Journal of Advances in English Language Teaching 2014;
vol.2, No.1, pp.1-13 ISSN 1805-8957
www.european-science.com/jaelt

Using Multimedia in Teaching Vocabulary in High School Classes

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Received for publication: 10 November 2013.
Accepted for publication: 06 January 2014.

Abstract

The present study tried to observe the impact of using multimedia on teaching vocabulary to see if it could improve learning vocabulary in high school classes. The participants were divided into two classes according to their proficiency. Eachgroup had 28 participants. There was a pre-test to check out the student's knowledge of vocabulary at the beginning of the experiment. Also, the control group was taught by traditional tasks like reading aloud, repetition, and translation. Learners in theexperimental group were taught by using multimedia techniques. After the treatment, three months (12 sessions), a post-test was used to check out the student's knowledge of vocabulary at the end of the experiment in both groups. Two delayed post-tests were used to check out the retention of the student's knowledge of vocabulary after two and four weeks of ending the experiment in both groups.The findings suggested that using multimedia was more effective in acquisition and learning unknown vocabulary than traditional methods. It had a positive effect on retention of vocabulary knowledge. Therefore, the use of multimedia provided the bridge to a deeper understanding.

Keywords: Vocabulary, Multimedia, high school students

Introduction

There are fundamental features in learning a language and one of the most important of them is vocabulary.For most students who learn a second language, the first headache or difficulty they meet is usually remembering words. One of the most ambitious goals for a second or foreign language learner is to know all the vocabulary of that language (Nation, 2001). Children need to know a wide range of words to understand and learn from the lessons they encounter in school.This is a particular problem for English language learners who come to school with limited English language background. Decarrico (2001, as cited in Celce-Murcia 2001) claims"vocabulary learning is central to first and second language acquisition and especially now emphasize the need for a systematic and principled approach to vocabulary by both teachers and learners" (285).

As early as 1924, researchers noted that thegrowth in reading power relies on continuous growth in word knowledge. The interest in and importance given to the role of vocabulary in second and foreign language learning have grown rapidly in recent years. Research studies on first language (L1) and second/foreign language (L2) vocabulary acquisition have turned their focus toward several key issues such as what knowing a word means, how many words native speakers know and how they acquire them, which words learners need to know to use another language, and how they should learn them. The results of these studies have revealed the need for a systematic and principled approach to vocabulary teaching and learning (Carter and McCarthy, 1988; CoadyandHuckin, 1997; Laufer, 1986; Nattinger, 1988; Nation, 1990, 2001; Schmitt, 2000; Stoller and Grabe, 1993; Taylor, 1990).Tradi-

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tional approaches to language teaching and learning have been challenged by new and innovative approaches based on the latest advances in computer and Internet Technology.

Nation (2001) asserts that, in the light of the rapid development in the use of computers in language learning, computers provide a very effective way of vocabulary learning, particularly in ensuring that learners' efforts are directed towards vocabulary they most need.Studies on vocabulary learning with the use of the computer have confirmed the effectiveness of electronic glossary in L2 vocabulary learning among learners in general (Al-Seghayer, 2001; Lauferand Hill, 2000; Lim, 2003).Many researchers have presented strong evidence that multimedia have useful effects on language learning because of rich and authentic comprehensible input (Brett, 1995; Egbert and Jessup, 1996; Khalid, 2001).

One of the most accepted trends in the field of teaching vocabulary in a foreign language teaching is Computer-Assisted Language Learning and Teaching (CALL and CALT).With the emergence and popularity of Computer-Assisted Language Learning and Teaching (CALL and CALT), many English teachers have shifted their focus from teacher-centered or book-centered instruction to students-centered instruction. With respect to the new information technology, language teachers may use computers and Internet in language teaching. (HU Hai-peng1, DENG Li jing2, 2007).Hoogeveen (1995) concluded several good points by using multimedia in language learning. Firstly, learners respond to multimedia in a complex way and give the feeling of experiencing information instead of simply acquiring it. Secondly, the man-machine is more friendly interaction. Thirdly, students feel more fun from multimedia and learning becomes a happy process.The current development in information technologies has resulted in rapid advances in the application of instructional and educational technology. One pedagogical method involving technology that has gained interest and attention of many researchers is introducing new words with computer vocabulary teaching programs or software. (Lu, F.L., 2010).In recent years, computer assisted language teaching (CALT) has been extensively used in various kinds of foreign language teaching, because the computer could combine all kinds of multimedia tools to assist four requirements of foreign language learning, including listening, speaking, reading, and writing (Plass, 1998). Multimedia refers to computer-based systems that use various types of content, such as text, audio, video, graphics, animation, and interactivity. If teachers could use information technology to show teaching material with audio-visual animation effect, then the learners' motivation aroused and the learners could understand and be familiar with what they learn more (Lu, 2010).

Computer technology, Internet and web-based resources are now in many schools and offer teachers and learners vast resources and opportunities for language teaching and learning. Maximum benefit from these resources can only be achieved through teachers' use of technology in developing materials for the language classroom. Time, effort, and resources invested in building up this project. Theywould be wasted if teachers and learners fail to use these tools and resources in their approaches to vocabulary instruction and learning.

Foreign language teaching in Iran seems to have been long out-dated. Moreover, the present researcher has found out, from his experiences that teacher-centered language instruction is the dominant form of teaching English in Iran.It can be said that there is a good deal of evidence to prove that many teachers still use traditional approaches to the teaching of English, such as the grammar translation method and the audio-lingual method.Students spend at least seven years learning English,but their English proficiency is generally unsatisfactory when compared to the amount of time spent in learning it. To rectify the current situation, a shift from traditional approaches to new methods is critically needed in different aspects of language teaching as well as vocabulary.

The results of this study may be useful in identifying teachers' attitudes towards and approachesusing the multimedia technology resources provided for them and the reasons behind these attitudes. The aim of this thesis is examining the effect of using multimedia in teaching vocabulary in high school classes to know if it has any positive effect on learning vocabulary or not .It will help us to offer better methods for teaching vocabulary in high schools.

Research Questions

1. Does Using multimedia in teaching vocabulary have any effects on learning vocabulary of high school students?

2. Is there any significant difference between learning vocabulary through using multimedia in teaching vocabulary and using common traditional methods of teaching vocabulary?

3. Do both experimental and control groups perform the same in their retention tests?

Review of Literature

The evolution of traditional second language teaching

It seems almost impossible to overstate the power of words; they literally have changed and will continue to change the course of world history. Several researchers have argued that vocabulary plays a major part in reading proficiency. The importance of vocabulary for overall foreign language learning is the basis of studies in vocabulary learning (Nation, 2001; Nikolova, 2002). Nation (1990) states that effective L2 /FL instruction should also concentrate on cultivating vocabulary (both cited in Anderson, 1999: 25). Chanier and Selva also stress the fact that vocabulary knowledge is a key factor in reading comprehension (1998: 489) and so does Groot (2000), who argues that functional L2 reading proficiency requires mastery of a considerably large number of words. "Improving students' vocabulary is an area of urgent need if we are to develop the advanced literacy levels required for success in school and beyond."(Biancarosaand Snow, 2006; Graves and Watts-Taffe, 2008).

Many researchers believe that facing entirely new words is the main obstacle in learning English (Anderson andFreebody, 1981). But recent years, with the development of new information technology, especially multimedia technology's application in teaching makes it possible to get rid of the negative aspects that come from social, cognitive and material conditions. At the same time, it can improve the students' vocabulary learning.

Here the present researcher briefly introduces some most famous teaching methods and their view on teaching vocabulary and then present a look at using multimedia in teaching English as a foreign language and specifically in teaching its vocabulary.

Grammar Translation Method

The grammar-translation method is a method of teaching foreign languages derived from the classical (sometimes called traditional) method of teaching Greek and Latin. In the 19th century, it began to be used to teach modern languages such as French, German, and English, and it is still used in some countries today.

In grammar-translation classes, students learn grammatical rules and then apply those rules by translating sentences between the target language and their native language. Advanced students may be required to translate whole texts word-for-word. Words are taught through bilingual word lists, dictionary study, and memorizing native-language equivalents of target language vocabulary.

The grammar-translation method is still in use today in hybrid forms in many different countries, including many parts of Iran. It also should be recalled that, in Iran, all the efforts of the student must lead to success in Konkoor (the entrance exam for universities in different courses) and as the English questions in this exam all insist on different kinds of vocabulary tests, reading comprehension ones and grammar, so this method can help students more or less.

The Direct Method

The direct method of language teaching is also called: The Natural method, The Berlitz method, The Reform method or The Anti-grammatical method.The Direct Method was established by Maximilian Berlitz around 1900.The principle of thedirect method is establishing a direct bond between the English word, phrase or idiom and its meaning. The learner tries to understand the foreign word or expression as it stands, without learning over the native language. There is a focus on everyday vocabulary. Visual aids are used to teach vocabulary. The teacher teaches vocabulary through pictures, objects and elaborates pantomime. Concrete words are taught through objects, pictures, physical demonstration, and abstract words are taught by grouping words according to the topic or through association of ideas (Zimmerman, 1997).

In this method as words are taught through pictures, objects and visual aids are used to teach vocabulary so there are similarities to using multimedia in teaching vocabulary but here there is a focus on everyday vocabulary.

The Audio-lingual Method

The Audio-lingual Approach,which was dominant in the United States during the 1940s, 1950s, and 1960s is known to be a major paradigm shift in foreign language teaching (Larsen-Freeman, 1986). The objective of the audio-lingual method is accurate pronunciation and grammar, the ability to respond quickly and accurately in speech situations and knowledge of sufficient vocabulary to use with grammar patterns. The students are mastering the

sound system and grammatical patterns. Vocabulary is limited and learned in context. New vocabulary and structural patterns are presented through dialogs. Vocabulary learning is kept to a minimum (especially in the initial stages),and new words are introduced and selected according to their simplicity and familiarity to make the grammar practice possible (Zimmerman, 1997).

The Cognitive Approach

The Cognitive Approach offered relief to the criticisms bombarded to the behaviorist features of the Audio-lingual Approach. It was influenced by cognitive psychology and Chomskyan linguistics (Chomsky, 1959, 1965).Vocabulary is important, especially at intermediate and advanced levels. The pace at which new L2 words or expressions are acquired is influenced by the degree of engagement with them on the part of the learner.Vocabulary teaching and learning is a cycle of semantic learning and internalization, which is closely linked to and to a large extent dependent on the way the word is presented.

The Silent Way

The Silent Way is a language-teaching method created by Caleb Gattegno (1963) that makes extensive use of silence as a teaching technique.In Fact, Caleb Gattegno(1963), the founder of the Silent Way devoted his thinking to the importance of problem solving approach in education.Learning is facilitated by accompanying (mediating) physical objects. The Silent Way uses colorful charts and rods (Cuisenaire rods) which are of varying length. They are used to introduce vocabulary (colors, numbers, adjectives, verbs) and syntax (tense, comparatives, plurals, word order ...). Even though teachers are often silent, they are still active; they will commonly use techniques such as mouthing words and using hand gestures to help the students with their pronunciation. The choice of vocabulary is important, with functional and versatile words seen as the best. Translation and rote repetition are avoided,and the language is usually practiced in meaningful contexts. Pronunciation is seen as fundamental; beginning students start their study with pronunciation, and much time is spent practicing it each lesson. Vocabulary expands, at first slowly and then at a rapid speed.

A Silent Way teacher introduces words in their written as well as spoken form. It makes it easier for students to retain words. They meet them and learn them by working on what the words look like, sound like, and how to produce them in their own handwriting.

Insisting on avisual aspect of teaching in this method is similar to using multimedia in teaching vocabulary. Pronunciation is seen as fundamental; beginning students start their study with pronunciation, and much time is spent practicing it each lesson.But in English books ofhigh schools pronunciation is too limited; also, there are some practices based on pronunciation in the books, but exams onlytest with score one of forty is about pronunciation and there are no tests of pronunciation in entrance exams of universities, so the insisted point of this method isn't so important for the students in high schools in Iran.

The Communicative Approach

Communicative Language Teaching (CLT) which is an approach to the teaching of second and foreign languages emphasizes interaction as both the means and the ultimate goal of learning a language.In the 1970's attention was drawn to the importance of communicative competence and knowledge of the rules of language use (Hymes, 1972). This led to a shift away from a focus on accuracy and the forms of language tofocus on communication and fluency.

With its emphasis on fluency over accuracy, and a focus on encouraging learners to communicate their messages and intentions using the linguistic resources available to them, vocabulary had not been a primary concern of this methodology and was given secondary status, taught mainly as a support for functional language use (Decarrico, 2001 as cited in Celce-Murcia 2001).

Recalling this main view of this method we see that its aim can't match our educational aims that accuracy is very important in it, on the other hand a student may rarely faces the opportunity to use language in his daily life and communicating is a secondary aim for learning English in Iran

Using multimedia in teaching vocabulary

The last decade has seen numerous research studies suggesting that various forms of computerized media or multimedia may provide an environment that fosters the learning of foreign language vocabulary (see Al-Seghayer, 2001; Groot, 2000; Hulstijn, 2000; Lauferand Hill, 2000; Chun andPlass, 1996; Lyman-Hager and Davis, 1996; Lyman-Hager, Davis, Burnett, and Chennault, 1993).Also,the dual-coding theory proposed by Paivio (1971) suggests that when pictures are added to the meaning, the number of signals connected with the message increases. Viewers then will be more probable to keep the message in mind. Therefore, the results of the past research appear to sustain the aspect that the use of subtitles causes multi-sensory processing, interacting with audio, video and print mechanisms. Growth will hap-

pen naturally as students watch videos, listen to music, watch television shows ,listen to stories and talk to each other,. This is one of the keys to indirectly using activities for teaching vocabulary.

As Liu stated, in the area of computer-assisted vocabulary teaching and learning, researchers and practitioners have been trying to find out how to link CALL andCALT with vocabulary acquisition and how to employ CALL andCALT in vocabulary instruction in a better way.Underwood (1989, p. 19) also notes"we remember images better than words; hence we remember words better if they are strongly associated with images".

During the teaching progress, the most common function of multimedia is to assist or support the teacher. The appropriately-designed instruction media could not only assist teaching, but also promote learning effect (Hu, 2001). More recent studies examined the effect of extended use of computers on reading achievement, the effect of computer instruction on reading rate and reading comprehension; the effects of multimedia software on reading comprehension and vocabulary acquisition, as well as the relationship between vocabulary development and reading comprehension.Multimedia is an effective and engaging tool that can be used to improve vocabulary acquisition for all learners and engage them in the learning process.Today many schools in Iran have Internet access. In 2020, It can be assumed that access to information and communication technologies (ICTs) will continue to improve with the increased availability of IT services and certainly all schools will use this technology in their classes in teaching different courses and of course in teaching English as a foreign language.Nowadays there is no need to follow only one of these, a person can find so many things related to new vocabulary in internet such as picture, video, audio,animation, power point, text, talking programs such as Google talk, different kinds of flash cards, wallpapers, games and so many other sources to use in class besides, the teacher can encourage his students to make any of them and use in classes.

Methodology

Participants and setting

Participants in this study were students in grade two in high school in Kashmar, one of the towns of KhorasanRazavi in Iran. They were male students and all aged between 15 and 16. They studied in shahed high school. The school was chosen because it was equipped with many facilities and spacious classrooms. It was expected that such facilities would facilitate the procedures for doing this experiment. Students were dividedinto two groups in two classes according to their averages in grade one high school. Both groups consisted of a total number of 56 students: 28 in Experimental group and 28 in thecontrol group. They all had the same exposure to English through formal classes in secondary and high schools. Similarly, since they came from the same country, it is reasonable to assume that they shared a homogeneous EFL background. Moreover, they came mostly from the same neighborhood and were the same gender and age. As it was said above, two groups were used for this study: an experimental and a control group. Participants were not informed about the research study, serial tests, the serial treatments and so forth. At the end of the experiment, which lasted three months two sessions per week in the first half of educational year 91-92 HejriShamsi (2012-2013) a post-test was administered to both groups. And then two delayed post-tests were administered to both groups after two weeks and four weeks of ending the treatment. Each participant had 30 minutes time to answer the questions.

Design

This research used a pre-test, treatment, post-test and delayed post-test design. The reasons behind selecting this design were as shown in table 1.

Instrument

The instrumentation which was used in this study:

1. Pre-test including20 multiple choice questions of vocabulary, each question,had four choices to choose from.

2. Post-test including20 multiple choice questions of vocabulary, each question,had four choices to choose from.

3. First delayed post-test including20 multiple choice questions of vocabulary; each question had four choices to choose from.

4. Second delayed post-test including20 multiple choice questions of vocabulary, each question had four choices to choose from. All the tests that were used were valid and reliable tests of previous exams and were held by official educational system of Iran in several years.

5. An interview in the written form was given to the students in theexperimental group after 45 days of starting the experiment to know the opinion of them about using multimedia in teaching vocabulary. As a teacher for both groups was the same,the

students in these groups were studied to see that the eagerness and enthusiasm of which one is more and which group take part in class activities more actively.

Statistical methods

In order to analyze the pre-test and post-test, delayed post–tests the data were computed by means of the statistical package SPSS. The kinds of analyses that were used included the Pearson Product Moment Coefficient, which indicates the degree of relationship between two sets of numbers, as well as the frequencies, percentage and means. An independent samples t-testwas also used to determine whether the difference in means between the two groups – if it existed – was significant at the .05 level. The above statistical types were additionally used to compare the following: the pre-test means for both groups, the pre-test and post-test means for both groups; the post-test means for both groups andthe delayed post-tests means for both groups.

Table 1.Design of the experiment

Design	pre-test	Checking out the student's knowledge of vocabulary at the beginning of the experiment in both groups.
	treatment	Improving the knowledge of vocabulary of students in theexperimental group through using multimedia in teaching vocabulary.
	Post-test	Checking out the student's knowledge of vocabulary at the end of the experiment in both groups.
	First delayed post-test	Checking out the retention of the student's knowledge of vocabulary after two weeks of ending the experiment in both groups.
	Second delayed post-test	Checking out the retention of the student's knowledge of vocabulary after four weeks of ending the experiment in both groups.

Procedure

Since this comparative study consists of two distinct approaches to vocabulary learning, the materials used were the same for both groups except for the medium of presentation. For this reason, two kinds of presentation were used, using multimedia presentation (experimental group) and using traditional presentation (control group).The subjects in the experimental group including 28 students were introducedtomultimedia teaching program, designed for the vocabulary learning. The program provided users reading an expository English text with a variety of glasses or annotations for words in the form of text, graphics, videos and sound, all of which are intended to aid in understanding and to learn of unknown words. The second group including 28 students was put into the control group with the same material except for the medium of presentation.

Data collection

The total participants in the present study were 56 Iranian high school students of grade two. The independent variable used in this study consisted of two conditions: an experimental condition in which the teacher used multimedia to teach vocabulary and a control condition in which the teacher used traditional methods to teach vocabulary.

Both groups had the same number of hours of instruction, which was two periods weekly, thirty minutes each that lasted for three months.

The participants in the Experimental Group and the control group had a pre-test before the treatment began. At the end of the treatment period, a post-test was administered to both groups. And then two delayed post-tests were administered to both groups after two weeks and four weeks of ending the treatment to gauge retention. Retention is the ability of the subjects to use the target lexical items correctly after a lapse of two weeks and then after four weeks. To gauge retention, the subjects were asked to answer to the questions of two delayed post-tests. The delayed post-tests were administered two weeks later and then four weeks later in order to avoid any further disruptions to the students' classroomlearning schedule,and also it followed the time sequence of the students' exams.All the exams had the same questions for both groups and each participant had 30 minutes time to answer the questions of these exams were held in this experiment.

Data Analysis

The mean and the standard deviation of participants' scores are estimated to select a homogenized sample of participants whose scores fall one standard deviation above and below the mean. Finally, an independent-samples t-test was used for comparing the results of the two groups. The SPSS software was used to obtain descriptive and inferential statistical results.

Results and Discussion

Descriptive statistics

In order to examine whether the data are distributed normally, skewnessand kurtosis coefficients were checked for pre-test, post-test, first delayed post-test, and second delayed post-test were reported in the present study. Descriptive statistics for these tests are given in Table 4.1. To have anormal distribution, the skewness and kurtosis scores should be between -2 and +2. As shown in Table 2, skewness and kurtosis scores are between -2 and +2 for all tests, which show the normality of the distribution. Moreover, standard deviation was less than the mean scores, which shows that the groups are not heterogeneous.

To answer the first research question which states whether using multimedia in teaching vocabulary has any effects on learning vocabulary in high school, apaired-sample's t-test was run to compare the experimental group before the treatment and after the treatment. As can be seen in Table 2, the mean of the experimental group in pre-test is 17.17 and in the post test is 18.25. To see if this difference is statistically significant, a paired-sample t-test was reported.

Table 2. Descriptive Statistics of pre-test, post-test, and two delayed post tests

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Pre-test	56	14.00	20.00	17.1707	1.21254	-.076	.319	.246	.628
Post-test	56	14.00	20.00	18.2500	1.15408	-.825	.319	.626	.628
first.delayed. post-test	56	15.00	19.00	18.0357	1.22073	-.582	.319	-.707	.628
second.delayed.post-test	56	13.00	19.00	17.7857	1.29053	-.182	.319	-.662	.628
Valid N (list wise)	56								

Table 3.Paired Samples t-Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pre-test – post-test	-1.07143	1.27450	.24086	-1.56563	-.57723	-4.44	27	.000

As it can be seen in Table 3 the difference between pre-test and post-test is statistically significant (t=4.44, df=27, p<.001). Moreover, to see whether traditional methods of teaching vocabulary also improves learning vocabulary, a paired-sample's t-test was conducted to compare the pre-test and post-test of the control group. The descriptive statistics are given in Table 4.

Table 4.Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test	17.1429	28	1.17739	.22251
	post-test	17.2500	28	1.37773	.26037

Table 5.Paired Samples t-test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre-test – post-test	-.10714	1.34272	.25375	-.62780	.41351	-.422	27	.676

As Table 5 indicates, there is no statistically significant difference between pre-test and post-test of the control group (t=.42, df=27, p>.05). Although there is an improvement in the vocabulary learning of the control group (Mpre-test=17.14, Mpost-test=17.25), this improvement is not statistically significant. Therefore, it can be implied that although the control group received instruction, the instruction did not improve their vocabulary learning.

In order to answer the second research question regarding any significant difference between learning vocabulary through using multimedia in teaching vocabulary (experimental group) and to use common traditional methods of teaching vocabulary (control group),an independent samples t-test was run. To answer this research question, first, there is a need to check that both experimental and control groups are homogeneous to be assured that any improvement in the data is due to treatment. For this reason, independent-samples t-test was run to check the homogeneity of the two groups.

As Table 6 shows, the mean of the control group is 17.14,and that of the experimental group is 17.17. To see whether this difference is statistically significant, an independent-samples t test was run.

Table 6. Group Statistics

	group	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	control	28	17.1429	1.17739	.22251
	experimental	28	17.1786	1.30678	.24696

Before comparing the means statistically, Levene's test for equality of variances was used, and based on that the appropriate t value was selected. Results of independent-samples t-test indicated that there is no statistically significant difference between experimental and control groups before treatment (t=.10, df=54, p>.05). Therefore, the two groups of experimental and control are homogeneous. Now, we are sure that any difference in the post test is due to treatment.

Now, the difference between the two groups is examined in the post-test. First, the means of the both groups in the post-test was calculated (See Table 7).

Table 7. Group Statistics

	group	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	control	28	17.2500	1.37773	.26037
	experimental	28	18.2500	.88715	.16766

As can be seen in Table 7, the mean of the experimental group is18.25,and that of the control group is 17.25. To investigate whether this difference is statistically significant, an independent-samples t-test was run (see Table 8).

Before comparing the means statistically, Levene's test for equality of variances was used, and based on that the appropriate t value was selected. As the results of independent-samples t-test shows, there is a statistically significant difference between experimental and control group (t=3.22,

df=54, p<.01). As the mean of the experimental group (M=18.25) is higher than that of the control group (M=17.25), it can be said that using multimedia in teaching vocabulary is more effective than using common traditional methods of teaching vocabulary.

Table 8. Independent Samples t-test of post −test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Post-test	Equal variances assumed	2.921	.093	-3.229	54	.002	-1.00000
	Equal variances not assumed			-3.229	46.106	.002	-1.00000

Table 9.Group Statistics for first delayed post-test of control and experimental groups

	group	N	Mean	Std. Deviation	Std. Error Mean
First delayed post-test	control	28	17.2500	1.37773	.26037
	experimental	28	18.2500	.88715	.16766

In order to answer the third research question which states the retention of the vocabulary learned is the same in both experimental and control groups, two delayed post-tests were given to both groups. Each of these delayed post-tests is examined here one by one.

The first delayed post-test was given to the participants after two weeks. To see whether the two groups differ in terms of retention, an independent-samples t-test was run. First, descriptive statistics were calculated for both groups (see Table 9).

Before comparing the means statistically, Levene's test for equality of variances was used, and based on that the appropriate t value was selected. As can be seen in Table 10, the mean of the control group is 16.60 and that of the experimental group is 18.03 for the first delayed post test. To see whether this difference is statistically significant, an independent samples t test was conducted.

As Table 10 indicates, the difference between experimental and control groups is statistically significant (t=5.00, df=48.98, p<.001). As the mean of the experimental group (M=18.03) is higher than that of the control group (M=16.60), the experimental group retains the vocabularies longer and better than the control group.

To shed more light on this, another delayed post-test was given to both groups four weeks after instruction. The descriptive statistics for both groups are given in Table 11

Table 10.Independent- Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
First delayed Post-test	Equal variances assumed	9.619	.003	-5.003	54	.000	-1.42857
	Equal variances not assumed			-5.003	48.989	.000	-1.42857

As Table 11 indicate, the mean of the control group is 15.53, and that of the experimental group is 17.78. To see whether this difference is statistically significant, an independent-samples t test was run.

The results are given in Table 12.

Before comparing the means statistically, Levene's test for equality of variances was used, and based on that the appropriate t value was selected. Table 11 reveals that there is a statistically significant difference between acontrol group and experimental group with regard to the second delayed post test (t= 9.58, df= 54, p<.001). As the mean of the experimental group (M=17.78) is higher than that of the control group (M=15.53), it can be said that the experimental group retained the learn vocabularies longer and better than the control group. In other words, those students who learn vocabulary through multimedia had a better retention of vocabulary than those who learn vocabulary through traditional methods.

Table 11. Group Statistics

	group	N	Mean	Std. Deviation	Std. Error Mean
Second delayed post-test	control	28	15.5357	.96156	.18172
	experimental	28	17.7857	.78680	.14869

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Second delayed Post-test	Equal variances assumed	.707	.404	-9.583	54	.000	-2.25000
	Equal variances not assumed			-9.583	51.964	.000	-2.25000

Conclusion and Implication

In this thesis, two ways of teaching vocabulary of English as a foreign language were compared , teaching vocabulary through using multimedia and teaching vocabulary by traditional methods. The points that were the purpose of this thesis were the effect of using each method on learning vocabulary in high schools and if there were any differences between the results of teaching vocabulary through using multimedia and teaching vocabulary by traditional methods in experimental and control groups at the end of theexperiment and comparing the retention of the vocabulary knowledge were acquired by students in two different groups.After quantitative data analysis, we found the result of the study is encouraging. Learners held highly positive attitudes to the using of the multimedia,and there was also clear evidences showing the effectiveness of the using of multimedia to the development of vocabulary acquisition and its retention.

The findings suggest that Multimedia is more effective in the acquisition and learning of unknown vocabulary than traditional methods. The results showed that the students who used Multimedia generally did better than those who used traditional methods in recalling vocabulary items. The finding showed that both students and the teacher have positive attitudes towards using multimedia for teaching vocabulary in the classroom. The present researcher's observations in class showed the learners were very enthusiastic in the classroom,and he reported that they would use technology for learning English. They also reported that they found the lesson was very exciting and encouraged them to use technology in the future. Giving students the opportunity to use images, watch videos, use internet, and other kinds of multimedia raised their level of enthusiasm; therefore, students showed that they learned new meanings, and there was the realization that the use of multimedia provided the bridge that led to a deeper understanding.

On the whole from the present researcher's observations in class and the results of written interviews were given to the students it can be said: in teaching, it is better to use multimedia to teach vocabulary, because the results are more valuable. Furthermore, applicability of computer-assisted

language teaching in the form ofinteractive multimedia interface saved time and energy. However, it is grasped that both methods have some positive effects on the recall and retention of the meanings learned. This study showed that multimedia was better, but traditional method should not be overlooked as it also had some positive effects on vocabulary learning. The traditional vocabulary teaching methods had their place.

Despitethis reality,we should know that it's time to start looking for updated, digital ways to increase students' lexicons as well as their excitement about expanding their vocabulary.

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