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Improving ESP Students` Reading Comprehension through Multimedia Techniques: The Case of Power Point

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Abstract: *Recent studies suggest that the use of multimedia has always been a field of inquiry for practitioners and teachers in the field of second language learning. With the emergence of technological equipment, teaching practices has become more effective in learning experiences and PowerPoint as multimedia in which both words and relevant graphics are used simultaneously can be a good example in this case. The present study tries to investigate the effect of using PowerPoint as a multimedia presentation on improving ESP for architectural University students` reading comprehension. To this end, 90 homogenous University students majoring in Architecture whose syllabus mostly focuses on reading comprehension are selected based on an OPT test. The participants are divided to two experimental groups and a control group. Data analysis through conducting a One-Way ANOVA reveals that applying PowerPoint on reading comprehension courses for ESP students facilitates their level of comprehension. The results of the study show that the experimental group`s scores on posttest which receives reading comprehension texts through PowerPoint are significantly different from the control group. The findings of the study will shed lights on the improvement of the ability of reading comprehension of ESP courses in which learners are encouraged to read extensively on the related issues to keep themselves as updated as possible to the world knowledge.*

Keywords*: ESP, Multimedia Presentation, PowerPoint, Reading comprehension*

1. Introduction

In this paper the concept of ESP academic reading comprehension and the effect of using power point as a medium of multimedia on the improvement of architectural university students` reading comprehension are revisited. English for Specific Purposes (ESP) has developed from the early 1960s and has been considered as an important area of EFL teaching today. Most universities offer courses in ESP to university students. Also most overseas students need to take courses in English and non-English speaking countries. There are also many courses in M.A

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level offer to university students in English. Today there has been much work dedicated to ESP as well as some international journal to ESP discussion.

English for specific purposes according to Hyland (1999) is the most dynamic and ingenious arena of language teaching and research. ESP refers to teaching of English for specific purposes to the university students. Tony Dudley Evans and Maggie Jo St John are two prominent figures in the field of their practical oriented approach to ESP issues. According to Dudley-Evans (1998), ESP has several absolute and variable characteristics. To name some of them, ESP provides specific need of the learners which makes use of basic methodology and activities of the discipline it provides and its center focus is on the language appropriate to the activities. ESP, according to Dudley-Evans, 1998, is related to specific disciplines which are used for adult learners who are supposed to have some background knowledge of English language. ESP should be considered as stated by Dudley-Evans, an attitude of mind which is an approach to teaching. Hutchinson et al. (1987) describe ESP as language teaching approach in which the content and method are selected according to the needs of the learners.

According to Gonzalez (2012), ESP can be divided to EAP (English for academic purposes) and EOP (English for occupational purposes). He adds that the main branch of EAP is EST (English for science and technology). Jordan (1997) describes that EAP is interested in communication skills in English language teaching in formal education systems. Then, the term ESAP (English for Specific Academic Purposes) can be considered in teaching where English is used to teach related skills to the students who need to commence in higher education. Gillet (1996) claims that the aim of EAP (English for Academic Purpose) is to help foreign learners conquer their linguistic difficulties involved in studying English. He also believes that EAP is a branch of ESP in which the requirements and needs of the learners should be matched to the content.

Multimedia learning, TV, CD rom, CALL (computer assisted language learning), the Internet, electronic dictionary, Email, Blogs, video cassettes, and PowerPoint consists of cognitive theory of learning and Richard E. Mayer is one of the prominent who proposes the idea of multimedia learning. Mayer (2002) states that when learners are exposed to both pictures and verbal forms using multimedia and they make a mental representation of the material which has

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been presented to them, they learn better. Mayer (2009) also asserts that the cognitive theory of multimedia learning focuses on the idea that when learners are exposed to multimedia they try to build meaningful connections between words in texts and pictures which facilitates their learning than when they are only presented to text materials. Therefore multimedia is a way of presenting material, often learning material which involves speech or other sound, drawings or diagrams, animated drawings, pictures, texts, and or video clips (Collins, Hammond & Wellington, 1997). Sorden (2012) posits that multimedia is the result of building mental representation from work and pictures. Moreover he adds that instructional designs which are based on multimedia try to combine words and pictures to maximize the effectiveness of learning.

The cognitive theory of multimedia learning tries to help learners to apply adequate cognitive strategies to learn more conveniently. The three theories underlying multimedia learning belong to Baddeley`s model of working memory, Pavio`s theory of dual coding theory, and Sweller`s theory of cognitive load and all of the theories support the theory of multimedia learning (Sorden, 2012). The model of working memory proposed by Baddeley is a system composed of sub branches that hold temporary information which later be processes in a way that several pieces of different kinds of information such as visual or verbal can be stored and incorporated (Sorden, 2012). In 1971, dual coding theory as a theory of cognition was proposed by Pavio. The theory states that the human brain understands imagery representations better than those in verbal forms. According to Pavio (2006), in DCT, cognition includes the process happening in two systems of verbal and nonverbal deals with images. In 1980, cognitive load theory was developed by the work of Sweller. He argued that when learners make use of instructional design, they learn better as the cognitive load in learners is reduced (Paas, Renkl and Sweller, 2004).

Reading comprehension is the main skill for Iranian ESP university students which the main focus of their syllabus is on reading comprehension during the course. According to Pardo (2004) reading is the ability to comprehend a text which both teachers and students are involved in this process during their educational studies. The ESP students are supposed to have some background knowledge of English and they are supposed to get enough knowledge of English in specific course in order to communicate a set of skills and to perform a particular job through reading comprehension texts in ESP courses. Most Iranian ESP students have lots of problems in

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reading comprehension of ESP programs and their problems get worse when they are exposed to a set of reading texts in which they are supposed to read and comprehend.

2. Review of the literature

In recent years, there has been a lot of ink in the review of literature on using PowerPoint to facilitate language learning. Many researchers have argued that using multimedia and PowerPoint can facilitate comprehending the text messages. As a result a large and growing body of literature has investigated the impact of PowerPoint presentation (a form of multimedia) on different skills in second language learning as well as learners` attitude and motivation (Bartsch & Cobern, 2003; Butler & Mautz, 1996; Patel, 2013; Pun, 2013 & Sewasew, Mengestie & Abet, 2015).

Nouri and Shahid (2005) conduct a research and the results of their research shed light on the effect of PowerPoint on improving students` attitudes towards the instructor and classroom presentation. Bartsch and Cobern (2003) also did a research on the effectiveness of PowerPoint presentations in lectures and found that PowerPoint could be beneficial. Borden and Troiano (n.d.) believe that using PowerPoint either in cooperative learning environment or a peer tutoring can be a powerful tool that builds more than subject knowledge. Other researchers found that using PowerPoint has a meaningful impact on reading comprehension (Holakopour, Azizifar & Gowhari, 2014).

Patel (2013) highlights the need to use multimedia to have an effective role in advocating activities and tasks of students and teaching development in English communication class. In a research, Patel (2013) analyses the importance and necessity of application of multimedia technology in communication classes and he concludes that using multimedia leads to several issues which are offering a sense of reality to the students, increasing students` capacity of communication, improving teacher-student interaction, providing flexible courses, and creating real context.

In 2014, Hollakopour et al. publish a paper in which they describe the effect of power point on reading comprehension improvement among high school students. Their research showed that using power point in teaching improves EFL students` learning. The effect of power point

increases learners` enthusiasm and motivation. In their research power point also increases the efficiency of language classrooms. In 2013, Song demonstrates that learners` attitude toward teachers and instructors as well as course presentation is increased as a result of applying power point.

Several attempts have been made to explain the effect of PowerPoint on language learning, however, to the best of authors' knowledge, no report has been found so far using the PowerPoint as a multimedia tool to facilitate reading comprehension of ESP texts for architectural university students. As far as we know, the problem of comprehending text materials for Iranian ESP university students is a major one and according to the vast amount of literature it can be aided using PowerPoint presentation of materials in the form of texts as well as graphics, pictures, and or short video clips. The problem of comprehending the reading text exists as most of the lecturers use texts and present them on board (Bartsch & Cobern, 2003). The Iranian ESP architectural students are supposed to obtain enough information about the basic concepts of architecture besides information about famous structures and famous architects of the world. When the materials presented to them in texts and the lecturers read the texts or at least use whiteboard to explain on the issues they have no idea of knowing the real objects and concepts. Based on the experience of the present researcher, the ESP architecture students of Masjed Soleiman University are not willing to surf the net to find about the related issues which can be a solution for lack of comprehending texts. For example, they have no idea of what the Sydney Opera House is like and after being presented they are not eager to go on the net and see the pictures of it and find more detailed information about this structure.

To this end, the objective of the present work paper is to investigate the effect of PowerPoint presentation on reading comprehension of text materials for Iranian architectural ESP university students.

3. Research question

Does the use of power point have any impact on improving ESP students` reading comprehension?

4. Method

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4.1 Research Design

The current study was of quasi-experimental type since true randomization was not possible. The initial participants were selected based on convenience sampling. Homogeneous participants were selected based on a placement test and were randomly assigned into two experimental groups and one control group. The study used a pretest, treatment and a posttest.

4.2 Participants

The study was carried out with the involvement of ninety male/female fourth-year University students majored in architecture at SAMA University, Masjed Soleiman Khuzestan province who were selected from among 150 male/female participants based on an OPT test. The participants were then randomly assigned to three groups of one control and two experimental. The participants were at the age range of 19 to 32 years with the mean of 25.5 years of age. The participants were all Persian speakers with the average level of English proficiency based on an OPT test prior to the experiment in which the scores around one unit of SD (X ± 1SD) were taken into consideration. Prior to the study the participants were pretested on their reading comprehension skill.

4.3 Data Collection Instruments

Several instruments were used for collecting the needed data for the present study.

I. Oxford Placement Test which is a standardized test of Oxford University to determine EFL learners' proficiency level and make the participants homogenized.
II. Pretest/ Posttest TOEFL used for reading comprehension

4.3.1 Oxford Placement Test

Oxford placement test (OPT) provides teachers with a reliable and efficient means of placing students at the start of a course. OPT helps researchers quickly measure a students` general language ability so the students can be placed into the appropriate level. The test has been pretested and validated by more than 19000 students in 60 countries showing the test is reliable, accurate and user-friendly. In this study the test was used to determine the proficiency level of

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participants to choose 90 homogenous participants from among 150 learners. The test is divided into two main sections of listening and grammar, each having 100 items. The listening section is primarily a test of reading and listening skills, and of vocabulary size, in which the learners` performance is dependent on applying knowledge of the sound and writing system of English and on the ability to make use of this knowledge at a task-speed well within the competence of a native speaker of English. The second section is a test of grammar, vocabulary and reading skills, tested as far as possible in context. It involves a carefully selected range of items with facility values and discrimination indices designed to provide meaningful discrimination at each of the levels identified by the Common European Framework. The test is also accompanied with a written key to help marking the tests.

OPT test has been used in many studies to determine the level of the participants, to homogenize them, and also to control the initial differences between and within the groups. Like the current study in some studies by Abdolmanafi Rokni and Jannati Ataee (2014), Naghizadeh and Darabi (2015), Rostami Shirazi, Hesabi and Simin (2015), and Shabani and Pasha Zanussi (2015) OPT has been used to homogenize and determine the level of proficiency of the participants.

4.3.2 TOEFL Pretest/Posttest

The Test of English as a Foreign Language (TOEFL) measures the ability of non-native speakers of English to use and understand North American English as it is spoken, written and heard in college and university settings. Most people who take the TOEFL test are planning to study at colleges and universities where instruction is in English. In addition, many government agencies, scholarship programs, and licensing/certification agencies use TOEFL scores to evaluate English proficiency. The Reading section of TOEFL test measures test takers' ability to understand university-level academic texts and passages. In English-speaking academic environments students are expected to read and understand information from textbooks and other types of academic material. Below are three possible purposes for academic reading test. In this TOEF test the participants of the study were asked to read the texts to find information and comprehend the texts. Test takers did not need any special background knowledge to correctly answer the questions in the Reading section; all the information needed to answer the questions was

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contained in the passages. Test takers must read through the end of each passage and then answer the questions on that passage.

4.4 Procedures

Three groups of SAMA Masjed Soleiman Azad University architectural students with the same range of language proficiency were the participants of the study. To choose the participants and make them homogenous, a placement test (OPT) was first administered to the whole population of the students and the students whose scores fell between the mean and plus/minus 1 unit of SD were taken into consideration. The participants of the study were then randomly assigned into three groups which included two experimental and one control group. Prior to the study, a pre-test of reading skill based on TOEFL reading test was administered to the participants in order to determine a starting point from which the participants` performance on the post-test could be discovered with certainty and also to test their reading comprehension to ensure their homogeneity prior to the experiment. The results of the pre-tests showed that there was no significant difference in learners' performance on the pre-test across the control and treatment groups and it can be said that there was no meaningful difference between the mean scores of the three groups in pre-test of reading comprehension. All three groups were then trained by the present researcher. The participants of the two experimental groups received the treatment which was using power point for presenting the ESP materials of the architecture course for 16 sessions. As there were two experimental groups, one of them received the ESP material using power point only (group A) and the other one received the ESP material with power point for 8 sessions and without power point for another 8 sessions (group B) which was applied in a mixed method. The instructor used a video projector and a laptop to apply power point for the two experimental groups. The control group (group C) received the material in written forms and they did not receive any power point. After 16 sessions, a posttest, identical to the pre-test but not the same in order to prevent the memory factor, was administered to the participants. To examine the effect of power point as a case of multimedia technique on reading comprehension of ESP architectural university students, One Way ANOVA was conducted to the results of the post test. After it was revealed that the groups differed in some way, post- hoc test displayed more about the structure of the differences. In other words, doing multiple comparisons Post-hoc test (Scheffe) was employed for comparing the means of the three groups. In order to

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investigate the participants' possible progressive and gradual development within groups, three paired t-tests were also run.

4.5 Data Analysis

Descriptive statistics including measures of central tendency (mean, median & mode) and measures of dispersion (range, variance & standard deviation) along with measures of distribution (Skewness & Kurtosis) were presented for the OPT test as a placement test. To analyze the scores of pre-tests, a One-Way ANOVA was used to analyze students' scores in the first administration of the reading test. The data from the post-test was used to compare and evaluate the effect of treatment namely power point as a multimedia technique. Another One - Way ANOVA was conducted for the post –test scores. This was done in order to answer question of the study that dealt with the impact of multimedia technique the case of power point on university ESP architectural students` reading ability. A Post- hoc test (Scheffe) was employed for comparing the means of the three groups and to investigate the participants' possible progressive and gradual development within groups, three paired t-tests were also run.

5. Results

The main plan of the present study was to investigate empirically the possible effects of media supported language teaching on Iranian ESP learners' reading comprehension performance. Descriptive statistics were run to the results of the Oxford Placement Test and (N= 90) homogeneous ESP learners were chosen based on Oxford Placement Test. Afterwards, they were randomly divided into three groups (each including 30 ESP learners). Reading comprehension tests were administered to the three groups both at the beginning and at the end of the study. One-way Analysis of Variance (ANOVA) was run to the results of the pre-reading comprehension test to examine their prior ability with relation to reading comprehension. Then, the experimental group (A) received PowerPoint - supported language teaching, the experimental group (B) took mixed method (both PowerPoint- supported and traditional language teaching), and the control group (C) received placebo. After instructing the specific treatments to the experimental groups, a posttest of reading comprehension was administered to the three groups.

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To provide answer for the research question, One –Way ANOVA procedure along with Post- Hoc Scheffe test were run to the results of the post reading comprehension test. This test provided analysis of variance for the dependent variable (i.e. reading comprehension ability) by the specific factor (i.e. types of language teaching) to check which type of language teaching had better impact on the participants' reading comprehension performance. Finally, to investigate the participants' possible improvement from pretest to posttest, Paired Samples T-Tests were run to the results of pre and posttest of each group. Before running the main statistical analyses of the present study, normality that is the main presumption of the parametric tests namely One Way ANOVA was established for all of the distributions through running Leven Test, and displaying Error Bars. In addition, the reliability of the reading comprehension tests was estimated through running Cronbach's Alpha in a pilot study. The results of the study and their interpretations are displayed in the following sections:

5.1. The Results of the Reliability Analyses of the Reading Comprehension Tests (pilot study)

The reliability of (20) items of the reading test was estimated through a pilot study. The estimated values of Cronbach's Alpha for the pre and posttest of reading were ($\alpha_{Pretest}$= .84, and $\alpha_{posttest}$=.85), respectively which were both higher than the least possible amount required (i.e. .70). The results are presented in Table 1.

Table 1:

Reliability Statistics for the Reading Comprehension Tests

	Cronbach's Alpha	N of Items	N of sample
Reading comprehension (pretest)	.84	20	10 ESP students
Reading comprehension (posttest)	.85	20	10 ESP students

5.2 Measure of L2 Proficiency (OPT test for Selecting Homogeneous Participants)

To ensure that the main subjects were roughly at the same level of foreign language proficiency at the beginning of the study, the standardized Oxford Placement test (OPT) was administered to (60) ESP students. The objective was to select a homogeneous sample. A cut-point of one standard deviation above and below the mean was set and (90) ESP learners whose language proficiency scores were within this range ($\pm$ 1 SD) from the mean were selected as the main

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participants of the present study. The descriptive statistics of the OPT test are presented in Table 2.

Table 2:

Statistics for the Results of OPT Test

N	Valid	150
	Missing	0
Mean		46.9067
Median		48.0000
Mode		49.00
Std. Deviation		7.03428
Variance		49.481
Skewness		-.319
Std. Error of Skewness		.198
Kurtosis		-.619
Std. Error of Kurtosis		.394
Range		30.00
Minimum		30.00
Maximum		60.00
Sum		7036.00

Table 4.6 depicted the results of group statistics and numerical information for the OPT test scores which was administered for selecting homogeneous sample out of (150) ESP students. Measures of central tendency containing the mean, the median, the mode and measures of dispersion namely the range, the variance, and the standard deviation together with measures of distribution such as Skewness and Kurtosis were displayed for the OPT test. The main subjects were selected from among those who scored within the range of (±1SD) from the mean score (i.e. 46.90 + 7.03**,** 46.90 **–** 7.03**)** and thus a cut-point of (39.87) to (53.93) was set and (90) ESP learners were selected.

5.3. Examining the Normality Assumption of the Pre-test of Reading Comprehension

Prior to performing the analysis, the main assumption of One Way ANOVA (i.e. normality) was examined through running Leven statistics. The results are presented in Table 4.3.

Table 3:

Test of Homogeneity of Variances for the Pretest

Test of Homogeneity of Variances

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Levene Statistic	df1	df2	Sig.
.880	2	87	.419

The results of Levene statistic displayed that the group variances were comparable in reading comprehension pre- test ($P_{\text{pre- test}}$ (.419) ≥.05). The Levene statistic verified the hypothesis that the group variances were the same (see also the following graph).

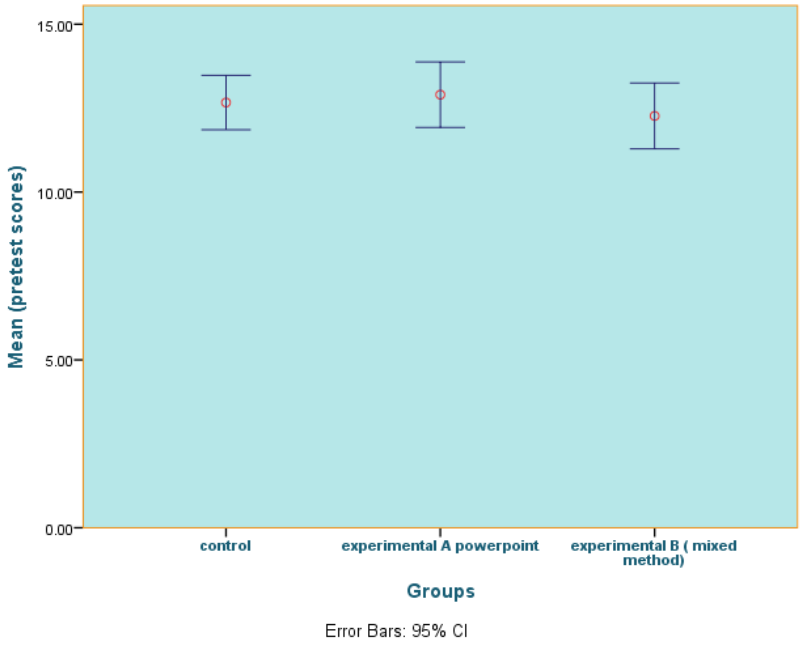

Figure 1: **Error Bars for Examining the Normality Assumption (pretest)**

As it is shown in the above figure, the common performance was almost similar for the three groups at the beginning of the study. Besides, the degree of scatteredness of the scores was in a similar way at the same time. ANOVA assumes homogeneity of variance across the groups; that supposition was satisfied for these data. The following table presents descriptive statistics of the three groups for the pretest scores.

5.4. Descriptive Statistics for the Pre -Test Scores of the Reading Comprehension

At the beginning of the study, all the participants participated in the pre-test. The main objective was to establish a baseline measurement from which attainments on the post-test could be explained. Tables 4 and 5 reveal the results of One-Way ANOVA used to analyze the participants' scores in the pretest of reading comprehension.

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Table 4:

Group Statistics for the Pre- Test Scores of the Reading Comprehension

	N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
control	30	12.66	2.17	.39	11.85	13.47	9.00	17.00
experimental A PowerPoint	30	12.90	2.61	.47	11.92	13.87	8.00	18.00
experimental B (mixed method)	30	12.26	2.62	.47	11.28	13.24	7.00	17.00
Total	90	12.61	2.46	.25	12.09	13.12	7.00	18.00

The descriptive table revealed the sample size, the mean, the standard deviation, and the standard error for all the three groups at the beginning of the study. For reading comprehension test, the PowerPoint- supported language teaching, mixed method language teaching and the control groups' mean scores were (X^- $_{\text{PowerPoint supported language teaching group}}$ = 12.90), (X^- $_{\text{PowerPoint+ traditional language teaching group}}$ = 12.26) and (X^- $_{\text{control group}}$ =12.66), respectively. They differed some points around their average. The mean score of the experimental group (A) was (.23) points higher than the control group and (.63) points higher than Experimental group (B). Furthermore, the mean score of experimental group (B) was (.40) points lower than the control group. Besides, the degree of the deviation of the scores for the control group (SD $_{\text{control group}}$ = 2.17) was a little lower than the extent of scattering of scores around the mean score for the PowerPoint- supported language teaching and mixed method group (SD $_{\text{PowerPoint supported language teaching group}}$ =2.61; SD $_{\text{PowerPoint+ traditional language teaching group}}$ = 2.62). The following table examined whether these differences in the mean scores of the three groups were statistically significant before introducing the particular treatments.

Table 5:

One-Way ANOVA for the Pre- Test Scores of the Control and Experimental Groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.156	2	3.078	.500	.608
Within Groups	535.233	87	6.152		
Total	541.389	89			

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According to Table 5, there was no meaningful difference between the mean scores of the three groups in pre-test of reading comprehension ($p \geq .05$). This meant that, the groups were almost at the same level of proficiency with respect to their reading comprehension ability at the beginning of the study before introducing the specific treatment to the experimental groups. The following figure illustrates the three groups' performance on pre-test of reading comprehension.

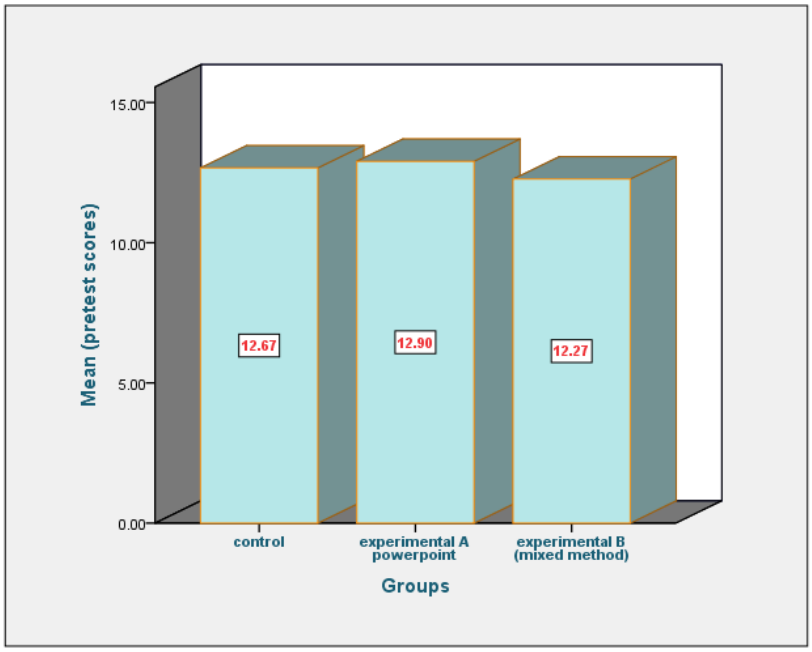

Figure 2: **the Three Groups' Performance on Pretest of Reading Comprehension**

5 The Research Question:

RQ1. Does PowerPoint- supported language teaching have any significant effect on Iranian ESP students` reading comprehension?

The following null hypothesis was formulated:

H01= PowerPoint - supported language teaching does not have any significant effect on Iranian ESP students` reading comprehension.

To answer the research question, ANOVA was run to examine the hypothesis that the means of the three groups were the same on posttest of reading. Since ANOVA is susceptible to divergence from normality, the uniformity of the variances was scrutinized for the results of the

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posttest, too. Levene's homogeneity of variance test was run for the results of the post-test to test normality.

Table 6:

Test of Homogeneity of Variances for the Post Test Scores

Levene Statistic	df1	df2	Sig.
.728	2	87	.486

Consequently, the test of homogeneity of variance suggested that the variances of the three groups were the same for the post-test of reading comprehension ($P_{\text{post- test}}$ (.486) ≥ .05). After establishing the homogeneity of variances, ANOVA was run to the results of the reading comprehension post-test (see also the following graph).

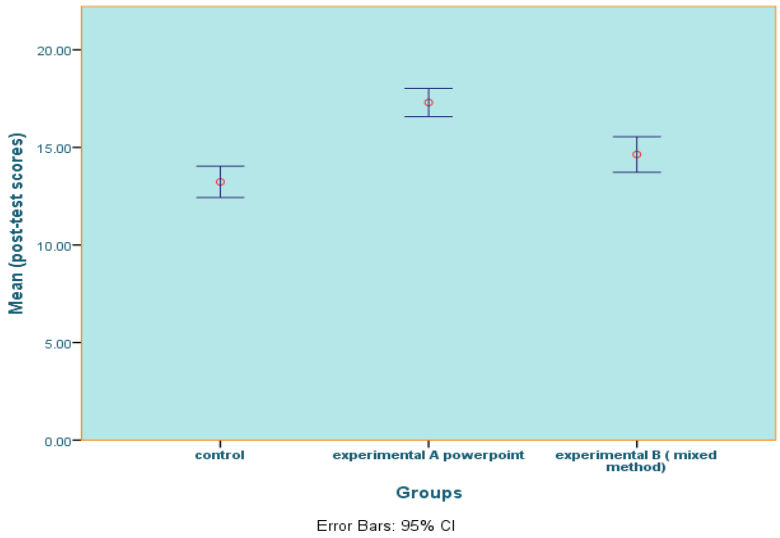

Figure 3: **Error Bars for Examining the Normality Assumption (posttest)**

The descriptive statistics for the posttest is presented in the following table:

Table 7:

Descriptive Statistics for the Posttest Scores

	N	Mean	SD	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
control	30	13.23	2.14	.39	12.43	14.03	9.00	18.00
experimental A PowerPoint	30	17.30	1.93	.35	16.57	18.02	13.00	20.00
experimental B (mixed method)	30	14.63	2.44	.44	13.72	15.54	10.00	19.00
Total	90	15.05	2.74	.28	14.48	15.63	9.00	20.00

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The results of the post-test displayed that the Mean of the *Experimental group (A)*, X^{-} =17.30), Mean *Experimental group (B)*, X^{-} =14.63), and the Mean of the (*control group*, X^{-} =13.23), differed significantly. The significance value of the *F* test in the ANOVA table was less than (.05). Therefore, the null hypothesis that average scores of the posttest of reading comprehension were the same upon the three groups was rejected (F 2, 87= 26.867, Sig. = .000≤.05).

Table 8:

ANOVA for the Results of the Post- Test of Reading Comprehension

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	256.089	2	128.044	26.867	.000
Within Groups	414.633	87	4.766		
Total	670.722	89			

The following figure illustrates the mean plot for the results of the posttest:

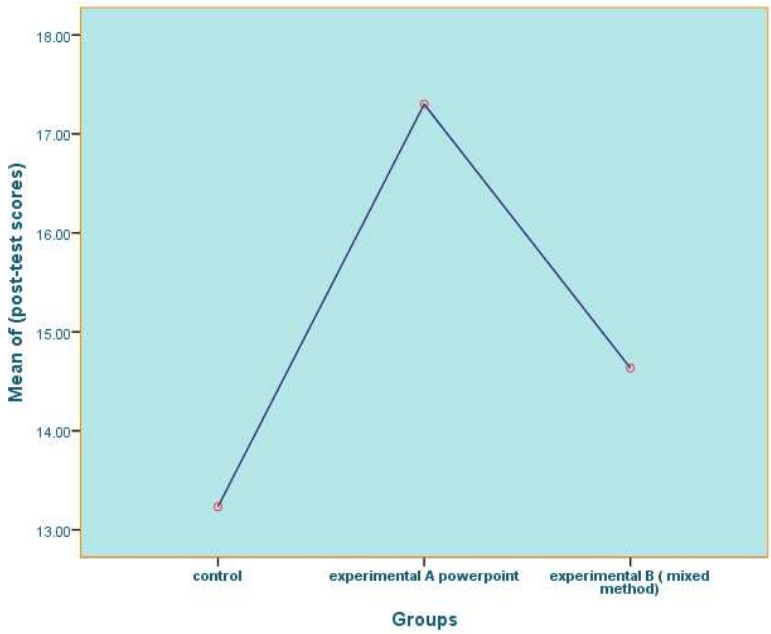

Figure 4: **Mean Plot for the Results of the posttest of Reading Comprehension**

In general, *F* statistics strongly confirmed that there were statistically significant differences among the three groups' means, and means plots revealed the position of these differences. The participants of the experimental group (A) who received PowerPoint- supported language

teaching, outperformed their counterparts namely experimental group (B) who received PowerPoint along with traditional language teaching and the control group.

After it was revealed that the groups differed in some way, post- hoc test displayed more about the structure of the differences. In other words, doing multiple comparisons Post- hoc test (Scheffe) was employed for comparing the means of the three groups.

Table 9:

Multiple Comparisons for the Results of the Posttest

Scheffe						
(I) VAR00001	(J) VAR00001	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
control	experimental A PowerPoint	-4.06*	.563	.000	-5.47	-2.66
	experimental B (mixed method)	-1.40	.563	.051	-2.80	.00
experimental A PowerPoint	control	4.06*	.563	.000	2.66	5.47
	experimental B (mixed method)	2.66*	.56	.000	1.26	4.07
experimental B (mixed method)	control	1.40	.56	.051	-.00	2.80
	experimental A PowerPoint	-2.66*	.56	.000	-4.07	-1.26

*. The mean difference is significant at the 0.05 level.

As it is displayed in Table 9, the highest mean difference was reported between experimental group (A) who received "*PowerPoint- supported language teaching*" and the "*control group*" with mean difference of (4.06). On the other hand, the lowest mean difference was shown for the experimental group (B) who received "*PowerPoint+ traditional language teaching*" and "*control group*" (mean difference= 1.40).

As it is shown in Table 9, "*PowerPoint- supported language teaching group*" outweighed the other two groups in relation to their reading comprehension performance (mean $_{\text{experimental group (A)}}$ =17.30; SD=1.93). In the second place, "*experimental group (B)*" performed better than the "*control group*" (mean $_{\text{Experimental group (B)}}$ =14.63; SD= 2.44). Finally, the "*control group's*"

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performance was lower than the other two groups (mean $_{control\ group}$ = 13.23; SD= 2.14). The following figure illustrates the performance of the three groups in posttest of reading.

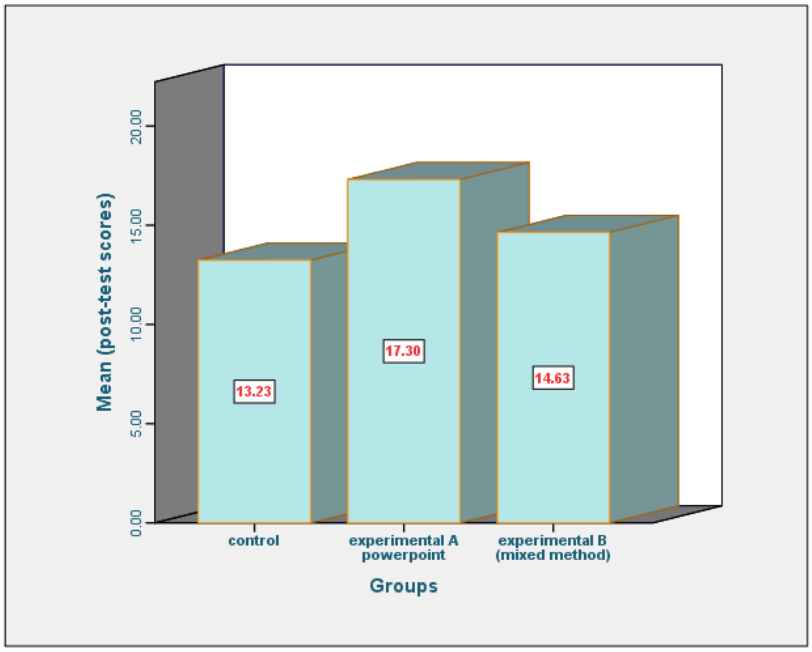

***Figure 5* the Groups' Performances on post-test of Reading Comprehension**

In order to investigate the participants' possible progressive and gradual development within groups, three paired t-tests were also run, which showed the subjects' progress in pre-test and post-test that are shown in Tables 10 and 11.

Table 10:

Statistics for the Pre and Post Test Scores of the Reading Comprehension Test

groups		Mean	N	Std. Deviation	Std. Error Mean
control	pretest scores	12.66	30	2.17	.39
	posttest scores	13.23	30	2.14	.39
experimental A PowerPoint	pretest scores	12.90	30	2.61	.47
	posttest scores	17.30	30	1.93	.35
experimental B (mixed method)	pretest scores	12.26	30	2.62	.47
	posttest scores	14.63	30	2.44	.44

The mean scores of the "*experimental group (A)*" made better from (X^- = 12.90) in pre- test to (X^- = 17.30) in post- test. For the "*experimental group (B)*" it improved from (X^- = 12.26) in pre- test to (X^- =14.63) in posttest, and finally, the mean of the "*control group*" changed from (X^-

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= 12.66) in pre- test to (X^{-} = 13.23) in post- test on the reading comprehension test. Paired Samples T- tests then were run to see if these changes within groups were statistically significant. The results are available in the following table:

Table 11:

Paired Samples T- Tests for the pre and posttests of Reading Comprehension

Groups		Paired Differences					t	df	Sig. (2-tailed)
		Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
control	pretest scores - posttest scores	-.56	1.56	.28	-1.15	.019	-1.9	29	.057
experimental A PowerPoint	pretest scores - posttest scores	-4.40	1.69	.30	-5.03	-3.76	-14.2	29	.00
experimental B (mixed method)	pretest scores - posttest scores	-2.36	2.45	.44	-3.28	-1.44	-5.2	29	.00

As depicted in the Tables10, and 11, all the three groups made progress in the post-test. Based on the results of Paired Samples T-test, this gain was significant from a statistical standpoint simply for the experimental groups ($P \leq .05$). In other words, the two experimental groups made a considerably improvement in the posttest. However, this gain for "*experimental group (A)*" was higher than the other two groups. On the other hand, the least amount of progress between the results of pre and post-test was reported for the "*control group*" that received placebo ($P \geq .05$). These results also rejected the null hypotheses that PowerPoint - supported language teaching does not have any significant effect on Iranian ESP students` reading comprehension.

6. Discussion

The main goal of the present study was to inquire about the improving ESP Students` reading comprehension through multimedia techniques using power point. The subjects participated in this study were architectural university students of Masjed Soleiman Azad University. They were selected from among 150 male/female participants based on an OPT test. The ninety

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homogenized participants of the study were then randomly assigned into three groups (the experimental groups A and B) and the control group. After organizing the three groups, the statistical analyses were done with the aim of showing the impact of using power point on reading comprehension of ESP university students of architectural major. In order to analyze the pretest and posttest, the data was computed by means of the statistical package of SPSS. The analyses were done through applying ANOVA for pretest and posttest, a Scheffe test to specify the exact difference among the groups, three paired-samples T-tests to investigate the participants' possible progressive and gradual development within groups.

The study was guided by a research question and hypothesis which is discussed in turn. The research question was: Does PowerPoint- supported language teaching have any significant effect on Iranian ESP students` reading comprehension? Accordingly, the hypothesis was: PowerPoint - supported language teaching does not have any significant effect on Iranian ESP students` reading comprehension. According to table 8, there were statistically significant differences among the three groups` means. The experimental group (A) who received power point supported language teaching, outperformed the experimental groups (B) who received power point along with traditional language teaching method and the control group. The results of a post-hoc analysis revealed the exact difference among the groups as shown in table 9. It indicated that the experimental group (A) who received power point supported language teaching outweighed the other two groups in relation to their reading comprehension performance. In the second place the experimental groups (B) performed better than the control group. the control group`s performance was lower than the other two experimental groups. In order to investigate the participants` possible progressive and gradual development within groups, three paired T-tests were also run, whose results were shown in table 10 and 11. The mean score of the experimental group (A), made better from pretest to posttest. For the experimental group (B) the mean score was also improved from the pretest to posttest and finally the mean score for the control group was also improved. Paired Samples T- tests then were run to see if these changes within groups were statistically significant. As depicted in the Tables10, and 11, all the three groups made progress in the post-test. Based on the results of Paired Samples T-test, this gain was significant from a statistical standpoint simply for the experimental groups. In other words, the two experimental groups made a considerably improvement in the posttest. However, this

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gain for "*experimental group (A)*" was higher than the other two groups. On the other hand, the least amount of progress between the results of pre and post-test was reported for the "*control group*" that received placebo. These results also rejected the null hypotheses that PowerPoint - supported language teaching does not have any significant effect on Iranian ESP students` reading comprehension.

The findings of the present study highlight enhancing the listening skill through the use of power point. The findings reveals that the use of power point can be a crucial focus of attention in teaching ESP and it may also suggest the requirement of the power point as multimedia technique. The learners` performance on posttest clearly indicates that learners' improvement on reading can be facilitated through using power point as a multimedia technique. Findings of the current study conforms to the results of earlier studies of Bartsch & Cobern, 2003; Butler & Mautz, 1996; Holakopour, Azizifar & Gowhari, 2014; Nouri & Shahidi, 2005; Patel, 2013; Pun, 2013 & Sewasew, Mengestie & Abet, 2015. Consistent with findings by the mentioned authors, it has been found that the listening skill of ESP architectural students can be improved by using power point.

The result of this study is in the lines of Patel (2013) that found the suing of power point offered a sense of reality. In the present study, architectural university students needed a sense of reality to understand the concept of architecture and power point gave them such reality sense. Using power point and creating a real context and flexible course reflects the findings of Patel (2013).

Improving architectural students` reading comprehension of the current study agrees relatively well with that from Hollakopour et al. (2014). The present findings support Hollakopour et al. (2014) study which concluded that the effect of power point improved reading comprehension as well as increasing learners` enthusiasm and motivation. The participants of the current study showed a high range of enthusiasm in the power point. Thus it becomes clear that foe ESP students who have problems in comprehending their reading materials, power point can be useful tool. Power point boosts the efficacy of teacher presentations by showing real images, sounds, and clips. The aim of ESP teacher is to provide learners with as real context as possible to increase the amount of their comprehension.

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7. Conclusions and Implications

This project was undertaken to investigate and evaluate improving ESP students` reading comprehension through multimedia techniques like power point. As the results indicated, there were considerable amount of differences between the three groups of the participants of the current study in terms of introducing power point to improve their reading comprehension. According to the results of the study using power point as a multimedia technique had significant effect on ESP architectural university students` reading comprehension. After investigating and doing analyses on the results of posttest, it can be concluded that ESP architectural university students could have a better understanding of their written material when they were presented power point aided materials. The findings of the current study showed that using power point in teaching ESP materials was able to enhance their reading ability and the learners could have a better image of the concepts.

Therefore, power point presentation can help both learners and teachers. Teachers can organize the ESP materials in a well-defined order and attractive way for helping students have a better understanding.

In many fields the current study can have implications. EFL learners, ESP learners, teachers, teachers, policy makers and practitioners may be benefited from the result of the current study. Moreover lecturers at universities can make use of multimedia techniques such as power point in teaching ESP to students of different majors. They can make use of different and real images, sounds, and short video clips accompanied with the power point. Material developers also can develop materials of ESP accompanied with some slides that should be applied using power point. It is recommended that further research be undertaken in the realm of applying multimedia technique such as power point in teaching different materials at different levels. Further experimental investigations are needed to estimate the effect of multimedia technique for different learners and also the effect of it on their motivation and enthusiasm. More broadly, research is also needed to determine the effect of different types of multimedia techniques. The limitation of the current research was applying power point for architectural ESP materials in Masjed Soleiman Azad University. The research made use of convenience sampling which may not be fully representative of the target population. The current research has been

developed for the teaching of reading skill and further research in other skills may explore other findings. Careful design and tailoring are needed according to different contexts and educational environments.

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