Quarterly Journal of Iranian Distance Education (IDEJ)
Vol. 1, No 3, Winter 2018 (P 59-71), Payame Noor University

The Effect of Multimedia Technology on Improving Listening Achievement of Iranian Secondary School Students

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Received: 2017/10/22 **Accepted:** 2018/09/05

Abstract
The study tried to examine the possible effect of multimedia materials on augmenting listening skills of girls in Meheaval higher secondary school, Karaj city. The next purpose was to detect whether there is a meaningful relationship between students' attitudes towards using multimedia materials and teaching listening skills. The participants of this study were 60 second-year high school (EFL famale students) in the second semester of 2016 academic year. The homogeneity of the participants was ensured through application of the Oxford Placement Test (OPT, 2001). The materials was comprised of students' textbook and Listening Assisted Multimedia. Three types of instruments which were utilized namely, listening comprehension pre-test, post-test, and a listening assisted multimedia questionnaire. Independent samples t-tests and regression coefficients were applied to determine whether there were significant inter and intra-group differences. The results showed evidence that multimedia materials significantly enhanced EFL learners' listening achievement. It was also found that the attitude to the use of multimedia had a statistically significant impact on explaining the changes in learners' listening skill. Based upon the findings of the study, it is recommended that the English instruction should be integrated to the English instruction listening course.

Keywords
Multimedia, Listening, Listening Assisted Multimedia Questionnaire.

Introduction

Considering the emerging new technologies in general and multimedia technologies in particular and their impacts on different aspects of people and teaching-learning languages seems to have entered a new area. Computer Assisted Language Learning (CALL) and Technology Enhanced Language Learning (TELL) have been studied for their impact on L2 listening comprehension skill and its instruction. Multimedia could be utilized as an effective technological instrument for instruction to augment learning and retention of material presented in classrooms. According to [1] Mayer (2001), multimedia can provide multiple sources of stimuli as inputs for the students as well as help improve senses and the brain because it is attributed mainly to dual coding of the information presented in visual plus auditory which are the two different modalities leading to increased comprehension of the material during the class session, and improved retention of the material at later testing.

The basic principle underlying learning through multimedia is that people learn better from words and pictures than from words alone. Words, in this context, are the accompanying pictures including written and spoken text, and static graphic images, animation and videos. In the light of what we know about the way that the brain processes information, using both words and pictures together could be more effective for listening comprehension than words alone. Research confirms that using both words and pictures

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assists the brain process more information in working memory [2] (Sweller, 2005). [3] Astleitner and Wiesner (2004), in the same vein, confirmed that in courses where multimedia materials are used besides learning outcomes, students' satisfaction and motivation is higher than the traditional ones.

Listening, among the four skills in every language, plays an undeniable role in our real life communications. This contribution can even be more essential than other skills. As [4] Feyten (1991) argues, listening provides more than 45% of our total communication ability, followed by speaking (30%), reading (16%), and writing (9%). In spite of this salient role, in a foreign language (FL) context, most learners do not observe a satisfactory level of improvement in their process of learning which may arise mainly due to their low exposure to listening skills. This is why it is crucial that listening be taught effectively in our classrooms.

Although listening is a complex process, it can be developed by the students' consistent practice and teacher's help. When designing listening tasks, instructors ought to consider how enable learners to be more conscious of their listening comprehension. [5] Rost (2002), in highlighting the teachers' role, claims that "if language instructors can successfully incorporate clear noticing steps into tasks, learners can then accelerate their learning and make breakthroughs in listening ability" (pp. 21-22). This is said, it is necessary for instructors to design activities that enhance language awareness and good support to enhance listening comprehension via listening strategies.

In addition to teacher's support, as is also confirmed by many researchers, using appropriate strategies can help students improve their listening performance. In fact, good language learners not only have an awareness of strategies but also aware of more strategies compare to the lower successful learners. [6] (Goh, 2008; Mendelson, 1994). [7] Mendelsohn (1994), in the same vein, requires training students in the use of strategies for listening since this would lead to the enhancement in their listening ability.

A lot of suggestions have been made about teaching listening support strategies. Some researchers propose direct or explicit teaching technique which raises learner awareness such as introducing strategies individually, explaining and providing support, modeling strategies for learners as well as providing effective learning materials and controlled practice of strategies [8] (O'Mally & Chamot, 1990).

Even though listening has a vital role in language learning and communicative skills and can even affect other skills, it is the least understood procedure in language acquisition [9] (Mendelsohn, 2001). This is largely due to the fact that listening is ignored or poorly taught in language learning process [10], [11] (Vandergrift 1997; Osada, 2001), and L2 learners do not also use a very large number of strategies when listening [12] (Chamot & Kupper, 1989). Regarding this ignorance, there are many reasons why listening remains one of the least emphasized skills in language teaching and learning in spite of its importance. The purpose of this study was first to develop the listening skills of students studying English through using multimedia materials. Furthermore, the present study attempted to evaluate students' attitudes towards using multimedia materials in teaching listening skills.

Literature Review

Multimedia in the Teaching/Learning Process

Generally speaking, multimedia learning involves utilizing components of multimedia to produce an integrated educational environment. Multimedia learning, as Mayer (2001) explains, is the consequence of being exposed to a multimedia show which in turn forms its cognitive effects or mental images. Multimedia learning occurs when people build mental

representations from words (such as spoken text or printed text) and pictures (such as illustrations, photos, animation, or video). The process by which people build mental representations from words and pictures is the focus of Mayer's (2001) *Cognitive Theory of Multimedia Learning*. He believes that multimedia offers teachers and students new ways to enhance the teaching/learning process. Multimedia is important in education because it holds great promise in improving the quality of education. That is, it provides teachers and students with the tools to access multiple images and sounds. Teachers can "break free" from the constraints of textbooks and the chalkboard. Classes can experience specific learning material, know about its background in real-time or slow motion (Mayer, 2001, p. 34). Furthermore, in learning English, there is interactivity which means mutual actions between the learner, the learning system, and the learning material [13] (Stanfford, 1990).

Multimedia Principles

In order to take many advantages of multimedia in language learners' listening skills development, certain conditions and principle need to apply. [14] Iubbad (2013) in a comprehensive study reviews the basic principles for designing multimedia learning environments which are briefly presented below:

Multiple representation principle

According to Iubbad (2013), it would have better results to present an explanation using two modes of representation rather than one. For instance, students who listened to a narration about how a bicycle tire pump works together with the corresponding animation formulated twice as many useful solutions to subsequent problem-solving transfer questions than the students who listened to the same narration without viewing any animation. This result is called a multimedia learning effect. The multimedia effect is consistent with a cognitive theory of multimedia learning because students given multimedia explanations are able to build two different mental representations verbal model and a visual model--and build connections between them.

Contiguity principle

Based on contiguity principle, students understand an explanation better when related words and pictures are presented at the same time than in separated time. For example, students who read a text explaining how tire pumps work that included captioned illustrations placed near the text generated about 75% more useful solutions on problem-solving transfer questions than did students who read the same text and illustrations presented on separate pages [15] (Mayer, Steinhoff, Bower, & Mars, 1995). Accordingly, this result is called a contiguity effect. The results are consistent with the cognitive theory of multimedia learning because corresponding words and pictures must be in working memory at the same time in order to facilitate the construction of referential links between them (Iubbad, 2013).

Split-attention principle

According to this principle, when giving a multimedia explanation, it is best to present words as auditory narration rather than as visual on-screen text. In other words, the third principle is that words should be presented auditory rather than visually. For example, students who viewed an animation depicting the formation of lightning while also listening to a corresponding narration generated approximately 50% more useful solutions on a subsequent problem-solving transfer test than did students who viewed the same animation with corresponding on-screen text consisting of the same words as the narration [16] (Mayer & Moreno, 1995).

Individual differences principle

The fourth principle is that multimedia effects, contiguity effects, and split-attention effects

depend on learners' individual differences. This principle is more important for low knowledge than high-knowledge learners, and for high-spatial rather than low-spatial learners. For example, students who lack background knowledge tended to show stronger multimedia effects and contiguity effects than students who possessed high levels of prior knowledge (Mayer et al., 1995). Additionally, students who scored high on spatial ability tests showed greater multimedia effects than did students who scored low on spatial ability [17] (Mayer & Sims, 1994).

Coherence principle

This principle expresses that students learn better from a coherent summary which highlights the relevant words and pictures than from a longer version of the summary. Thus it is recommended to use few rather than many extraneous words and pictures when giving a multimedia explanation. For example, students who read a passage explaining the steps in how lightning forms along with corresponding illustrations generated 50% more useful solutions on a subsequent problem-solving transfer test than did students who read the same information with additional details inserted in the materials [18], [19] (Mayer, Bove, Bryman, Mars & Tapangco, 1996; Harp & Mayer, 1997).

Previous Studies

Many studies have examined the effect of particular multimedia tools in producing language outcomes among students. [20] O'Bryan and Hegelheimer (2007), for instance, studied how podcasting is an innovative way of teaching language in the classroom. Not only was the podcast viewed as an easy method by the instructor, the students also viewed podcasting as a positive tool, despite the technical difficulties experienced.

[21] Grgurović and Hegelheimer (2007) implemented a multimedia listening activity using video in order to help students with language comprehension using target language subtitles compared with video with transcripts. The use of captions and subtitles in the video lecture were found to stimulate the participation of students who interacted more frequently with subtitles as help rather than with transcripts. [22] Brett (1995) developed multimedia language learning software in order to help students communicate in English within the context of business situations. It was found that multimedia use resulted in better listening skills among students in terms of listening for the gist and guessing the meaning from context.

Using a quasi-experimental research design, [23] Verdugo and Belmonte (2007) explored the effectiveness of digital stories by applying this intervention into the experimental group. The results showed that the experimental group scored significantly higher in listening comprehension than the control group who did not received multimedia lessons. In Turkey, a quasi-experimental study was conducted by [24] Isik and Yilmaz (2011) to evaluate the effectiveness of computer-assisted listening instruction on listening comprehension of 21 students. The results showed that the experimental group which received multimedia-aided instruction scored significantly higher than the control group which received traditional language instruction.

Yet, in another study, [25] Sandaran and Lim (2013) attempted to investigate the effects of digital stories on listening comprehension skills with 9-year old third grade students in a Malaysian primary school which used instruction in Chinese. The participants listened and watched eight fairy tales designed as digital stories. The findings obtained from observations revealed that the students' interest, concentration and motivation increased substantially, and their listening comprehension skills developed during the listening activities.

As one of the most recent studies in the field of multimedia, [26] Ciğerci and Gultekin (2017) tried to determine the effect of digital stories on the Turkish listening skills of fourth grade students in a primary school. Turkish lessons were conducted using digital stories and activities were designed according to the digital stories during the 8-week application process.

The researcher observed the process while the lesson plans were put into action by the classroom's teacher. Research data were obtained also from a listening comprehension test, and teacher and student interviews. The findings showed a significant difference between the listening comprehension post-test scores for the experimental and control groups. The qualitative data from student and teacher interviews, and from classroom observations, showed that digital stories, listening activities based on the stories, and the creation of a more engaging and motivating classroom environment had positive effects on listening comprehension skills in the experimental group.

Research Questions

This study aimed at finding answers to the following research questions:

1. Does teaching listening through multimedia technology have a significant effect on students listening comprehension achievement?
2. Is there any significant relationship between students' attitudes towards using multimedia materials and teaching listening skills?

Method

Research Design

This was a correlational study aimed to analyze the relationship between the variables including multimedia as the independent variable and listening skill as the dependent variable. The methodology applied in this study was mixed-method, that is both quantitative and qualitative methods were used. [27] Creswell (2009) called this strategy concurrent triangulation since both methods occurred in one phase of the research period. In this approach, data are merged or results of two databases are integrated or compared. This strategy would make it possible for the strengths of one method to compensate for the other's weaknesses and vice versa, thus providing broader understanding of the research problems. This would result in "well-validated and substantial findings" (Creswell, 2009, p. 213) for the study, and save time as both data are collected simultaneously.

Participants

The participants of this study were 60 out of a total population of 85 second-year high school female students in the second semester of academic year 2016 at Mehreaval high school in Karaj, Iran. In order to ensure about the homogeneity of the participants, they were chosen based on their performance on the Oxford Placement Test (OPT, 2001); consequently, the students whose test scores were one standard deviation below and above the mean were selected and the ones who could not achieve this criterion were excluded from the study. Then, the selected students were randomly divided into two groups: The experimental group (n=30) and the control group (n=30). It is worth mentioning here that the high school benefited from up-to-date technologies such as smart board and language laboratory which could facilitate language education. Table 1 presents a quick profile of the students' characteristics.

Table 1. Profile of the Participants' Characteristics

Group	N	Treatment
Experimental	30	Multimedia Learning
Control	30	Conventional Learning

Materials and Instruments

Two types of materials and three instruments which were used in this study included the following:

1. Students' textbook (material)
2. Listening assisted multimedia (material)
3. Oxford Placement Test (OPT, 2001)
4. Listening comprehension pre-test and post-test
5. Listening assisted multimedia questionnaire

The main material of the study was the students' textbook named *English Book (2)* for High School second year students by [28] Parviz Birjandi, Mehdi Norouzi, and Gholamhosein Mahmoudi, published in 2013. The units which were taught during the experiment included all seven units of lesson plans used for the instruction of the textbook over a period of a whole semester. Another basic material of the study, besides the students' textbook, was a package comprising seven short English language documentaries about culture, environment, and adventure activities. An attempt was made to select multimedia tracks which were in line with the topics of the seven lessons of the students' text book. Each video and audio track was 3-5 minutes in length. There were some questions, at the end of each video or audio track, which targeted the comprehension of the presented materials by the participants of the experimental group.

A listening comprehension test functioning as pretest was designed in order to determine the prior listening knowledge of the participants. This was to ensure about the homogeneity of the participants in terms of their listening comprehension level. The test items were selected from the video and audio tracks presented to the experimental group during the treatment. It should be mentioned that these video and audio tracks were in accordance to the seven lessons of the students' textbook. Thus, the researchers selected the post listening activities of the mentioned multimedia tracks in order to devise the listening pre-test. The test included five questions for each multimedia track (video and audio), which amounted to a total of 35 questions. The same test was conducted as the listening comprehension post-test to study the progress of students' learning achievements after they studied listening with video and audios.

The validity of the listening comprehension test was evaluated by three experts who were PhD holders of applied linguistics with more than five years of teaching and testing experience. Based on their ideas, some arrangements and changes were made. In order to determine the reliability of the test, the revised test was pilot studied on the EFL students (n=20). Doing so, the level of difficulty of test items (p) and the discrimination index (D) were first calculated. The results of Cronbach's alpha analysis showed that the test was reliable ($r = 0.82$).

A questionnaire was also administered to investigate if there was a significant relationship between students' attitudes towards using multimedia materials and teaching listening skills. To this end, a questionnaire which was used in a study by [29] Bezen Tuncok (2010) was adapted and some modifications were made to tackle the purposes of the present study. The original questionnaire aimed to investigate foreign language learners' attitude towards computer-assisted language learning, and multimedia assisted language learning. Thus, the researchers made some modifications to the questionnaire in a way that only the items related to multimedia were applied in this study and the others were excluded since they were basically about computer-assisted language learning. As a result, there were 20 items in the final questionnaire for the present study (Appendix A).

Procedure

The treatment spanned across 14 weeks including two sessions of tests and 12 sessions of teaching listening comprehension. After administering an Oxford Placement Test (OPT) and

determining homogeneity and language proficiency level of the participnts with regard to test scores, the participants were randomly assigned to two groups, one experimental and one control group. All participants of the two groups were then asked to take the pre-test before the experiment. They were also required to sit for the same test used as the post test to detect the possible improvement of the learners after the treatment. The time allotted for the listening pre- and post-test was 25 minutes. The steps which were conducted for the experimental group of the study are explained in detail in the following section.

Pre-listening

Before starting the study, an introductory session was held, and we provided the participants of the experimental group with a brief introduction of the study. As for the treatment sessions and at the beginning of each specific lesson (units 1 to10), the teacher outlined the objectives of the lesson and the topic of the presentation material. Then the students were encouraged to recall their background knowledge about the topic and answer to the pre-listening questions. Next, a series of leading questions were presented to the students to help them before studying the material.

While-listening

As the next step, the participants were presented with the entire multimedia (video or audio) learning material and instructed to take notes or write down key words. Then, the material was presented again accompanied by an exercise to be completed by the students. The following skills by [30], [31], Richards (1985, ac cited in Meskill, 1996) which assist the development of listening competency were applied in this study for the experimental group. These are the skills which demonstrate how multimedia technology can be called into service to support the development of listening.

Retention of language chunks in short term memory

Most current multimedia applications allow the student some control over the rate of language presentation. The addition of video provides a clear, logical flow of events so that linking (remembering) new information to old is facilitated. To help the participants understand and remember the aural text better, the teacher started, stopped, and reviewed chunks of language to ascertain the retention of language chunks in short their term memory.

Discriminate the sounds of the target language

User control over language presented in more than one modality supports a student's ability to determine where words begin and end. The synchronized display of text along with the aural text applied for the experimental group assisted the learners in distinguishing phonetic groupings and boundaries. When learners can see the faces of those speaking in the video, moreover, they can additionally make use of facial movements to understand the sound-meaning correspondence in the target language.

Recognize core vocabulary and the rules and patterns of words used to communicate

Coordinated aural, visual, and textual information on the computer screen at the same time makes up an ideal laboratory for student problem-solving at the level of individual words and sentence structures. The learner has at her disposal rich visual and contextual clues that can assist in breaking the code of the written and aural text. The multimodal cues can be cross-referenced for word, sentence-level and broader understanding.

Understand communicative functions of utterances according to context

Video can be a very rich source of context for language processing. In a multimedia format, the

participants were provided control over the rate and order of video presentation and could therefore take advantage of starting and stopping the action in order to study language in a well represented context. Video also typically boasts tight correspondence between what is seen and what is heard. That is, in only very rare cases is the audio portion of video temporally disconnected to what is being viewed. By studying target language communication in a multimedia format, learners can experience and come to understand the connections between utterances and how they function within a visually depicted context.

Recognize that meanings can be expressed in different grammatical forms

Redundancy in video presentations is common. That is, interlocutors and narrators frequently repeat the same information in different ways so that meaning and intention is made clear to the viewer. During the experiment, phrases and sentences that carried the same or similar meaning were highlighted for the participants to highlight those phrases and sentences.

Infer meaning and make predictions using personal knowledge, experiences, and strategies.

The participants were also required to infer meaning and make predictions from what they see and hear on the screen. In this format, these viewing/comprehension strategies can be cued and guided by, for example, posing pre-viewing questions on top of the stilled first frame of the sequence they are about to watch. Inference, predication, and calling up prior knowledge and experience can thus be activated (Richards, 1985, ac cited in Meskill, 1996).

Post-listening

The students completed the exercises prepared at the end of each multimedia and checked the answers carefully for a minute before exchanging it with their partners in order to check if the answers were correct. Then they handed in the exercises to the researcher. Afterwards, they were given the opportunity to discuss the material presented and to express their ideas or opinions about it. Finally, the problems related to the students' comprehension were solved. The next session, before providing the new topic, the previous lesson was also practiced for a few minutes and the students' questions were answered.

Unlike the experimental group which was presented with multimedia activities in class by the instructor, the control group was taught with no such facility. In fact, the regular traditional method was used to teach listening to the participants in control group. In fact, the most common traditional techniques during the listening activities are read-aloud and repetition. As the second phase of the study, the participants of both groups were asked to answer the questionnaire. To make sure that students understand the items in the questionnaire, and to eliminate ambiguity, students' native language (Persian) was used. They were given enough time to answer slowly, deliberately and honestly to the questions. Finally, the researchers gathered the prints of the students after about 20 minutes.

Results

Question 1. Does teaching listening through multimedia technology have a significant effect on students listening comprehension achievement?

Before examining and testing the main research question, in order to better explain the studied groups' listening skill, first, the groups' pre-test mean scores are compared, using independent sample t-test. The results (see Table 2) revealed that, according to the t-test (T=0.449) and significance level (Sig=0.655), there was no significant difference between the control and experimental groups mean scores in the pre-test: The listening skill mean score of the two groups was similar at 95 % and were homogeneous.

Table 2. Descriptive Statistics; Listening skill mean scores of the control and experimental groups on the pre-test

Independent-sample t-test	Group	N	Mean	Std. Deviation	T	df	Sig
Pre-test	control	30	34.03	4.82	0.449	58	0.655
	experimental	30	34.60	4.95			

To determine the significant difference between the control and the experimental groups' listening skill after the treatment, the means comparison test (Independent-Sample t-test) was used. Table 3 shows that, according to the t-test (T=4.17) and significance level (Sig=0.00), there was a significant difference between the listening skill of learners in the control and experimental groups at < 0.01 and confidence level of 99%, and the listening skill mean score of learners in the experimental group (39.07) was more than the comprehension mean score of the control group (34.76).

Table 3. Independent-sample t-test; Comparison of the control and experimental groups' listening skill on the post test

Independent-sample t-test	Group	N	Mean	Std. Deviation	T	df	Sig
Post-test	Control	30	34.76	4.70	4.17	58	0.000
	Experimental	30	39.07	3.14			

Paired samples t-test results, demonstrated through Table 4 and Table 5, also showed that there was no significant difference in the pre- and post-test listening skill of the control group. But the post-test listening skill of the experimental group, trained with the use of multimedia, was significantly different compared to their listening skill in the pre-test. So, we might claim that the use of multimedia might have a significant impact on listening skill. Accordingly, the first hypothesis of the study was rejected since there was a significant difference between using multimedia materials and improving listening skills in EFL learners.

Table 4. Descriptive Statistics for the control group's Pre-test and post-test

Paired-sample t-test	Control group	N	Mean	Std. Deviation	T	Df	Sig
Listening skill	Pre-test	30	34.03	4.82	0.385	29	0.703
	Post-test	30	34.50	4.43			

Table 5. Paired-sample t-test; Comparing the Control group's Pre-test and post-test

Paired-sample t-test	Experimental group	N	Mean	Std. Deviation	T	df	Sig
Listening skill	Pre-test	30	34.60	4.95	6.86	29	0.000
	Post-test	30	39.07	3.14			

These results revealed that the answer to the first question is affirmative. In other words, using multimedia technology had an effect on the listening achievement of the students in the experimental group.

Question 2. Is there any significant relationship between students' attitudes towards using multimedia materials and teaching listening skills?

To study the relationship between the attitudes of learners to the use of multimedia materials and their listening skill, due to the fact that the two variables' measurement level was interval, simple linear regression analysis was used. Table 6 shows that, according to the F value (F=5.31) and significance level (0.020), there is a direct linear relationship between the learners' attitude to the use of multimedia materials and their listening skill at <0.05 and confidence level of 95%, hence the learners' attitude to the use multimedia materials can well explain the variations and variance of the listening skill.

In Table 6, in the fitting model part, the coefficient of determination (R^2) shows the variance explained and variations of the learners' listening skill by their attitude to the use of multimedia material. The coefficient of determination obtained (R^2 =0.187) indicates the weak role of the attitude towards the use of multimedia material in explaining the listening skill of learners. Adjusted coefficient of determination (R^2.adj=0.182) shows that the attitude to the use of multimedia material could explain 18.2 % variation in the listening skill of the learners.

Standardized regression coefficient or Beta indicates the relative contribution of the variable, the attitude to the use of multimedia materials, in explaining the changes in learners' listening skills. In Table 6, the Beta coefficient (0.371) indicates that one standard deviation change in the attitude to the use of multimedia material changes the standard deviation 0.371 in the listening skill of learners. Statistic T shows the relative importance of the variable attitude to the use of multimedia materials in the model.

Considering the significance level (Sig=0.020) obtained for the statistic T and its significance <0.05, it is suggested that the attitude to the use of multimedia had a statistical significant impact on explaining the changes in learners' listening skill. These results were the bases to conclude that there is a significant relationship between students' attitudes towards using multimedia materials and teaching listening skills.

Table 6. Regression analysis of the effect of the attitude to the use of multimedia on listening skill

Variable		The results of fitting model		Analysis of variance		Regression coefficients of the variable, the effect of attitude towards the use of multimedia on listening skill			
Independent	Dependent	R^2	R^2.adj	F	Sig	B	Beta	T	Sig
Use of multimedia	Listening skill	0.187	0. 182	5.31	0.020	0.302	0.371	4.52	0.020

Discussion and Conclusion

This study attempted to examine the impact of multimedia materials on Iranian EFL learners' listening comprehension. Furthermore, the study examined the students' attitudes towards using multimedia materials and teaching listening skills. As it was illuminated in the preceding sections, the findings of the study revealed that multimedia can improve listening ability of Iranian EFL learners. The reason for such findings may be due to the twelve principles that shape the design and organization of multimedia presentations (Mayer, 2001). These principles, according to Mayer (2001), which comprise Coherence, Signaling, Redundancy, Spatial Contiguity, Temporal Contiguity, Segmenting, Pre-training, Modality, Multimedia,

Personalization, Voice, and finally Image Principles could be summed up into one important support for multimedia instruction and its role in developing listening skill. In conclusion, one can say based on these principles, human learns better when he/she receives stimuli by different senses (Auditory, visual and animation) and when those stimuli are presented in contiguity (Mayer, 2001).

It was also found that there is a significant relationship between students' attitudes towards using multimedia materials and teaching listening skills. In fact, multimedia presentations have proved to have an amount of entertainment, enjoyment and excitement as learners may be involved in the live experience as participants in the real time, place and event on the affective level. Similar to the present study which depicted a relatively strong relationship between the students' attitude towards multimedia instruction and their listening achievement, Astleitner & Wiesner (2004) and [32] Yarbrough (2001) also suggested that student satisfaction and motivation is higher in courses that use multimedia materials than the traditional ones. On the cognitive level multimedia can improve learning and retention of material presented during a class session or individual study period as it provides multiple sources of stimuli for the senses and the brain.

The results of this study which demonstrated a significant effect of multimedia on listening comprehension support the previous studies which had the same outcomes (Grgurović & Hegelheimer, 2007; Isik & Yilmaz, 2011; O'Bryan & Hegelheimer, 2007; Verdugo & Belmonte, 2007). To solve EFL learners' problems, recent instructional approaches emphasize learning by engaging learners in knowledge construction [33] (Reiser, 2004). The conditions of meaningful learning require an appropriate instructional strategy, where students need to elaborate, or generate activities, such as self-questioning, semantic mapping, and summary writing, monitor learning, and construct meaning from a listening text. Such strategies can be considered effective in listening comprehension [34] (McGriff, 1996). If provided with appropriate assistance, students can attain a goal or engage in a practice or task that is beyond their reach. Reiser (2004) points out that through multimedia activities, learners receive support and assistance to successfully perform certain tasks and move to more complex ones. Without such assistance, these tasks would be beyond their ability; therefore, building on the multimedia materials and teacher support, students reshape their knowledge and improve their performance.

Similarly, [35] Vacca (2008) suggests that when the students are guided, supported and provided with the necessary materials, they become more responsible for their learning, more motivated, and more successful. Instructional multimedia is, therefore, an effective model for teaching listening, and such an instruction influences the development of higher functions and skills beyond the confines of a learner. Thus, it can, undoubtedly, further develop students' cognitive and metacognitive skills [36], [37] (Olson & Land, 2007; Davis & Miyake, 2004).

The results of this study could brighten the path for both language teachers and learners. The results can encourage language teachers to take a more systematic approach in teaching listening and planning their programs in classrooms. In practice, teachers may utilize new methodologies to teach the instructional materials relating listening, and try to improve listening ability of students through multimedia materials. It should be mentioned that the findings of this study could also enrich the literature in the area of second/foreign language acquisition development. The EFL learners can also take benefit of the multimedia materials to enhance their listening skills.

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