

# The comparative Study of the Effects of the Linear and Nonlinear Multimedia on Improving Iranian EFL Learners' Speaking Performance

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## **Abstract**

It is widely accepted that in EFL contexts, students view knowing English as speaking English in a wide range of situations as successfully and fluently as possible. Undoubtedly, speaking is at the heart of the language learning process. Linear multimedia system plays out in one continuous narrative sequence, begins at predefined point and finishes at a logical ending point. Non-linear multimedia system is not laid out in a chronological manner, but is of many potential directions. Users here can control the progress as in a video or self-paced computer based training (Coleman Dowling, 2001). Thus the current study aimed at investigating the effects of linear and nonlinear multimedia on improving Iranian EFL learners' speaking. Sixty intermediate learners participated in the study which was completed in one academic semester. There were two groups; one of them received linear multimedia and the other received linear multimedia. The results of the study indicated that nonlinear group outperformed in the post-test. The positive effects of nonlinear multimedia might be due to the dynamic and manageable nature of the multimedia (games). The results also would be due to the authenticity of the materials, namely multimedia is made for native users of language in native context.

**Keywords:** linear multimedia, non-linear multimedia, speaking performance

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## **1. Introduction**

Speaking is major in individual's communication both in first and second language. Speaking is the ability to generate words in oral form. It is a fundamental skill that learners must master.

Burns (2001) states: "Speaking is so much part of daily life that we tend it for granted" (cited in Schmitt, 2002, p.211). Amongst the language learning skills (listening, speaking, reading, speaking), speaking is deemed to be the most important one. Consequently the classrooms should be places for active use of English. Developing speaking skill is really crucial and various points should be taken into account during teaching/learning process. For Zhang (2009) speaking is the most complex skill to master for English learners, while in spite of efforts they are incompetent in communicating orally in English. Ur (1996), discusses that there are wide range of factors causing problems in mastering speaking skill as follows: 1. Inhibition. Students are worried about making faults, fearful of criticism, or simply shy. 2. Nothing to say. Students have no reason to express themselves. 3. Low or uneven contribution only one participant can talk at a time because of large classes and the tendency of some learners to control while others speak very little or not at all. 4. Mother-tongue use. Learners who share the same mother tongue tend to make use of it because it is easier and since learners feel, less exposed when they are speaking their mother tongue. For Bygate, 1987:

"Speaking is the vehicle par excellence of social solidarity, of social ranking, of professional advancement and of business. It is also the medium through which much language is learnt, and which for many is particularly conducive for learning. Perhaps, then, the teaching of speaking merits more thought" (P, 1)

It is reported in the literature that many factors are involved in causing difficulties in the process of speaking (Thornbury, 1998). Thus it is important to know what to do in order to speak a foreign language in a successful manner. It is undoubted that there is close relationship between ability to speak fluently and particular characteristics to be possessed by the speakers (Bygate, 1987). Brown (1994) believes that there are lots of influential factors in speaking; first one is that human ability to speak is an interactive process, in a way the form and meaning is highly managed by the participants, their shared experiences, their physical setting and the objectives of speaking. All things considered the materials are of great importance in teaching speaking. According to (Thornbury, 1998), "many teachers would agree that the best discussions in class are those that arise spontaneously either because of something personal that a learner reports or because a topic or a text in the course book triggers some debate" (p, 102). On the importance of teaching speaking Richards (2008) states that :

"The mastery of speaking skills in English is a priority for many second-language or foreign-language learners. Consequently, learners often evaluate their success in language learning as well as the effectiveness of their English course on the basis of how much they feel they have improved in their spoken language proficiency. Oral skills have hardly been neglected in EFL/ESL courses (witness the huge number of conversation and other speaking course books in the market), though how best to approach the teaching of oral skills has long been the focus of methodological debate" (p.19).

In the process of teaching/learning English, there are some elements that should be perceived by learners for gaining control over the speaking ability. Founded on Syakur, (1987, p. 3) there are five elements of speaking skill:

"1. Grammar. It is needed for students to arrange a correct sentence when doing conversation.

2. Comprehension. Speaking is oral communication and it certainly requires a subject to respond.
3. Vocabulary. It means the appropriate when speaker chooses the words that will be used in communication or conversation.
4. Pronunciation. Pronunciation is the way to produce/say the words clearly in order to the listener can get the points.
5. Fluency. It can be defined as the ability to speak fluently and accurately”.

Wright (1997) believes that: “There are some media that can be used in teaching speaking: Some ways in prompting the speaking skill are a sequence of picture which prompts their memory. Then, a sequence of picture these can be card picture or paper. A sequence of key words, in addition, mime, where students try to speak based on the gesture. Finally, teacher can use figurines or puppet, teacher and students operate the figure of puppet “(p.48). With advancing Computer Assisted Language Learning (CALL), a new turning point for language teaching / learning has been created. Through making use of computer related activities language learning has been altered significantly. Computer Assisted Language Learning programs make environments wherein apart from the time and place, language users can benefit of them (Orina & Justus Nyongesa, 2012). Levy (1997: p. 1) in a seminal work defined Computer-assisted language learning (CALL) as “ the search for and study of applications of the computer in language teaching and learning”.

In order for teaching materials to be effective they should be authentic at first. According to Richards & Schmidt (2002) authenticity means:

"(in teaching) the degree to which language teaching materials have the qualities of natural speech or speaking. In language teaching a distinction is made between materials that have been specially prepared to illustrate or practice specific teaching points (such as reading passages, listening texts, or model conversations) and those that have been taken from real-world sources. Texts which are taken from newspapers, magazines, etc., and tapes of natural speech taken from ordinary radio or television program, etc., are called authentic materials. It is argued that these are preferred classroom resources since they illustrate authentic language use. (In testing), it means the extent to which test tasks correspond to language use in a non-test (i.e. Target language use) situation" (p.347). And also authentic materials mean: “In language teaching, the use of materials that were not originally developed for pedagogical purposes, such as the use magazines, newspapers, advertisements, news reports, or songs. Such materials are often thought to contain more realistic and natural examples of language use than those found in textbooks and other specially developed teaching materials "(p.348).

Amongst the authentic materials multimedia design is advantageous over single mediums, since here there is more chance to choose the most appropriate and effectual one (Larkin & Simon, 1987).

With objectives in mind the current study tried to find answer to the following question:

**Research question:**

Are there any significant differences between the effects of linear and non – linear multimedia on Iranian EFL Learners' Speaking Performance?

**Null hypothesis:**

There are no significant differences between the effects of linear and non – linear multimedia on Iranian EFL Learners' Speaking Performance.

**2. Review of the related literature****2.1 Computer Assisted Language Learning**

Computer-assisted language learning (CALL) is an approach to teaching and learning foreign language in a way the computer and computer-based resources like the Internet are used as teaching instruments in order to present, strengthen and appraise teaching/learning materials thus there is typically a significant interactive constituent. Excluding self-study software, CALL enhances face-to-face language instruction and not replaces it. Nowadays, the advantages of using CALL in improving different language skills have been investigated. Numerous studies point out that using CALL results in an innovative and effective option for EFL teachers (Warshauer and Healey, 1998) .As Cited in Williams, 2015: Due to the constructivist view of language learning, which is based on the belief that learners are to construct learning in order to achieve true meaning (Bruner, 1966; Piaget, 1972; Vygotsky, 1978), student-centered learning gets an instructional approach through which learners become vigorously involved in learning rather than passively receiving information like that of traditional teacher-centered classroom (Hannafin, Hill, & Land, 1997). This instructional approach aids learners to deal with their own learning needs and priorities while the teacher aids their learning with various amounts of directions (Land & Hannafin, 1997, Cited in Williams, 2015).

**2.2 Authenticity of Materials**

“For many years authenticity of materials has been clarified through authenticity debate. A point of which has been emphasized is that it should be defined as the relationship between the learner and the input text, and the learner's response to it, rather than the input text itself” (Widdowson 1978, p.80). According to McGrath (2002) According to McGrath (2002), authenticity represents: a feature of which verifies the learner's association with the material. Moving from text to task in the authenticity debates might be attributed to some factors. One of which is that the first 'battle' of the dispute has mainly been won, since globalization and the Internet have seen to that. (McGrath 2002). Today, authentic texts are more evident in the support of the authenticity in ELT course books and are the subject of a growing number of resource books. The second is that pedagogy put emphasis on the learner (McGrath 2002). There is an increasing attention for learner – centeredness, as a result the learner is involved at all levels of the curriculum development process, from choice and production of learning materials to methodology and curriculum-planning (Nunan 1989p.19). Although authenticity is such a 'live' issue, however,

task authenticity has rarely been addressed in a systematic manner. Attempts in order to extend a definition of task authenticity might be started through looking at a distinction of which made in Nunan (1979) between what he terms 'real world' tasks and the more traditional 'pedagogic' tasks. The former requires learners to demonstrate type of behavior which is expected of them beyond the classroom (Nunan, 1979). 'Pedagogic tasks', involve learners in tasks they are unlikely to perform outside the classroom. Reading a newspaper or an article and writing a letter to the newspaper editor are examples of a 'real world' task. The corresponding 'pedagogic task' would be to read a newspaper article and answer comprehension question on it. The rationale for 'real – world' tasks is that they prepare practices for real world situations. Pedagogic tasks, on the other hand, traditionally have been known as practice in specific skills, language forms and so on. Nunan's discussion here is useful not only as a starting point of the definition of an authentic task, but also because of the conclusions he gains; that the dissection between the authentic and the 'pedagogic' one is, not hard and fast but is that of a continuum (Nunan, 1989). Thus this uncertainty occurs not only on practical side of the continuum between the pedagogic and the authentic task but also on the psychological side as well. Tasks may be more or less 'real' to different learners and thus make greater or lesser involvement depending on individual needs, interests and motivations (cited in Lewkowicz, 2000).

### **2.3 Multimedia**

Multimedia is a media that makes use of multiple ways of presenting information.” A multimedia computer system is one that is capable of input or output of more than one medium. Typically, the term is applied to systems that support more than one physical output medium, such as a computer display, video, and audio. Occasionally, multimedia is used to refer to the combination of text and images on a computer display terminal. Although text and images are in fact distinct carriers of information, hence media, this usage of multimedia is not preferred. After all, newspapers with text and images are not considered to be multimedia publications! The term medium can also refer to an input device such as a keyboard, mouse, microphone, camera, or other sensor. Regarding computer input, multimedia then refers to the capability of using multiple input devices to interact with a computer system” (Rockwell et al 2004,p.1). Mayer & Moreno (2002) have reported that three features of animations; picture, movement and simulation enhance learning. For Mayer the content of which is animated by text and pictures, aids learners to form psychological representations in dynamic form and thus they would recall as easily as possible. Today multimedia enables us to present information in various forms even through integrating them, thus one would be able to access a large amount of information (Mayer, 2001). Through combining multimedia and computer – assisted instruction, learning can be highly individualized and interactive. Accessibility of the software applications make the intensive simulations more realistically interactive (Oblinger, 1999). Through making use of multimedia children get more proficient in nonverbal processing. When they are given nonverbal information rather than what presented in the static pictures in source books, children are more deeply involved in nonverbal processing (Barker, 1989). There also some ideas against multimedia on their negative effect on learners' attention – it is believed that multimedia diverts learners' attention in her theory of synergy. Neuman (1997) has stated that supplementing verbal information with multimedia enhancements would actually be of positive effect on children's new word learning. Since children are provided with additional tools for processing new information. In point of fact multimedia enhancements like zoom- shots and sound effects may

strengthen the actions and would make actions more prominent for children and would accordingly promote their comprehension (Kamil Intrator & Kim, 2000). Friedland *et al* (2007) also are amongst the researchers who believe in the positive effects of multimedia in learning. For them educational multimedia systems facilitate learning; they make the process of learning more convenient, and thus more effective. They add that; for example, classroom teaching context which augmented by bright presentations would guarantee motivation enhancement of the learners. Consequently one of the most vital advantages of multimedia design over single mediums is that, we have access to opportunity to pick the most appropriate and efficient one (Larkin & Simon, 1987).

### **3. Methodology**

#### **3.1 Subjects**

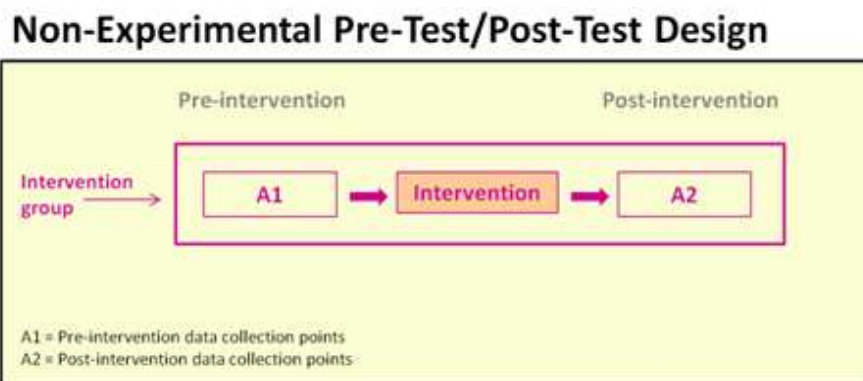
A total of 60 intermediate male language learners with an age range of 18-20 contributed in this study. They were all selected from Persian background. The participants were picked from 4 classes. Before starting the classes, a proficiency test (*pet test*) was run to the participants in order to assure their proficiency levels. A pre-test on speaking was conducted to the both groups of experimental and control with the intention of comparability.

#### **3.2 Context of Study**

The participants were freshmen at *Islamic Azad University, Lahijan, Iran* majoring in TEFL. In universities courses consist of 16 sessions which meet one time a week. Normally for speaking *For and Against* by *L. G. Alexander* is used as the main source book. The book contains lessons of which causes controversial situation for group discussion. In the words of author the book actively make learners to interact dynamically. Many educational institutions recommend the students even to memorize the lessons.

#### **3.3 Design of the study**

The design of the study is quasi-experimental, namely without random assignment. Classic experimental study encompasses a control group with the intention of comparing the findings of both groups. In this study sixty male learners were divided into two groups, one linear group and one non-linear. It is safe to mention that the linear group is deemed to be the control group and the non-linear is the experimental one.



**Figure 3.4.1 pre-test & post-test design**

### 3.4 Materials

In order to gather quantifiable data the following materials were used:

1. *Pet test*<sup>1</sup> for assessing language proficiency of the participants
2. Laptop computer. (Laptop computer equipped with the games – designed differently for both groups.)
3. English Teaching/ Learning Game.
4. Pictures of the games which prepared for linear group.
5. Pretest
6. Posttest

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1. **Cambridge English: Preliminary**, also known as the Preliminary English Test (PET) is an English language examination provided by Cambridge English Language Assessment (previously known as University of Cambridge ESOL examinations). Cambridge English: Preliminary is an intermediate level qualification which demonstrates the ability to communicate using English for everyday purposes. Launched in 1980, Cambridge English: Preliminary is designed to show that learners can use their English language skills in everyday situations when working, studying and travelling. It is focused on Level B1 of the Common European Framework of Reference for Languages (CEFR).

### 3.5 Procedures

After getting permission for collecting data from the dean of the Islamic Azad University, Lahijan, Iran, and before commencing the program, a *pet test* was conducted to both groups including Listening, speaking, reading, and writing. After addressing the dilemma of controlling proficiency level of the subjects, a pre-test on speaking skill of the learners was run to decide on the comparability of speaking ability of the participants before the intervention- since there shouldn't be statistically significance differences in the speaking ability of the participants before the study. In the pre-test of speaking students were asked to speak on different topics. Topic relevance, the words that students used, the intonation, pronunciation and verbal fluency were given emphasis in scoring. Afterward the researcher began the lessons. During about 14 weeks of teaching period, which consisted of 90-minutes per week, freshmen in the non- linear group

were taught English speaking consisting of the games with a opportunity to go back and listen again, checking for pronunciations, in sum taking control over watching and listening to games and their conversations- during playing .There were 10 laptops for using in every group. In this arrangement, the contributors sat before a laptop computer and played games of which there were particular English Language Conversations. In the linear group students were give the same games in the form of the isolated pictures with pronunciations and asked to talk about the same topics- namely in the control group the games were converted into isolated pictures with relevant pronunciations. The materials were given only one time without any chance to going back and listen to a pronunciation twice. The content of the games were in line with the source book of the speaking course. After about 16 sessions (including remedial sessions) a post-test was administered to both groups with an intention of measuring the effectiveness of the intervention. The scores were gathered and analyzed by means of SPSS (Statistical Package of Social Sciences). Since there were two groups in the study the researcher made use of t-test for analysis. It is worth to say that the researcher pilot all the questions and procedures in order to increase authenticity of the work.

#### 4. Results and Discussion

According to design of the present study and since there were two groups -one non-linear and one linear-, the researchers were to compare the means of two groups both in pre-tests and in post-tests. The researchers tried to demonstrate that the non-linear multimedia would enhance speaking, so the scores would be changed and this should be described numerically. Because these two groups were different-namely independent- so for comparing their means with each other the researcher used independent t-test.

**Table 1. Paired Samples Statistics-Control Group**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	13.688	30	1.682	0.305
	Posttest	14.200	30	1.362	0.242

Indicated in the Table 1, the control group of the study had a mean score of 13.688 ( $SD=1.682$ ) in the pretest. The group, however, scored higher ( $M=14.200$ ,  $SD=1.362$ ) in the posttest. It can be seen that there was an increase in the speaking scores from Pretest to Posttest for the participants in the control group.

**Table 2. Paired Samples Test- Control Group**

		Mean	Std. Deviation	Std. Error Mean	Paired Differences		t	df	Sig. (2-tailed)
					95% Confidence Interval of the Difference				
			n		Lower	Upper			
Pair 1	Posttest - Pretest	-.165	1.115	.202	-.582	0.250	-.819	29	0.421



Table 2 depicts that the mean increase in the speaking scores was -.165 with a 95% confidence interval ranging from -.582 to 0.250. It is also indicated that the mean increase in the speaking posttest was not statistically significant ( $t(29) = -.819, P = 0.421$ ).

**Table.3. Paired Samples Statistics-Experimental Group**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 2	Pretest	13.666	30	1.848	0.337
	Posttest	18.244	30	1.224	0.2223

Table 3 shows the descriptive statistics for the experimental group. By a brief look, it can be noticed that there was a statistically significant increase in the speaking scores from Pretest ( $M = 13.666, SD = 1.848$ ) to Posttest ( $M = 18.244, SD = 1.224$ ).

**Table 4 Paired Samples Test- Experimental Group**

Pair		Mean	Std. Deviation	Paired Differences		t	df	Sig. (2-tailed)	
				Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
1	Posttest - Pretest	-4.600	1.277	0.233	-5.077 -4.122	-19.747	29	0.000	

According to the Table4, the mean increase in the speaking scores was -4.600 with a 95% confidence interval ranging from -5.077 to -4.122. The mean increase in the speaking posttest was statistically significant ( $t(29) = -19.747, P = 0.000$ ). In comparison with the control group, the experimental group performed much better in the speaking posttest. Therefore, the Alternative Hypothesis is supported and the Null hypothesis is rejected.

**Table 5. Descriptive Statistics-Pretest**

	Groups	N	Mean	Std. Deviation	Std. Error Mean
Pretest	Control	30	13.688	1.682	0.305
	Experimenta 1	30	13.666	1.848	0.337

Table 5 depicts the descriptive statistics for the speaking pretest. The experimental and control groups of the study had a mean score of 13.666 ( $SD=1.848$ ) and 13.688 ( $SD=1.682$ ) respectively. That is to say, the two groups did not perform differently in the pretest and they were homogeneous in terms of their speaking performance.

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
Pretest	Equal variances assumed	0.337	0.565	0.434	58	0.662	0.200	0.456	-0.712	1.112	
	Equal variances not assumed			0.434	57.505	0.662	0.200	0.456	-0.712	1.112	

An independent-samples t-test was conducted to compare the statistics scores of experimental and control groups in the speaking pretest. The mean difference in statistics scores was 0.200 with a 95% confidence interval ranging from -0.712 to 1.112. The results revealed no significant difference between the mean scores of experimental and control groups in the speaking pretest  $t(58) = 0.434, p = 0.662$ . Therefore, the two groups performed homogeneously in the speaking pretest.

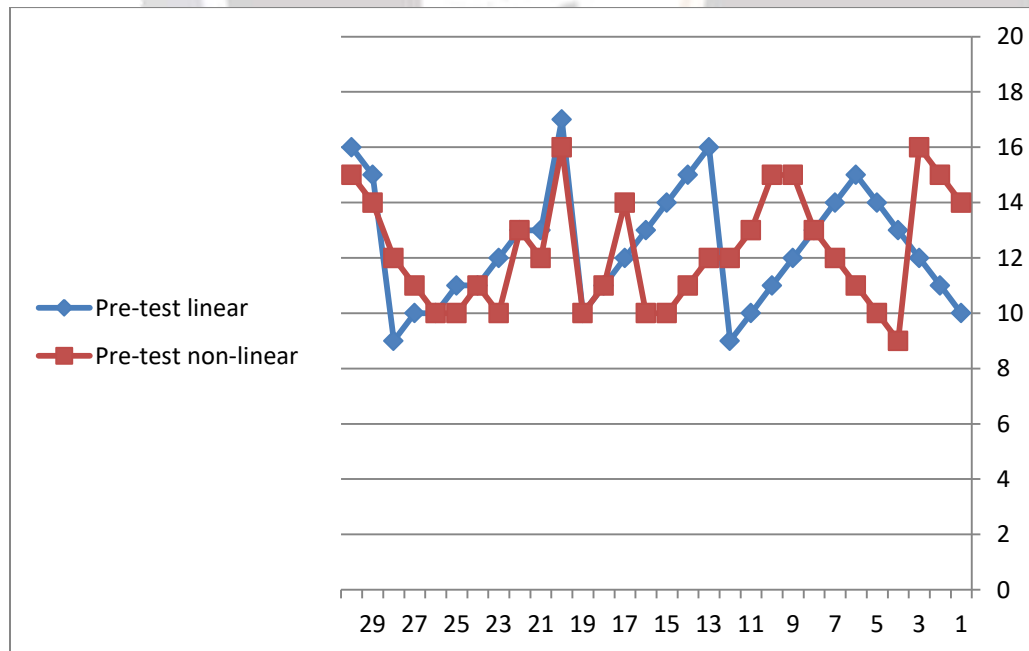


Figure. 1 pretest

The Figure also illustrates the homogeneity of the two groups in the speaking pretest. Both groups displayed fairly equal performances in the pretest.

**Table 7. Descriptive Statistics-Posttest**

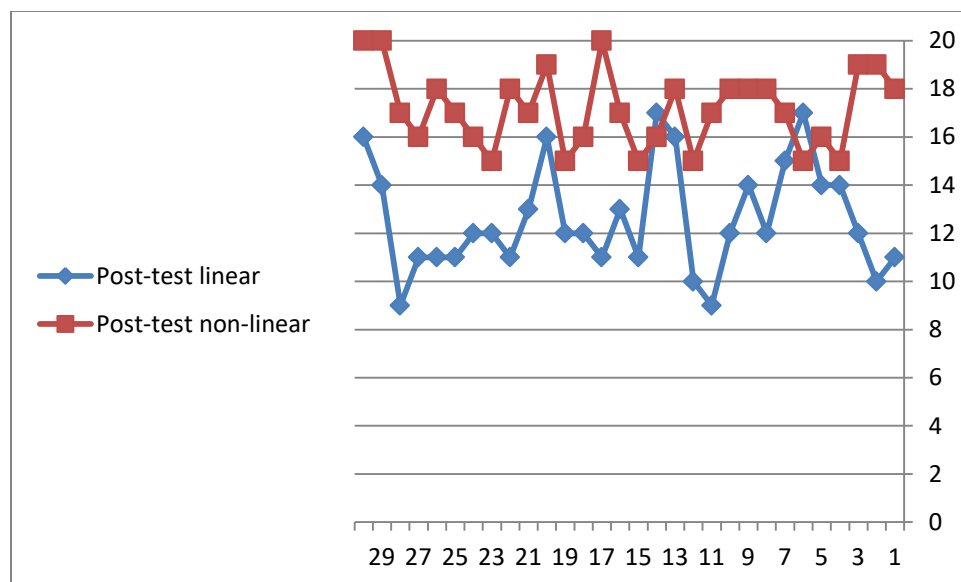
	Groups	N	Mean	Std. Deviation	Std. Error Mean
Posttest	Control	30	14.200	1.362	0.242
	Experimental	30	18.244	1.244	0.224

According to the descriptive statistics shown in the Table 7, the experimental group performed much better than the control group in the speaking posttest. The mean score for the former was 18.24 ( $SD= 1.244$ ) whereas for the latter the mean score is 14.20 ( $SD= 1.362$ ).

**Table 8. Independent Samples Test-Posttest**

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
Posttest	Equal variances assumed	0.00	0.99	-12.66	58	0.00	-4.22	0.33	-4.90	-3.57	
	Equal variances not assumed			-12.66	57.31	0.00	-4.22	0.33	-4.90	-3.57	

Another independent-samples *t*-test was conducted to compare the statistics scores of the two groups in the speaking posttest. The mean difference in statistics scores was -4.22 with a 95% confidence interval ranging from -4.90 to -3.57. The results revealed significant difference between the mean scores of experimental and control groups in the speaking posttest  $t(58) = -12.66, p = 0.00$ . Therefore, the Null hypothesis is rejected and the Alternative hypothesis is supported.



**Figure 2. Posttest**

The figure further displays the significant difference in the speaking posttest that the two groups of the study performed. The experimental group scored higher than the control group in the posttest.

## 5. Discussion and Conclusion

This study has shed more light on the use of nonlinear multimedia as instructional tools of teaching speaking in EFL contexts. As indicated in the results there was no statistically significant difference in the pre-tests of both group, thus they were approximately at the same level of speaking performance, while after intervention; the experimental group outperformed and outscored in the post-test. The findings of the study would suggest some points to be taken into consideration by stakeholders, teachers, syllabus designers etc. Computer assisted materials in general and nonlinear multimedia in particular can be used so as to enhance academic achievement of learners. First advantage of using nonlinear multimedia is that it takes benefit of the brain's capacity to make connections between verbal and visual representations of content, resulting in a deeper perception, which sequentially sustains the transfer of learning to other situations when needed. Secondly A large proportion of the human mind donates itself to visual processing. Hence, making use of images, video and animations together with a text provokes the brain, consequently learners' attention and retention raise. Beneath these advantages, in a multimedia learning situation, learners can recognize and solve problems more effortlessly compared to the situation where teaching is made possible only via textbooks. Psychologist Barbara Fredrickson believes that, having positive emotions makes us see our potentials and chances, and since multimedia makes a pleasant atmosphere, learners' positive attitudes increase profoundly. In unison, multimedia learning atmospheres have a direct influence in learning and

even on developing of personality. It is an outcome which can't be achieved easily through using traditional instructions. Consequently, it is no wonder nonlinear multimedia is strongly recommended to be used in educational settings. There is no study on the effectiveness of the nonlinear multimedia on speaking skill, but it is safe to claim that the findings of the current study are in line with all of the studies which provided support for the effectiveness of the CALL in general and multimedia in particular, in the field of the language learning.

## **6. Limitations**

Like any other study the present one also experiences some limitations that make the act of generalizing the findings somehow tricky and challenging. Therefore the instructors who aim at making use of the findings are to do it with caution. The first issue certainly is the number of the subjects that was not enough to be a sample for a large population. The next point is the gender issue, since the contributors were all male. The other point is time on task which placed a serious obstruction on teaching different parts of speaking skill. The other point is the proficiency level of the learners (intermediate level).

## **7. Suggestion for further study**

It is critically fundamental that the limitations of the present study would be bases for further studies in the field English language teaching. Based on the results of the present study working on larger populations of all proficiency levels, with different age ranges by including female learners is suggested. There are also some other points that need to be taken into consideration in other studies. The present study was on the effect of nonlinear multimedia on speaking skill, other research studies on the effect of nonlinear multimedia on different skills are needed. Longitudinal studies are required with the purpose of measuring the long-standing effects of nonlinear multimedia on different language areas.

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