concluded that students should receive comprehensible input when they are supposed to learn vocabulary through the SMS technology. Besides, there is evidence that the use of translation and the native language definitions in learning and expanding English for specific (ESP) vocabulary can offer benefits for ESP/EAP students (Koletnik, 2012).

The analysis of the data also illustrated that several factors might play roles in students' learning of academic vocabulary through the SMS technology. The first perceived factor is related to the length of the text message. It appears that the students prefer to receive shorter text messages. This finding is in line with Hayati, Jalilifar, Mashhadi's (2013) finding which indicated that shorter text messages can have more effective results on students' learning. The other significant finding was that the students reported that they preferred to receive educational text messages on a regular basis and with a high frequency. This might indicate that the students are mostly concerned about being involved in the process of learning when they learn through the SMS technology.

Learning academic vocabulary frequently can be motivating since students can expand their vocabulary knowledge in a short period of time. This might not be feasible in EAP courses which are usually held once or twice a week. As the results of the test confirmed, the majority of EAP students preferred to receive definitions both in the native and target languages. This issue depicts that there is a positive correlation between students' attitudes and their actual learning conditions. Finally, the students reported that multimedia features such as videos and pictures and examples for each academic word can be included in the text messages as well. This is somewhat challenging since including multimedia and examples can add to the length of each text message and makes its comprehension more difficult. As already mentioned, SMS-based learning is an area

of research which deserves more attention and endeavor. There is some evidence that using text messages can improve students' learning, while how to present the input in text messages may pose critical challenges for educational technologist and experts. Therefore, further research is required to be undertaken to identify the factors that can affect students' attitudes towards SMS-based learning both in language learning and other educational contexts. Moreover, more experimental research studies should be conducted in the future to provide more insights into the shortcomings and merits of SMS-based learning in educational contexts. We should not be misled by seeking efficacy in the type of technology that we use, while we should be guided to know how to use specific types of technologies in specific educational contexts and settings. The findings of this study can provide useful insights for further investigation and can encourage teachers and educational experts to develop positive attitudes towards some technologies which are commonly ignored or insufficiently used.

In addition, the issue of learning academic vocabulary is a significant one which remains neglected in EAP instruction. The implementation of mobile-assisted language learning (MALL) in EAP instruction offers opportunities for EAP students to learn EAP ubiquitously and out of the classroom. As the results of this study suggest, SMS-based learning of academic vocabulary can have positive effects on students' learning and attitudes. Since EAP is a learner-centred approach to learning, more attention should be directed towards students' needs, attitudes, and lacks. Nowadays, technology has revolutionized the ways students learn and perceive their needs. Technology-based needs of EAP students should not be overlooked since most students might not be able or have strong voices to make teachers aware of their needs and attitudes. As a consequence, further needs-analysis research should be undertaken to investigate EAP students' specific needs and perceptions. Considering the pivotal role of mobile devices in students' daily lives, it is essential that all EAP stakeholders and decision-makers adopt specific strategies and measures to encourage students to use their mobile devices for academic purposes. Along with the change in EAP decision-makers' approach to EAP course design and needs analysis projects, EAP teachers should adopt positive attitudes towards the use of technology for students' learning, too. Teachers play considerable roles in students' attitudes and learning, and they can reinforce or at least have effects on students' attitudes. Thus, EAP teachers are recommended to develop positive attitudes towards technology, including SMS-based learning, and motive students to use technology for their academic purposes. For instance, teachers can conduct action and classroom-based research to identify the effect of different technologies for the specific context of their classrooms. Definitely, both teachers and students need to be supported by educational authorities if they are supposed to bring about positive changes in their educational practices. The conduction of this study was not without challenges and limitations. One major limitation was associated with the sample size of this study. Considering the particular purposes of this study, it was quite difficult to find participants who were able to participate in the study for the period of four months. The other impeding factor was related to the homogeneity of the participants which reduced the sample size of this study. It could have been beneficial if more EAP stakeholders had been involved in this study. The attitudes of teachers and educational decision-makers could have had considerable effects on our understanding of SMS-based learning of academic vocabulary.

REFERENCES

Alemi, M., &Lari, Z. (2012). SMS vocabulary learning: A tool to promote reading comprehension in L2. *International Journal of Linguistics, 4*(4), pp-275.

Alexander, B. (2004). Going nomadic: Mobile learning in higher education.*EDUCAUSE Review*, 39(5), 28–35.

Al-Fahad, F. n. (2009). Students' attitudes and perceptions towards the effectiveness of mobile learning in king saud university, Saudi Srabia. *The Turkish Online Journal of Educational Technology , 8* (2), 111-119.

Arno, E. (2012). The role of technology in teaching languages for specific purposes courses.*Modern Language Journal, 95*, 88–103.

Arno, E. & Rueda, C. (2011).Promoting reflection on science, technology, and society among engineering students through an EAP online learning environment.*English for Academic Purposes,10* (1), 19-31.

AyatiM.,&Sarani H. (2013). The impact of teaching students through mobile phone on students' motivation and their attitudes towards English.learning. *FaslnameyePazhooheshdarBarnamerizieDarsi, 7*(1):13-21.

Bin Hashim, A. S., Ahmad, W. F. B. W., & Ahmad, R. B. (2010). Mobile learning implementation: students' perceptions in UTP.*World Academy of Science, Engineering and Technology, 4*, 2-25.

Bulter-Pascoe, M.E. (2009). English for specific purposes (ESP), innovation, and technology.*English education and ESP*, 1-15.

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

Chao, P. Y., & Chen, G. D. (2009).Augmenting paper-based learning with mobile phones.*Interacting with Computers, 21*, 173-185.

Chen, B. C., &Denoyelles, A. (2013.Exploring students' mobile learning practices in higher education.*EDUCause Review Online*. Retrieved from http://www.educause. edu/ero/article/exploring-students-mobile-learning-practices-higher-education

Coxhead, A. (2000). A new academic word list.*TESOL quarterly, 34*(2), 213-238.

Dashtestani, R. (2013). Students' acceptance and perspectives of PowerPoint presentations as learning tools in the Iranian English for academic purposes (EAP) context.*TaiwanInternational ESP Journal, 15* (10), 1-18.

Dashtestani, R. (2014). An analysis of English for academic purposes students' use of Wikipedia as a resource for learning academic English.In J.-B. Son (Ed.), *Computer-assisted language learning: Learners, teachers and tools* (pp. 69-96). APACALL Book Series Volume 3. Newcastle upon Tyne, UK: Cambridge Scholars Publishing.

Dieterle, E., Dede, C., &Schrier, K. (2007). "Neomillennial" learning styles propagated by wireless handheld devices, In Lytras, M. and Naeve, A. (Eds.), *Ubiquitous and pervasive knowledge and learning management: semantics, social networking and new media to their full potential* (pp. 35-66), Pennsylvania: Idea Group, Inc.

Elisha-Primo, I., Sandler, S., Goldfrad, K., Ferenz, O., & Perpignan, H. (2010).Listening to students' voices: A curriculum renewal project for an EFL graduate academic program, *System, 38*(3), 457-466.

Flowerdew, J., & Peacock, M. (2001). Issues in EAP: a preliminary perspective. In J. Flowerdew and M. Peacock (Eds.), *Research perspectives on English for academic purposes* (pp. 8-24). Cambridge: Cambridge University Press.

Gasaymeh, A. M. M., &Aldalalah, O. M. (2013).The impact of using SMS as learning support tool on students' learning.*International Education Studies*, *6*(10), p112.

Hayati, A., Jalilifar, A., &Mashhadi, A. (2013).Using Short Message Service (SMS) to teach English idioms to EFL students.*British Journal of Educational Technology*,*44*,66–8.

Hussein, A. R., &Nassuora, A. (2011). Academic attitudes towards the use of mobile phone technologies for knowledge sharing in higher education institutions: An exploratory survey. *American Academic & Scholarly Research Journal (AASRJ), 1*(1), 6-9.

Hyland, K. (2006). *English for Academic purposes*. New York: Routledge**.**

Hyland, K., &Tse, P. (2007). Is there an "academic vocabulary"?.*TESOL quarterly*, *41*(2), 235-253.

Jarvis, H. (2004). Investigating the classroom applications of computers on EFL courses at higher education Institutions.*Journal of English for Academic Purposes*, *3*(2), 111-137.

Jarvis, H. (2009). Computers in EAP: change, issues and challenges. *Modern English Teacher*, *18* (2), 51-54.

Kearney, M., Schuck, S., Burden, K., &Aubusson, P. (2012). Viewing mobile learning from a pedagogical perspective.*Research in Learning Technology*, *20*. doi:10.3402/rlt.v20i0.14406

Kennedy, C., & Levy, M. (2008).L'italiano al telefonino: Using SMS to support beginners' language learning. *ReCALL*, *20*(03), 315-330.

Khwaileh, F., & Al-Jarrah, A. (2010). Graduate students' perceptions toward mobile-learning (M-Learning) at the University of Jordan. *Instructional Technology and Distance learning*, *7*(20), 15-23. Retrieved from http://www.itdl.org/Journal/Oct_10/article02.htm

Kim, D., & Kim, D. (2012).Effect of screen size on multimedia vocabulary learning.*British Journal of Educational Technology*, *43*(1), 62–70.

Kim, D., Rueckert, D., Kim, D-J., &Seo, D. (2013).Students' perceptions and experiences of mobile learning.*Language Learning and Technology*, *17*(3), 52-73.

Koletnik, M. (2012).Expanding vocabulary through translation–An eclectic approach.*ScriptaManent*, 7 (1), 2-12.

Kottari, V., Kamath, G. V., Saldanha, L. P., & Mohan, C. (2013). A survey on mobile cloud computing: Concept , applications and challenges. *International Journal of Advances and Innovative Research*, *2*(3), 487–492.

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

Kukulska-Hulme, A. (2009). Will mobile learning change language learning?.*ReCALL*, *21*(02), 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*(03), 271–289.

Levy, M., & Kennedy, C. (2005). Learning Italian via mobile SMS. In A. Kukulska-Hulme, & J. Traxler (Eds), *Mobile Learning: A Handbook for Educators and Trainers* (pp.76-83). London: Routledge.

Li, S. L., & Pemberton, R. (1994).An investigation of students' knowledge of academic and subtechnical vocabulary.*Proceedings of the Joint Seminar on Corpus Linguistics and Lexicology* (pp. 183–196). Hong Kong SAR, China: Hong Kong University of Science and Technology.

Liu, Z., Zhao, G., Zheng, W., & Jin, J. (2008).*The research and exploration of mobile-learning based on Web 2. 0*. Paper presented at the International Symposium on Knowledge Acquisition and Modeling (KAM'08), Wuhan, China.

Lominé, L. L., &Buckhingham, C. (2009). M-Learning: texting (SMS) as a teaching & learning tool in higher arts education. *European League of Institutes of the Arts Teachers' Academy,* 1-6. Retrieved from http://www.elia-artschools.org/images /activiteiten/18/files/Lomine%20%20Texting%20as%20a%20tool%20for%20teaching. pdf

Mackey, A., &Gass, S. M. (2005).*Second language research: Methodology and design*. Mahwah, NJ: Lawrence Erlbaum Associates.

Mahmoud, A. (2013). *An exploration and evaluation of the attitudes and perceptions of students toward use of mobile technology in higher education in the Kingdom of Jordan*(Unpublished PhD dissertation). Colorado Technical University, USA.

Markett, C., Sánchez, I. A., Weber, S., & Tangney, B. (2006). Using short message service to encourage interactivity in the classroom.*Computers & Education, 46*(3), 280-293.

Mozejko, Z.P. (2011). Student needs assessment in teaching English at the tertiary level: An individual learner differences perspective. In Arabski, J. &Vojtaszek, A. (Eds.), *Individual Learner Differences in SLA,* (pp. 184-198).Clevedon, U.K.: Multilingual Matters.

Mellow, P. (2005). The Media Generation: Maximize learning by getting mobile. Proceedings for ASCILITE 2005 Conference: Balance, Fidelity, Mobility: maintaining the momentum? Brisbane, Australia. Retrieved from http://www.ascilite. org.au/conferences/brisbane05/blogs/proceedings/53_Mellow.pdf

Motallebzadeh, K., Beh-Afarin, R., & Rad, S. D. (2011).The Effect of short message service on the retention of collocations among Iranian lower intermediate EFL learners.*Theory and Practice in Language Studies, 1*(11), 1514-1520

Moura, A., &Carvalho , A.A. (2010). Mobile learning: Using SMS in educational context. *International Federation for Information Processing (IFIP) Advances in Information and Communication Technology, 324*, 281-291.

Nation, I. (1990). *Teaching and learning vocabulary*. New York: Newbury House.

Nation, I. (2001). *Learning Vocabulary in Another Language*. Cambridge: Cambridge University Press.

Nwaocha, V. O. (2010). SMS-Based mobile learning system: A veritable tool for English language education in rural Nigeria. *African Journal of Mathematics and Computer Science Research,3*(7): 107-113.

O'Shea, N (2005). *Use of SMS messaging at Institute of Technology*, Tallaght. Institute of Technology Tallaght, Dublin.

Paul, R. (2008). Bangladesh adds 2.05 million mobile phone users in Jan. Retrieved from www.reuters.com/article/technologyNews/idUSDHA11326220080306

Percival, J., & Percival, N. (2008).*Engineering students' perceptions of mobile learning.*Paper presented at the World Congress on Engineering and Computer Science, San Francisco, USA.

Petersen S.,&Markiewicz J. (2008). PALLAS: Personalized language learning on mobile devices. *Proceedings 5th IEEE International Conference on Wireless, Mobile and Ubiquitous Technology in Education* (pp. 52-59). Beijing, China.

Rekkedal, T., & Dye, A. (2007). Mobile distance learning with PDAs: Development and testing of pedagogical and system solutions supporting mobile distance learners. *The International Review of Research in Open and Distance Learning, 8*(2), 1-21.

Riordan, B., &Traxter, J. (2005).*The use of targeted bulk SMS texting to enhance student support, inclusion and retention.*IEEE International Workshop on Wireless and Mobile Technologies in Education, Tokushima, Japan.

Schick, C. (2007). The mobile lifestyle: How the fusion of the mobile and the Internet have changed the way we live, learn, and play. *Keynote Speaker of the 6th International Conference on Mobile Learning.* Melbourne, Australia.

Schmidt, R. (2001). Attention. In P. Robinson (Ed.*), Cognition and second language instruction* (pp. 3-32). Cambridge, UK: Cambridge University Press.

Sibold, C. (2011). Building English language learners' academic vocabulary: Strategies and tips.*Multicultural Education, 18*(2), 24-28.

Scornavacca, E., Huff, S., & Marshall, S. (2009). Mobile phones in the classroom: if you can't beat them, join them. *Communications of the ACM, 52*(4), 142-146.

So, S. (2009). The development of a SMS-based teaching and learning system.*Journal of Education Technology Development and Exchange, 2*(1), 113–124

Song, Y. (2008). SMS enhanced vocabulary learning for mobile audiences. *International Journal of Mobile Learning and Organization, 2*, 81-98.

Tajino, A., Dalsky, D., & Yosuke, S. (2009). Academic vocabulary reconsidered: An EAP curriculum-design perspective. *Journal of Teaching English as a Foreign Language and Literature, 1*(4), 3-21.

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

Valk, J. H., Rashid, A. T., & Elder, L. (2010).Using mobile phones to improve educational outcomes: An analysis of evidence from Asia.*The International Review of Research in Open and Distance Learning, 11*(1), 117-140.

Worthington, D., & Nation, I. S. P. (1996).Using texts to sequence the introduction of new vocabulary in an EAP course.*RELC Journal, 27*, 1–11.

Yousefzadeh, M. (2012).Multimedia messaging service (MMS) vs. short message service (SMS) and second language learners' vocabulary.*Journal of Educational and Instructional Studies in the World, 2*(10), 89-92.

Zhang, H., Song, W., &Burston, J. (2011).Reexamining the effectiveness of vocabulary learning via mobile phones.*The Turkish Online Journal of Educational Technology, 10*(3), 203–221.