Collaborative podcasting and its Effect on English Vocabulary Learning and Retention*

Vahid R. Mirzaeian**

Assistant professor, ELT Department, Alzahra University

Abstract

   This paper reports an attempt to see if podcasting can be a valuable tool to improve English vocabulary learning and retention of Persian university students compared with traditional method of vocabulary teaching. Students have been randomly divided into two groups namely experimental and control group. In the experimental group, students are asked to produce podcasts collaboratively and students in the control group are asked to spend the same amount of time in a traditional class practicing vocabulary items. The analysis of covariance shows students in the experimental group significantly outperform students in control group in terms of both learning and retention of vocabulary items.

Introduction

Recent developments in the field of education can be attributed to the advent of information and communication technologies (Köse, 2010). Rapid deployment and expansion of the internet has opened new doors to educators to interact with learners and many educational establishments have been exploiting the potentials of e-learning either independently or in blended form (Evans, 2008). In this scenario, web 2.0 based environments are among facilities that have provided interaction as well as collaboration among learners. So it is natural for these new environments to be the focus of attention in recent years (Chati, Klamma, Jarke and Naeve, 2007). Web 2.0 environments can provide a mixed collaborative atmosphere among learners (Greenhow, Robelia and Hughes, 2009) and the learners collaborate in these environments to reach a common goal (Augustsson, 2010). Web 2.0 tools also include features to support learning (Usluel and mazman 2000) and have provided exciting opportunities to create a learning environment beyond physical boundaries since they can be accessed anywhere anytime (Lai and Eugemia, 2011). Therefore, the implementation of web 2.0 has provided new opportunities for learning in the classrooms (O'Bannon et al 2011).

One of the recent technologies that has attracted attention in the field of education is podcasting (Rahimi and Asadollahi, 2011) which refers to all forms of delivering audio based on the web (Abdous, Facer and Yen, 2012). Podcasts combined with RSS (Really simple syndication) have been the focus of attention in e-learning as a web 2.0 tool and since they can be used in portable tools and mobile devices, they have been the center of attention (Safran, Heric and Gutl, 2007). Podcasts can be considered a form of mobile learning in which a device is used to listen to an audio file. Data which is on the internet can be downloaded onto a desktop computer, a laptop or any portable device. The learners can have full control over time and location of using the media (Evans, 2008).

From an educational perspective, podcasts are one of the most formal means of teaching. Indeed, lecturers can use podcasts to transfer

their lectures outside the classroom, providing ample opportunities for communication and interaction (Abdous et al, 2009). In addition, podcasts are complementary tools to the teaching and learning resources but not necessarily replacing them. The most important advantage of podcasts is the ease of accessibility (Fernandez, Simo and Sallan, 2009). They can be played on almost all digital devices. Some researchers (Bollinger, Supanakorn and Boggs, 2009) believe that podcasts are tools saving a lot of time and they can be used under various circumstances (Evans, 2008; Fernandez et al, 2009; Rahimi and Asadollahi, 2011).

Empirical research on the potentials of podcasts in teaching shows that they can be highly effective in various aspects of learning and can also increase motivation among learners (O'Bannon et al, 2011; Hew, 2009; Fernandez et al, 2009; Bolinger et al, 2010). They are powerful tools that can be implemented in addition to current teaching methodologies. A study (Vatovec and Balser, 2009) shows that majority of students considered podcasts useful in doing their homework and thought of it as a useful learning tool. In addition, another researcher (Dale, 2007) has reached the conclusion that podcasts should not be considered as a replacement for student-teacher interaction rather as a tool to enhance learning experiences of the students.

Vocabulary knowledge also seems to be an important factor influencing the success or failure of university students in all aspects of the foreign language learning particularly in reading comprehension (Laufer, 1997). That is why many researchers in the field of foreign language learning and teaching have focused their attention to vocabulary learning and retention. They have also examined direct vocabulary instructions such as glosses (Hulstijn, 1992; Hulstijn, Hollander, and Greidanus, 1996; Watanabe 1997), syntactic and morphological analysis (Bauer and Nation, 1993; Nation, 1994) and mnemonic devices (Beaton, Grunberg and Ellis 1995) just to name a few.

Despite scholarly interests in these techniques (Carter, 1998; Stahl, 1999; Eyraud, Giles, Koeinig, and Stoller, 2000; Nation, 2001; Waring and Takaki, 2003) these direct vocabulary teaching methods seem to be insufficient to enable second language learners to acquire basic vocabulary items (3,000-5000 word families; Nation and Waring, 1997) especially in courses such as "General English" offered to almost all the university students regardless of their field of study.

One solution to this problem comes from studies on vocabulary enlargement by children in acquiring their first language. It shows that if the learners are actively involved in learning vocabulary, their learning and retention will improve (Coady, 1997). One of the ways to enhance vocabulary learning among students is the implementation of new educational technologies so that the learners themselves take an active role in producing the material. In other words, mixing the new technologies with collaborative methods can improve learning. In this research, we have focused our attention to the effect of podcasting as a collaborative tool compared with the current methods of learning and retention of vocabulary items among Persian university students. Here are our hypotheses:

1) There is a difference between the learning of students in experimental group (using podcasts collaboratively to learn vocabulary) and the control group (using the traditional method of vocabulary learning).

2) There is a significant difference between the retention of vocabulary items by the students in the experimental group versus students in the control group.

3) The teaching method adopted has an effect on the first post-test scores (learning).

4) The teaching method adopted has an effect on the second post-test scores (retention).

Methodology
This study was conducted on two groups of students using pre-testing and post-testing. The aim was to evaluate the effectiveness of collaborative podcasting on the learning and retention of vocabulary

items among Persian freshman students in a course called "General English." The population for this research was 1170 university students studying at various universities in central Persia. All the university students registering for "General English" course were included in the sampling and finally 20 students were randomly selected for the control group and 51 students for the experimental group. Students in the experimental group took part in a training session to learn how to produce podcasts using Audacity application. Later, they were divided into groups and each producing four podcasts on major vocabulary items. They spent 2-3 hours in each session to develop the podcasts and totally they had eight sessions. The second group attended classroom sessions in which they focused on the same vocabulary items and tried to learn them. In the first phase of the research, students in the experimental group were taught how to use the application but in subsequent sessions they were in charge of all activities including planning, data collection, production and broadcasting.

In order to implement collaborative educational podcasting in the classroom, at the beginning major vocabulary items were selected. Later, arrangements were made so that students could have access to computer labs in their universities. In the very first session, the students were randomly divided into groups and were taught how to use the application. In the second session, they were asked to install the application on their systems and start searching the internet for data regarding the main vocabulary items. The data could be in the form definitions, examples, pictures, grammatical information or anything related to the vocabulary item that could help learning. In the third session, students were asked to select a specific vocabulary item, design an educational scenario and gather some information from the web to produce an educational program. In the following sessions, students in each group collected the data and developed some educational programs. In all these activities students were actively involved in group interactions and they were responsible for gathering the data and producing educational programs. In these activities, students were observed by a lab technician who provided assistance if the students

had a problem. The vocabulary knowledge of the students in this research was tested three times using multiple choice questions devised by the researchers, first before the treatment as a pre-test, at the end of the treatment as post-test and finally four weeks after the first post-test to measure retention. In this research, the difference between the pre-test and the post-test was taken as learning and the difference between the pre-test and the second post-test as retention.

In order to measure the validity of the research-made tests, in addition to showing the tests to experienced language teachers, level of difficulty and discrimination was calculated. To analyze the data, both descriptive statistics namely frequency distribution, mean, standard deviation and standard error of measurement as well as analytical statistics including t-test and analysis of covariance were used. To measure the reliability, split-half method was used (0.864).

Findings

At the beginning, results of the t-test for the comparison of the mean for the scores of students in both groups revealed that there was no statistically significant difference between the two groups (t=0.865, sig=0.392), so it could be argued that at the beginning of the pre-test, the two groups were homogenous.

Table 1. Comparing students in both groups (experimental and control) in vocabulary learning

Group	Number	Mean	Standard Error of Measurement					
				F	Significance level	t	df	Significance level
Control	20	1.77	0.763	0.000	0.994	-6.139	69	0.000
Experimental	51	7.00	0.441					

As for the first hypothesis, the table shows that the results of the tests for the two means reveals a statistically significant difference between vocabulary learning of the two groups (t=-6.139, sig=0.000). In addition, comparing the means of the two groups reveals that the students exposed to vocabulary learning via collaborative podcasting (Mean=7.00) had a better learning compared to students learning vocabulary via traditional method (Mean=1.77).

Table 2. Comparison of experimental versus control group in vocabulary retention.

Group	Number	Mean	Standard Error of Measurement					
				F	Significance level	t	df	Significance level
Control	20	0.66	0.781	0.735	0.394	-7.201	69	0.000
Experimental	51	6.60	0.416					

As for the second hypothesis, results of the t-test regarding the two means (table 2) indicates that there was a statistically significant difference between the vocabulary retention of the two groups (t=-7.201, sig=0.000). In addition, comparison of the means of the two groups revealed that students learning vocabulary using collaborative podcasting (6.60±0.416) had a higher retention rate compared to students learning vocabulary using traditional method (0.66±0.781)

Table 3. Analysis of covariance for the student scores with adjustment for pre-test effect

Source	Sum of Squares	Df	Mean	F	Significance level	Impact Factor
Corrected pattern	264.733	2	132.367	15.223	0.000	0.309

Constant value	396.052	1	396.052	45.547	0.000	0.401
Vocabulary Pre-test	39.272	1	39.272	4.516	0.037	0.062
Group	260.375	1	260.375	29.944	0.000	0.306
Error	591.287	68	8.695			
Total	856.20	70				

In order to test the third hypothesis, we used analysis of covariance. It has to be noted that the results of Levene test to see if variances were homogenous indicated that the variances for the two groups were homogenous. So it was proved that analysis of covariance could be performed. The results of this analysis indicated that after adjustment of the pre-test scores and using the analysis of covariance, it was proved that the method of teaching was statistically significant (F=29.944, sig=0.000). Considering Eta coefficient, it could be argued that the method of learning was responsible for the 31 percent variance of learning (Table 3).

Table 4. comparing students' true score with adjusted score in post-test for each group (learning)

		Before adjustments based on Pre-test	After adjustments based on Pre-test		
Control	20	10.60	2.870	10.28	0.677
Experimental	51	14.57	3.079	14.69	0.417
Total	71	13.45	3.496		

In addition, the scores for the mean of the first post-test and after adjustments base on pre-test (Table 4) indicated that the experimental group had a better learning compared to control group.

Table 5. Analysis of covariance for the students' score for vocabulary retention

Source	Sum of Squares	Df	Mean	F	Significance level	Impact Factor
Corrected pattern	330.012	2	165.006	22.836	0.000	0.402
Constant value	419.781	1	419.761	58.097	0.000	0.461
Vocabulary Pre-test	16.257	1	2.250	2.250	0.138	0.032
Group	329.405	1	45.589	45.589	0.000	0.401
Error	821.350	68	7.226			
Total	12547.475	71				

As for the fourth hypothesis, in order to investigate the degree of the effectiveness of teaching method on the scores (second post-test) of both groups, after controlling the effect of pre-test, analysis of covariance was used. As the results indicated (Table 5) the data was consistent with the homogeneity of regression slopes assumption. In addition, the results of Levene test to determine the homogeneity of variances indicated that the data did not invalidate the error of variances. In other words, the variances of both groups were homogenous. After adjustment of the scores for pre-test and using analysis of covariance, the statistically significant effect of teaching method was confirmed (F=45.589, sig=0.000). Considering the Eta coefficient, method of teaching was responsible for 40 percent variance in retention.

Table 6. Comparing the mean of true score and adjusted score for the students in post-test based on groups (retention)

		Before adjustments based on Pre-test	After adjustments based on Pre-test		
Control	20	9.49	2.946	9.28	0.617
Experimental	51	14.16	2.617	14.25	0.380
Total	71	12.85	3.425		

The mean score of the second post-test before and after adjustments based on pre-test (Table 6) showed that the experimental group had a greater retention rate compared to control group.

Discussion

The findings of this study indicated that students exposed to collaborative podcasting enjoyed greater learning and retention compared to students exposed to the traditional method. In other words, using podcasts collaboratively as a teaching method had been quite effective as a tool for learning and retention of vocabulary items. The results of analysis of covariance showed that collaborative podcasting was indeed responsible for 31% of learning and 41% of retention. Some of these findings were in line with findings by Fernandez et al (2009). In their study it was found out that production of multimedia had a positive effect on student learning. This finding was also compatible with the findings by Vatovoc and Blaser (2009). They also indicated that podcasting could enhance learning and was considered by the students as an effective learning tool. Dale (2007) also reached the same conclusion that podcasts could improve learning.

The method adopted in this study (collaborative podcasting) took advantage of using media and collaboration and was able to improve learning. The attraction of multimedia, its role in engaging student's various senses, forcing students to find resources on the web other than standard textbooks, making podcasts by student's themselves, active participation on the web, attraction of web 2.0 environments, receiving feedback and knowing that what is produced is also used by other people could be the reason for the effectiveness of podcasts on learning. On the other hand, the collaborative method adopted increased collaboration and cooperation among students. In addition, results indicated that the teaching method using collaborative podcasting had 9% more impact on retention that could prove that challenges of making podcasts prolonged learning and made the retention of vocabulary items possible.

It can also be argued that the teaching method is one of the most important aspects of learning and teaching. In traditional teaching,

instruction is one way i.e. the teacher provides students with knowledge and students should absorb knowledge passively. But in collaboration, students' role in learning is different. They are not only the absorbers of knowledge but also active participants in the learning process. In addition, in collaborative methods, in addition to the teacher, students use various learning resources and interact with their classmates. Now if in collaborative methods, we employ multimedia as well as new technologies, the effectiveness of our teaching will be enhanced. One of the advantages of collaboration which has been the focus of this research is paying attention to vocabulary retention since collaborative podcasting has been responsible for 40% of vocabulary retention among students. This point can be one of the advantages of collaboration since in traditional methods of teaching, learning is evaluated at the end and no attention is made to vocabulary retention.

In this study, the effectiveness of two teaching methods namely the traditional method and collaborative podcasting was investigated and the results indicated that collaborative podcasting was effective in both vocabulary learning and retention. In other words, using collaborative podcasting as a new multimedia in vocabulary learning was effective in both vocabulary learning and retention. It indicates that mixing collaborative methods with new technologies can be highly effective in teaching compared to the traditional method. Since in podcasts sound is used, active participation of students is required to produce them. So It can be argued that lack of collaboration by students may be responsible for the failure of some teaching methods.

Based on the findings in this study, we suggest that teachers in general and English language teachers in particular use a combination of collaboration and teaching to enhance learning and retention. In addition to attracting students' attention, these hybrid methods engage students in group activities so the students benefit from both new technologies and collaboration. In addition, due to the high effect of these methods, it is suggested that English language teaching departments in various universities encourage the use of these new technologies to enhance vocabulary learning and retention

Conclusion

Rapid developments in the field of information and communication technology have created ample opportunities for language eductors to implement such technology in their profession. One such technology is podcasting, i.e digital audio files that a user can download in order to listen. In this paper, we reported an attempt to see if podcasting can be a valuable tool to improve English vocabulary learning and retention of Persian university students compared with traditional method of vocabulary teaching. Students were divided into two groups namely experimental and control group. In the experimental group, students are asked to produce podcasts collaboratively and students in the control group are asked to spend the same amount of time in a traditional class practicing vocabulary items. The analysis of covariance shows students in the experimental group significantly outperform students in control group in terms of both learning and retention of vocabulary items. This study encourages language educators to use such technology in their professional career.

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