

## Investigate the Impact of Educational Multimedia on English Vocabulary Learning

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### Abstract

Learning of students. This study, in terms of purpose, applied, and in the manner and method of implementation, is an integral part of empirical studies. In this research, a four-group Solomon design with pre-test and post-test, and control group were used. The statistical population consisted of all undergraduate students at Kermanshah Payam Noor University, who had specialized language lessons during the semester. Among them, 60 people were selected as the statistical sample using available sampling. To test the students' learning, a researcher-made test was used. The validity of the test using the Kooder Richardson method was 82. announced. SPSS software was used to perform statistical calculations, and multivariate analysis of variance analysis was used to investigate the hypotheses of the research. The results of the data analysis showed that there is a significant difference between the mean scores of the experimental and control groups in the visual, written, audio, and oral components, but the effect of the pre-test, as well as the interaction of pretest and group is not meaningful. The results also showed that the participation of learners in training exercises, while paved the way for activating knowledge of learners' resources, helps them to associate past and future. These findings ultimately confirm the impact of multimedia education on the level of learning the student's English language vocabulary, and can be used in conjunction with other intervening methods.

### Keywords

Educational, Multimedia, English Vocabulary, Learning.

### Introduction

The need to learn English as the language of the world, in exchange for information, and to communicate with others with the aim of using the knowledge of the day, is undeniable. Over the past few years, effective English language education has been one of the most important concerns of curriculum planners in the country because learners are incapable of effective and useful communication after a few years of learning in spite of spending a lot of time, energy and cost. The factors that contribute to this failure can be sought in inappropriate educational content, inefficient teaching methods, lack of motivation, and non-use of what has been learned. [1]. With the advent and development of new technologies, in educating, the design of multimedia environments has become increasingly important in this regard. Among the benefits of using multimedia, in-training can be a more in-depth and comprehensive interaction between teachers, a better analysis of content, the use of different learning styles, the combination of reading, listening skills, writing, speaking skills and enhancing collaboration skills. named. One of the main goals of using multimedia is to raise the quality of education through increased motivation for learners to engage actively in learners' learning, with the goal of improving meaningful learning, through the combination of different sensory organs and multiple methods.

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They are offered to learners [2]. Teaching English is one of the disciplines that specifically utilizes the benefits of technology. Ma and Kelly (2006), have taught vocabulary learning, through multimedia, one of the main topics discussed in language teaching [3].

Previous studies have shown that the learning of second language vocabulary plays an important role in the development of the cognitive system of knowledge. Therefore, these studies always emphasize different ways of facilitating the learning of second language vocabularies, such as the use of educational games, and multimedia learning [4,5]. In examining the history of research on the role of technology in language learning, it is obvious that each of these studies refers to a specific section of the effects of using technology in education. Many scholars believe that the vocabulary of each language forms an important part of that language, while different languages, in the order section, are often common, and the major difference is usually in the vocabulary section. Therefore, second language learners often face a lot of problems in this area. Several studies have been conducted on the study of effective methods for learning English vocabulary [6,7,8,9, 10,11]. But most of the research results have been contradictory, and there is no consensus on the use of different language learning methods among scholars. For example, in some studies, the use of multimedia has been reported in effective vocabulary learning [12,13,14,15,16]. However, the results of other studies have reported the opposite [17,18,19]. Also, some researchers believe that the use of word meanings has no effect on vocabulary learning and / or comprehension of learners [20,21]. Of course, despite the contradictory reports, there is no comprehensive and complete information about the use of multimedia and traditional methods in learning English vocabulary, and the existence of these conflicts provide a ground for further research. Accordingly, our goal in this study is to investigate the effect of using a variety of education types, on the performance of student learning, in English lessons. Although, at the moment, this study has been undertaken on a small scale, its application is useful in many educational environments, and it can bring about greater collaboration and learning among learners.

The present study has also tried to study the performance of a group of students. Although this study has been undertaken on a small scale, it is useful in many educational environments, and it can bring about greater collaboration and learning among learners. This study has been investigated following hypotheses in order to examine the effect of educational multimedia on the measurement of English vocabulary learning.

Learning through educational multi media is effective on students' visual skills.

Learning through educational multi media is effective on students' writing skills.

Learning through educational multi media is effective on students' listening skills.

Learning through educational multi media is effective on students' spoken skills.

### **Materials and Methods**

This study consists of two steps. In the first stage, an educational multimedia design was introduced, and in the second stage, with practical implementation of the design, in the learning environment, its effectiveness was assessed on the level of learning of the students studied. The first part of this study should be considered in the study group, and the second part of the study, in terms of purpose, applied, and in the method and method, is an experimental study, with pre-test, post-test and control group. In this research, a Solomon four-member plan was used (to eliminate the impact of the pre-test, and to cause harm, in the external validity of the research). In Solomon four groups, there were two experimental groups and two control groups, one of the experimental groups, experimental intervention, and post-test, and the second group received a pre-test, experimental intervention and a post-test, and in the control group of a group Post-test, and the second group received pre-test and post-test. The statistical population of this study consisted of all undergraduate students at Punjab Kermanshah University in the 2017academic year, who had specialized language lessons. Sampling method In this research, sampling has

been available. Sample size consists of 60 students who were randomly assigned to each of the experimental and control groups. A researcher-made test was used to collect data. The test was prepared in accordance with the content of the specialized textbook, and was performed as a pre-test and post-test between the groups. It is worth mentioning that the content of the test was confirmed by the researcher and the experts of the subject, and its validity was declared equivalent to 82% by Kooder Richardson. The test included four parts: 1. Five questions to test visual skills, including testing the correct form of letters and words, embodying the image of letters and words, and recognizing words that are related to visual memory. 2. The questionnaire for measuring written texts involves writing the correct form of the letter constructor, rewording the word, and the proper sequence associated with the memory. 3. Five questions to assess hearing skills using a computer and a written test, including recognition of sounds that are given in the form of words and sentences and perception of the word that is associated with auditory memory. 4. Finally, five questions of verbal skills are used to measure English vocabulary skills and student learning performance.

In this intervening program, students learn how to function effectively and effectively use English. They learn to effectively Visual, read, listen, speak and write, and how to use the language in a variety of ways, and in different situations. They also learn about language and efficient use of it through working with the words and studying them and to reach this goal, printed or electronic media as well as different methods and technologies are used. Expected goals in this research include four visual, written, audio, and oral skills, which are interconnected, interrelated and interrelated with training and repetition activities, and progress in achieving a skill depends on progress in other goals.

The process of visual skill, in this study, requires that learners have critical or personal reaction to texts and associate their previous knowledge and personal experiences with written texts. Basic reading, phonological awareness, knowledge acquisition, the relationship between sounds and letters, and the understanding of the characteristics of English writing texts are essential. Other components of reading skills are the ability to use images and photographs of various texts in order to memorize the content, and monitor the comprehension of the subject. In this research, learners are trained to use symbolic systems (visual, written, etc.) to communicate the meaning of communication. Also, reading instruction is done according to linguistic and linguistic context.

Written skills are a complex process, whereby learners find many opportunities for writing and mentoring skills and practice. In the process of learning to write, learners learn to interpret and modify the text to revise the structure and to select the correct vocabulary. They also focus on their writing and determine some goals to improve and expand it and they utilize the other's opinions to survey and organize the impact of these goals and they investigate the impact of tone, vocabulary, and content. In this regard, emphasis will also be placed on the use of information technology and technology.

Concerning listening skills, learners are trained to listen carefully to different information sources in different situations. Listening is the process of hearing, receiving, making sense of hearing, and responding to verbal messages and Non-verbal. Listening is a multi-activity set, and it's not done individually. By listening actively, learners of language and communication know and enjoy. Learners use different listening skills, depending on the purpose of listening, such as listening to alphabet sounds for phonemes, understanding, receiving information, evaluating messages. This characteristic reflects the impact of the position on education, and suggests that, depending on the subject, the purpose of listening and the importance of the subject, a specific strategy is recommended. Effective learners can actively listen, say, explain, respond to messages, and evaluate the messages they hear, and provide an appropriate response to it.

Speaking skills teach learners to use a language that is concise, clear and appropriate to the

target audience for speaking. For example, according to the question asked, they use appropriate vocabulary, and respond appropriately to the purpose of the question. Because oral language is a powerful tool for communicating, thinking and learning, teaching this skill provides them with the important tools that learners need to communicate with others, learn vocabulary and understand the structure of English. One of the most important goals of language skills training is to speak with confidence and in different situations. In order to achieve this goal, learners have been involved in small and large group discussions, and they are trying to talk about oral communication, and provide detailed explanations and explanations. Interaction in these activities indicates that effective communication is one of the most important and essential factors in teaching speaking skills. It should be noted that speaking is a process for the expression, transmission and exchange of information, thoughts and feelings, and these characteristics show that learning to speak is not one-dimensional and monolithic process, but a set of activities are taught in this process. Within the framework of the training program, there are various opportunities for learners to reach a variety of goals (such as asking questions, exchanging information or helping others). Paying attention to this is not a blessing that learners should realize that what they say, read, write and Visual affects their content and experiences, and this effect, the association and coherence of this skill with other skills explains the language.

The method of implementation was that, at first, a pre-test was conducted for the control and testing group, then the experimental groups were subjected to a multimedia education that was an active and participatory teaching method for one semester. While the witness groups did not have such training, the lesson was typically taught. In the this study, according to Simpson(2002), the meaning of multimedia education is computer-assisted instruction in any way (in general and detailed) and use of computer to assist the educational activities such as providing synchronous and asynchronous courses, as well as educational games[22]. Because computer-assisted learning requires a background, how to work with computers, how to present content, how to use the word environment, how to work with the Internet and various software, and several other technical communication skills, so two The session was devoted to the initial training of the experimental group in these fields. Then the activities were structured in terms of content, in a coherent and related context, and an intervention program was implemented as follows. Session 1: Play with letter shapes. Session 2: Matches in alphabetical order. Session 3: Match with words sequence. Session Four: Playing With Mother's Word. Session Five: Puzzle Game. Session Six: Playing With Familiar Words. Seventh Session: Play Letters Letter. Session 8: Using the key word technique and mental imagery using the screenshots. Session Ninth: The use of computer games includes: word completion, word matching, word-formation, read-only, dictation, memory game and pronunciation.

In this method of teaching, which is a collaborative effort, the teacher submits the starting point, faces with students' reluctance. This is important because students are deprived of teaching in the usual way. Before the training process, all stages of the research were described for learners. In terms of delivery time and duration of the training process, the viewpoints were considered. Students have had active participation in learning, and provided educational content in the form of entertainment and entertainment, and in the multimedia space. At the first sessions, students were divided into 3 groups for familiarity and readiness, and at subsequent meetings in groups of 5 people. The layout of the groups varied from session to session in each session. In each group, one person presented as a representative, and this role changed among the members of the group in analyzing and answering each question. Given the fact that the researcher had educational and research experience in this regard, he personally performed the program, and while he was asking questions, he was following the participation of the members of the group and directing the group.

At elementary student sessions, while conducting game-centric activities, they sought to find

initial of word, middle of word, end of word, letter combination, sentence or image completion, in various ways (visual, written, auditory, and spoken). The process of completing the game in order to achieve meaningful learning resulted in the participation of learners, because they were trying to achieve a complete understanding of each other's interaction. In subsequent sessions, the key word technique and mental imagery were used. In that way, an English word was first given to students, and then they were asked to choose a word from the phonetic language of the word in question, with which the keyword Or, by changing the English letters, presenting an image that would mean it in mind. During the training session, students were able to create a number of keywords and images for the provided vocabulary. Then, with activities designed to enhance memory and accuracy in recognizing and differentiating letters, they were entertained with shapes and sounds. It has educational content, computer usability, and mobile communication components. After the end of the test, the test of language again was performed as a post-test.

### Findings

In the descriptive statistics section, indicators such as mean and standard deviation, and inferential statistics, have been used to analyze the hypotheses of the research, multivariate analysis of variance analysis. The results are presented below. In Table 1, the mean and standard deviations of subjects are presented in terms of the experimental and control group.

**Table 1.** Average (left) and standard deviation (right) of research variables, by groups

Components	Level	Experiment 1	Experiment 2	Control 1	Control 2
Visual skill	Pretest	2.00±.84	-	1.73±.70	-
	Post-test	4.46±.83	4.20±.56	2.33±.97	2.06±.79
Writing skills	Pretest	2.40±.73	-	2.13±.83	-
	Post-test	4.66±.48	4.86±.35	2.53±.83	2.86±.99
Aural skill	Pretest	.80±.77	-	1.00±.65	-
	Post-test	3.13±.99	3.13±.83	1.13±.91	.93±.70
Spoken skills	Pretest	.73±.70	-	.53±.74	-
	Post-test	3.00±.925	3.06±1.09	1.13±.83	.73±.79

The results of Table 1 show that the differences between the control and experimental groups in the learning performance components of the pre-test stage are low, but in the post-test there is a significant difference which, in the inferential analysis section, their meaningfulness will be analyzed statistically. For data analysis, multivariate analysis of variance was used. Of course, before submitting this test, its assumptions were examined, first these assumptions were presented. To verify the normality of the data, which is one of the manual presuppositions, the Smirnov colomogram test was used. The results showed that, in all variables, the obtained value of Z is smaller than the value of the table, and is not significant ( $P > 0.05$ ), and the data are normal. Another precondition for using Manua analysis is homogeneity of the variance of the studied groups. For reviewing this assumption, the Levine test was used, the results of this test are presented in Table 2.

**Table 2.** Levin index test on learning performance components

Variable	F	Df1	Df2	Sig
Visual	2.00	3	56	.123
Writing	1.33	3	56	.26
Audible	2.247	3	56	.093
Vocal	.734	3	56	.536

The results of Table 2 show that the observed F value in all components is smaller than the table value, and there is no significant difference between the variance errors of the two groups ( $P > 0.05$ ). Therefore, the homogeneity assumption of variance errors is observed. The homogeneity of the variance-covariance matrices is another precondition for using the Mana's test, in Table 3 the results of this test are presented.

**Table 3.** The results of the MB test in the learning performance components

Mbox	F	egree of freedom 1	Degree of freedom 2	The significance level
45.54	1.318	30	8622.12	.11

As the results of Table 3 show, the Mbox statistics is 45.54 and the value of the F statement of this test is 1.32, which is not statistically significant ( $P > 0.05$ ), hence the homogeneous assumption of variance-covariance matrices, observance Has been. According to the Mana's presumptions, the comparison of the groups is presented, Table 4 presents the results of the Lamberty Wilkes test.

**Table 4.** The results of Lamberty Wilkes' test, in the average evaluation of learning performance components, in posttest

Test name	F value	F	DF hypothesis	DF	significance	eta Squared
Wilkes Lambda Test	.833	65.97	4.00	53.00	.001	.59

The results of Table 4 show that there is a significant difference between the experimental and control groups at least in one of the learning performance components. With regard to the quantum squares of the Lambdesa Wikis test, it can be determined that group membership accounts for 57.4% of the total variance. Table 5 gives a meaningful review of the group's work, pre-test and their interaction.

**Table 5.** Effect of multimedia education on learning performance components, based on Manu's test

Sources of changes		Sum of squares	Degrees of freedom	Degrees of freedom	F	significance level	eta Squared
Group	Visual	68.267	1	68.267	105.026	0/001	.652
	Writing	64.067	1	64.067	125.738	0/001	.692
	Audible	66.150	1	66.150	87.921	0/001	.611
	Vocal	66.150	1	66.150	77.824	0/001	.582
pretest	Visual	1.067	1	1.067	1.641	.205	.028
	Writing	1.067	1	1.067	2.093	.154	.036
	Audible	.150	1	.150	.199	.657	.004
	Vocal	.417	1	.417	.490	.487	.009
pretest * group	Visual	.000	1	.000	.000	1.000	.000
	Writing	.067	1	.067	.131	.719	.002
	Audible	.150	1	.150	.199	.657	.004
	Vocal	.817	1	.817	.961	.331	.017
Error	Visual	36.400	56	.650			
	Writing	28.533	56	.510			
	Audible	42.133	56	.752			
	Vocal	47.600	56	.850			

According to the results of Table 5, it is concluded that the mean scores of two groups of experiment and control in visual faculties ( $P= 0.01$ ,  $F = 68.26$ ), written ( $P= 0.01$ ,  $F = 64.07$ ), auditory ( $P=0.01$ ,  $F=66.15$ ), and speech ( $P=0.01$ ,  $F=77.82$ ), there is a significant difference. However, the effect of pre-test, as well as pre-test and group interaction is not significant ( $P> 0.05$ ). Considering that the effect of interaction is not significant, there is no need to use follow-up tests, and in Table 6, the mean and the adjusted error of the components of learning performance are presented in the experimental and control group.

**Table 6.** The mean and standard error of the moderated scores, in the test and control group, in the learning performance components

Learning performance components	Group	Average	standard error	standard error	
				Lower	Upper
Visual	Experiment	4.333	.147	4.038	4.628
	Control	2.200	.147	1.905	2.495
Writing	Experiment	4.767	.130	4.506	5.028
	Control	2.700	.130	2.439	2.961
Audible	Experiment	3.133	.158	2.816	3.451
	Control	1.033	.158	.716	1.351
Vocal	Experiment	3.033	.168	2.696	3.371
	Control	.933	.168	.596	1.271

The results of the table above show that the mean post-test scores, all the components of learning performance, are significantly higher in the experimental group than in the control group, which suggests that multimedia training is significantly Has influenced these components.

### Discussion and Conclusion

Today's educational environments that use computer capabilities for learning and teaching are rapidly increasing. What is important in this area is how to use it as a tool in the direction of the goal or the goals of the educational system. The purpose of this study was to investigate the effect of educational multimedia on the learning of English vocabulary. The results of this study showed that between the mean scores of two groups of experiment and control in visual components ( $P=0.01$ ,  $F=68.26$ ), written ( $P=0.01$ ,  $F=64.07$ ), auditory ( $P=0.01$ ,  $F=66.15$ ), and speech ( $P=0.01$ ,  $F=77.82$ ) there is a significant difference, which indicates that educational multimedia has significantly influenced the components. The results are consistent with the results of Coady and Huckin, 1997; Ma and Kelly, 2006; Stockwell, 2007; Zapata and Sagarra, 2007; Elliot, 2010; Oberg, 2011; Lin et al., 2011; Sharifi et al., 2016; has it. These studies also emphasized on different ways of facilitating the learning of second language vocabularies, such as the use of educational games, and multimedia learning. Of course, Sakar and Ercetin, 2005; Yang et al., 2008; Anderson, 2009; Jones, 2009; Yang et al., 2010, reported the opposite of these results, which are inconsistent with the results of the present study. They have reported that, in some cases, the use of educational multimedia in teaching has no effect on academic achievement, and the multimedia impact on learning and education has been addressed.

In general, the use of multi media software can, in various ways, facilitate the learning process, as well as richer learning environments [23]. Several factors can be considered for the proper returns of this method in this study. Because of its success, the difference between this new educational method is routine and older because it provides real and objective experience, learner acquisition, and speed of information acquisition. Also, the availability of education, coordination with inclusive needs, and compliance with student ability levels are other reasons for its effectiveness [24]. Another factor in the success of this method is that learning should be meaningfully mentioned, as learners were able to acquire a coherent mental image of multiple sources of information (audio, image, animation, computer game), and to provide content Meaning, and provide the basis for learning. This multimedia, in addition to the attention of the subjects, is very simple in the presentation method, providing less content to subjects, coordinating text and image, engaging multiple senses at one time, and, in fact, facilitating learning.

As for the other reason for increased learning, students should be well remembered when they learn a good subject. Several studies have come to the conclusion that the cause of forgetting and interfering in the reminder of information is the lack of systematic and sustainable learning. Students in this study could actively engage in reading, writing, listening, and speaking skills. The more important reason for increasing the retention in the test group was the principle of learning, and the emphasis on learning the components of a concept in a multimedia environment that increased reminiscence. This is due to the meaningfulness of information in the cognitive system of individuals. Accordingly, it can be concluded that educational media should be designed according to individual characteristics of learners and learning styles so that all audiences benefit from it. The most important problem in this research was the time constraint, which made it difficult to coordinate and plan, and inevitably intensive teaching sessions were held. It is suggested that in future studies, this teaching method be implemented in different courses and at other levels of study, and the results will be evaluated in a long process.

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