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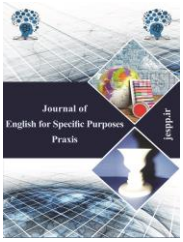

Technology-Enhanced Aviation Vocabulary Teaching: An ESP Approach

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Abstract

This study was conducted to figure out the impacts of utilizing technology-based method in comparison to Grammar Translation Method (GTM) of teaching aviation vocabulary to Iranian upper-intermediate EFL pilots. The study involved 49 upper-intermediate Iranian EFL student pilots, divided into experimental (24 participants) and control (25 participants) groups. The experimental group utilized XCLASS software as their e-learning platform, which enabled students to listen to aviation audio files through headphones and share Word files via computers in teacher-designated groups and pairs, while the control group received instruction through the Grammar Translation Method. Data collection involved a pretest, followed by 14 instructional sessions for both groups, and concluded with a posttest. Analysis through independent-sample t-test ($t(58) = 3.57$, $p = 0.001$) revealed that e-learning practices demonstrated superior effectiveness compared to traditional GTM in developing aviation vocabulary knowledge among Iranian upper-intermediate EFL pilots. These findings suggest that pilot language schools and institutions should prioritize e-learning practices, and educational policies should incorporate technology-enhanced teaching methodologies.

Keywords: aviation vocabulary; ESP; technology-assisted language learning; XCLASS software

1. Introduction

In the old days of language teaching, vocabulary learning and teaching were given little importance. As Moir and Nation (2002) declared, at one time it was widely assumed that lexical instruction is not essential as it can happen by itself; therefore, the teaching of vocabulary was not popular (Nation, 2004). However, nowadays, the importance of vocabulary and its significance in learning a language have become more accepted. Vocabulary is a basic component of language proficiency which provides the basis for learners' performance in other skills, such as speaking, reading, listening and writing. Griffiths (2006) pointed out, for example, that recently the significance of teaching vocabulary has been acknowledged.

On the other hand, the development of computer and information technology offers a favorable external environment for English teaching. Information technology provides an opportunity

for teachers to change their pedagogical strategies to improve the efficiency of teaching and learning. Countless people mastered English very well and improved their vocabulary knowledge through different ways. Among them were architects, academics, politicians, diplomats and pilots. The main tools these people used were books, magazines and other paper materials. In recent years, computer and Internet are widely used. Accordingly, teachers should adjust their pedagogical strategies to improve teaching efficiency. However, unfortunately, the majority of teachers have not realized such necessity of change that the current information technology has brought us, let alone to explore how to use information technology to change the status quo.

Vocabulary learning is generally considered as a boring procedure which involves a lot of repetition and practice for Iranian students. By the same token, when it comes to learning technical vocabulary, it seems to be more complicated due to the fact that normally a long list of the above-said words is presented to students along with their Persian equivalent to be memorized. Therefore, the efficiency of these kinds of methods can be questioned. Consequently, one way to tackle this problem and to give it a more contemporaneous flavor is to utilize newer ways of teaching vocabulary one is the application of modern computer software.

Undoubtedly, the advent of computers has changed all aspects of human life in which education is of no exception. E-learning vocabulary via state-of-the-art software is an approach which is widely used all around the world. Several applications have been written to facilitate teaching and learning English in general and vocabulary learning in particular. Similarly, for those who have been working and dealing with aviation and aerial industries learning English and especially technical terminologies is a serious challenge (Saad & Nur, 2023). Accordingly, the present study focused on investigating the effect of teaching aviation-oriented vocabulary on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots.

The current study is of significance due to the fact that it is an opportunity to do a quantitative research with real experiences concerning the construction, use and evaluation of vocabulary knowledge relating to aviation with the help of a Multimedia Classroom Management Software called XCLASS.

In essence, this research shows how the above-mentioned software, could help teachers to teach more effectively and students to learn and use vocabularies more practically. This research discusses the application and advantages of E-learning in English teaching, and analyzes how to change the pedagogical strategies for teachers to improve teaching efficiency and enables students to master English as a second language quickly and effectively. Last but not least, another point which signified this study was its rarity amongst available research in the realm of ELT.

2. Literature Review

Financial, social and scientific propellants keep on transforming the economy of the universe, and the lifestyle in associations and the universe. In detail, these propellants carry on transforming instruction and attainment in organizations. Urdan and Weggen (2002) stated that technology, the fast outmodedness of know-how and preparation, the requirement for just-timely preparation delivery, and the search for economical methods to fulfill learning requirements of a universally disseminated employees have described again the procedures that underlie design, expansion and distribution of training and education in the workstation.

Many concepts such as web-oriented training, internet-oriented training, e-learning, augmented distributed learning, and distance education are utilized to delineate virtual learning (Gagne et al., 2005). E-learning is an influential procedure since it promotes student-focused or vigorous learning. It also lubricates anytime-anyplace learning which enjoys particular assets to adult learners and contemporary learners, encompassing workplace learning. Students have more communication with course content.

E-learning and its associated notions resemble technology-directed learning (Urdan & Weggen, 2002). They claim that e-learning includes a broad gamut of applications and procedures, embracing computer-directed learning, web-directed learning, online classrooms, and digital associations.

Over the last two decades, many higher education associations have adopted a wide range of e-learning instruments into their educational delivery and support processes. Lessons so far indicate that a huge variety of e-learning projects have stimulated an agenda of bottom-up novelty rather than one of organization-based transformations in educational delivery procedures. Besides, the implementation of e-learning has mainly been developmental and not radical. It has principally been a process of bottom-up, evolutionary change from within through which the use of e-learning is incorporated to old and prevailing practices (Collis & Van der Wende, 2002).

Omidinia (2011) also emphasize that that the utilization of information interactive technology for pedagogical objectives has been broadly corroborated in Iran's pedagogical associations, contending that creating suitable content and substructure for such a type of learning remains as the major drawbacks in the way of widespread implementation of e-learning.

Riahipour and Saba (2012) made an effort to examine exercising games in getting students of an ESP course of vocabulary engaged in learning tasks. To this end, 40 L2 learners whose major was nursing in Shahrekord Azad University were randomly picked and fallen into two groups through Nelson Test (1976). During a 5-week treatment, the first group gained advantage from games, and conventional instruction methods were employed for the second group. To gather the information, two vocabulary tests were taken and a covariate analysis was executed on the pretest-posttest vocabulary test scores. A questionnaire was also delivered to the learners which evaluated their outlooks toward acquiring vocabulary. The gleaned findings manifested that student of the game directed class displayed an impartially growing propensity and encouraging demonstration toward vocabulary games, greater than what was experimented in the conventional group.

Rabah (2015) maintained that purposes can be served in the least amount of time with inconsiderable attempt via e-learning. Both learners and teachers are capable of succeeding and achieving development as they obtain experience that is provided by many educationalists in the multifarious fields of knowledge.

Alkhezzi and Al-Dousari (2016) discovered the utilization of applying mobile phone applications, namely Telegram Messenger, on instructing and learning English in an ESP setting. The major purpose was to examine whether using mobile phone applications could leave an influence on ESP learners' presentation by principally inspecting the effect such an instruction strategy can leave on learning vocabulary, and how this could influence the learners' skills to employ grammar properly and whether their writing ability was escalated. The outcomes demonstrated that applying mobile phone applications to instruct a foreign language skill or subskill proved productive and did impact learners' understanding of vocabulary and syntactic regulations. The upshots definitely indicated that mobile phones could be used in various dissimilar ways to instruct and learn academic and semi-academic

vocabulary smoothly outside the classroom, nevertheless, to instruct grammatical guidelines and writing it is recommended that particular techniques be applied due to specific confinements.

Alizadeh (2018) investigated medical students' understanding of implementing e-learning instruments and applications in an English for Specific Purposes (ESP) program at an Iranian medical university. The study also aimed to explore the rate to which the students enjoy utilizing paper dictionaries, virtual mobile dictionaries, computer-oriented dictionaries and Internet-directed dictionaries. To this end, an electronically-directed course plan was arranged and applied for eight weeks. The course plan required the students to utilize a variety of reservoirs, containing electronic learning instrumental. Next, a questionnaire provoking the students' awareness of the importance of applying electronic learning instruments in the program and requesting the students the rate to which they exercised diverse resources (i.e. paper dictionaries, virtual mobile dictionaries, computer-mediated dictionaries and software and Internet-mediated applications and instruments) was expanded and utilized. The findings manifested that the most students recognized that utilizing online instruments and applications for pedagogical objectives in the program was considerably noteworthy. It was also explored that the students allocated a high primacy to virtual mobile dictionaries; Internet-mediated applications, paper dictionaries and computer-mediated dictionaries constituted other sources they exercised in the program in order of significance. The study showed pedagogical implications for instructors and pedagogical policy establishers, particularly in the evolving countries where obstacles with the Internet continue.

3. Research Questions

The present study intended to answer the following research questions:

1. Does using E-learning praxis have any statistically significant impact on the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots?

2. Does using traditional teaching have any statistically significant impact on the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots?

3. Is there any statistically significant difference between the impacts of using E-learning praxis versus traditional teaching on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots?

4. Method

4.1. Research Design

The quasi-experimental method and pretest posttest control group design were used in the current study. A quasi-experiment is an empirical study utilized to estimate the causal influence of two interventions on its target population. Quasi-experimental research shares similarities with the traditional experimental design or randomized controlled trial; however, they explicitly do not contain the component of random assignment to treatment or control. In its place, quasi-experimental designs characteristically let the researchers control the assignment to the treatment condition; nevertheless, using some criterion other than random assignment. In some cases, the researchers might have control over assignment to treatment condition. This study is concerned with two variables: E-learning praxis and traditional teaching as two levels of independent variable, and aviation-oriented vocabulary learning

as the dependent variables. They experienced different instructional treatments. Experimental group were taught vocabulary through E-learning praxis while control group received vocabulary instruction in the classroom through conventional teacher centered approach. After experiencing the treatments, both groups took a posttest of vocabulary.

4.2. Participants

This study was conducted with 49 upper-intermediate Iranian male EFL student pilots divided into two groups of experimental and control. The students were all junior students, i.e. they were in their third year of study in the pilot college. Their age ranged from 18 to 20. Their native language was Persian, and they have never lived or stayed more than a 6-month period in any foreign country.

4.3. Instruments

The following instruments were used in this research.

A researchers-designed 50-item pretest on aviation vocabulary was administered to both groups of experimental and control. The reliability index for aviation-oriented vocabulary pretest version was estimated 0.82 in the pilot study using Cronbach Alpha.

Also, a researchers-designed 50-item posttest was also administered after both groups finish the treatment course. The reliability value for aviation-oriented vocabulary posttest version was computed to be 0.84 in the pilot study via Cronbach Alpha.

These two aviation vocabulary tests contained 55 items first and after piloting done with 25 upper-intermediate students who were similar to the students of the main study, 5 items that had unacceptable reliability index, item facility, choice distribution, and item discrimination were deleted. In fact, the face and content validity of the last versions of two used tests, consisting of 50 items, were verified by three experienced EFL university instructors.

4.4. Data Collection Procedure

Students were divided into two groups, namely experimental, which consisted of 24 students, and control, which consisted of 25 students. Then researchers administered the pretest of aviation vocabulary to the students in both groups in order to be sure of the English proficiency level of them. Then, in the experimental group, XCLASS software was utilized to teach aviation vocabulary through listening to the aviation audio files and then shared them via headphones and Word files by means of their computers to the pre-determined groups and pairs selected by the teacher. In fact, using XCLASS software the teacher paired students or form different groups of three or more students. Additionally, the teacher monitored the students' activities so that both the students and teacher could share vocabularies by speaking through their headsets or by writing them down as a Word file. However, in the control group, students were provided with the aviation vocabulary list along with their Persian equivalent to be learned during the course. Actually, the course lasted for a semester encompassing 16 sessions and each session took an hour and thirty minutes. Finally, when the treatment sessions ended, the researchers gave the posttest of aviation vocabulary to the students of the two groups, and the aviation vocabulary scores of the students in two groups gained on both pretest and posttest were analyzed in order to answer the research questions of the study.

4.5. Statistical Analysis

In order to analyze the data and respond to the research questions of this study, paired samples t-test and independent samples t-test were used. In fact, two paired samples t-tests were performed to explore the first and second research questions investigating the usefulness of using E-learning praxis and traditional teaching to improve the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots.

Furthermore, two independent samples t-tests were applied in order to investigate the third research question finding out whether there is any statistically significant difference between the impacts of using E-learning praxis versus traditional teaching on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. In fact, one independent samples t-test was performed to compare the mean vocabulary score of the two groups on the pretest and ensuring that the students in the two groups were homogeneous. Also another independent samples t-test was carried out to compare the mean score of the two groups on the posttest of vocabulary in order to find out the possible meaningful difference in the vocabulary knowledge of the students in the two groups.

5. Results

5.1. Reliability Statistics

As presented earlier in chapter three of the present study, one instrument was executed in this study. This test was aviation-oriented vocabulary test used as the pretest and posttest. In fact, in the aviation-oriented vocabulary posttest, those words for the pretest were used but some changes in the stem and choices of the test were made so that probability of remembering the answers by the students diminished. As appeared in Table 1, the results indicated that the reliability index for vocabulary pretest version and vocabulary posttest version turned out to be 0.82 and 0.84, respectively using Cronbach Alpha.

Table 1

Reliability Statistics for the Instruments of the Study

Instrument	No. of Items	Reliability Method	Reliability Index
Aviation-Oriented Vocabulary Pretest Version	50	Cronbach Alpha	0.831
Aviation-Oriented Vocabulary Posttest Version	50	Cronbach Alpha	0.853

5.2. Testing Assumptions

As Field (2009) theorizes, before one decides to conduct parametric tests, four assumptions (interval data, independence of subjects, normality and homogeneity of variances) should be met. The first assumption is met because the present data are measured on an interval scale. In addition, Bachman (2005) asserts that the assumption of independence of subjects is met when “the performance of any given individual is independent of the performance of other individuals” (p. 236). The third assumption associates with the normality of the data. In fact, the normal distribution for both experimental and control groups on pretest and posttest was tested using ratios of skewness and kurtosis; the results of which are set forth in Table 2.

As it's evident from Table 2, the aviation-oriented vocabulary learning scores for both experimental and control groups, on pretest and posttest are normally distributed since the ratios of skewness and kurtosis over their respective standard errors are not beyond the ranges of +/- 1.96.

Table 2

Skewness and Kurtosis Test of Normality for Two Groups' Aviation-Oriented Vocabulary Learning Scores (Pretest & Posttest)

Time	Group	N	Skewness	Std. Error	Skewness Ratio	Kurtosis	Std. Error	Kurtosis Ratio
Pretest	Experimental	24	0.576	0.472	1.221	0.029	0.918	0.031
	Control	25	0.447	0.464	0.965	-0.554	0.902	-0.614
Posttest	Experimental	24	-0.469	0.472	-0.993	-0.530	0.918	-0.577
	Control	25	-0.367	0.464	-0.792	-0.111	0.902	-0.122

Therefore, the present researchers were justified enough to carry out parametric paired samples t-test (rather than non-parametric Wilcoxon rank test) and parametric independent samples t-test (rather than non-parametric Mann Whitney U test). Finally, the assumption of homogeneity of variances will be dealt with when presenting the results of inferential statistics.

5.3. Addressing Research Question 1

The first research question of this study asked if using E-learning praxis has any statistically significant impact on the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. The paired samples t-test was applied to answer this research question comparing the pretest and posttest aviation-oriented vocabulary learning measures in the experimental group. According to Pallant (2013), "A paired-samples t-test is used when you have only one group of people and you collect data from them on two different occasions (pretest and posttest in this study) or under two different conditions" (p. 252). Table 3 represents the results of descriptive statistics for the aviation-oriented vocabulary learning scores in the experimental group.

Table 3 shows the mean and standard deviation of aviation-oriented vocabulary learning scores for the pretest (M = 18.25, SD = 2.34) and posttest (M = 39.04, SD = 2.72) in the experimental group.

Table 3

Descriptive Statistics for Pretest and Posttest of Aviation-Oriented Vocabulary Learning Scores (Experimental Group)

Test time	N	Mean	SD	Std. Error Mean
Pretest	24	18.25	2.345	0.479
Posttest	24	39.04	2.725	0.557

Table 4 indicates that the paired samples t-test found a statistically significant increase, $t(23)$ = 52.08, p = 0.000, in aviation-oriented vocabulary learning scores from the pretest to the posttest for the students in the experimental group; as a result, the researchers rejects the first null hypothesis that predicts, "using E-learning praxis has no statistically significant impact on the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots." Therefore, it can be claimed that using E-learning praxis improves the aviation-oriented vocabulary knowledge of the Iranian upper-

intermediate EFL pilots. In fact, the gained score in vocabulary learning was 20.79 (out of 50) with a 0.95% confidence interval ranging from 19.96 to 21.61.

Table 4

Paired Samples T-test for the Pretest and Posttest of Aviation-Oriented Vocabulary Learning Scores Means in Experimental Group

Gain Score	SD	95% Confidence Interval of the Difference		T	DF	Sig. (2-tailed)
		Lower	Upper			
20.792	1.956	19.965	21.615	52.085	23	0.000

5.4 Addressing Research Question 2

The purpose of the second research question of this study was to see if using traditional teaching has any statistically significant impact on the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. We utilized the paired samples t-test to investigate this research question comparing the pretest and posttest aviation-oriented vocabulary learning measures in the control group. The results of descriptive statistics for the vocabulary learning scores in the control group are provided in Table 5. Table 5 displays the mean and standard deviation of aviation-oriented vocabulary learning scores for the pretest (M = 17.52, SD = 2.71) and posttest (M = 36.28, SD = 2.68) in the control group.

Table 4

Descriptive Statistics for Pretest and Posttest of Aviation-Oriented Vocabulary Learning Scores (Control Group)

Test	N	Mean	SD	Std. Error Mean
Pretest	25	17.52	2.710	0.542
Posttest	25	36.28	2.685	0.537

As appeared in Table 6, the paired samples t-test detected a statistically significant increase, $t(24) = 41.85$, $p = 0.000$, in aviation-oriented vocabulary learning scores from the pretest to the posttest in the control group; consequently, the second null hypothesis that mentions, "using traditional teaching has no statistically significant impact on the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots" is rejected too. In fact, the researchers can claim that using traditional teaching affects the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. Actually, the gained score in vocabulary learning was 18.76 (out of 50) with a 0.95% confidence interval ranging from 17.83 to 19.68.

Table 5

Paired Samples T-test for the Pretest and Posttest of Aviation-Oriented Vocabulary Learning Scores Means in the Control Group

Gained Score	SD	95% Confidence Interval of the Difference		T	DF	Sig. (2-tailed)
		Lower	Upper			
18.760	2.241	17.835	19.685	41.851	24	0.000

5.5. Addressing of the Research Question 3

The third research question of the current study dealt with comparing the impacts of using E-learning praxis versus traditional teaching on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. In order to analyze the data to examine this research question, the independent samples t-test was applied. "An independent samples t-test is used when you want to compare the mean score, on some continuous variable, for two different groups of participants" (Pallant, 2013, p. 247).

Before explaining the results of independent samples t-test, the related descriptive statistics on the pretest were provided (Table 7). Table 7 is a demonstration of the mean, standard deviation, and number of students for the experimental group (M = 18.25, SD = 2.34, n = 24) and control group (M = 17.52, SD = 2.71, n = 25) on the pretest of aviation-oriented vocabulary learning.

Table 7

Descriptive Statistics of Two Groups' Aviation-Oriented Vocabulary Learning Scores (Pretest)

Group	N	Mean	SD	SEM
Experimental	24	18.25	2.345	0.479
Control	25	17.52	2.710	0.542

Table 8 summarizes the results of independent t-test comparing the experimental and control groups' aviation oriented vocabulary learning scores on the pretest. As seen in Table 8, the significance level of 0.46 associated with Levene's value was above the selected significance level of 0.05 showing that the assumption of equal of variances was satisfied.

The t value and p value in the independent t-test, as appeared in Table 8, are indicative of no statistically significant difference in aviation-oriented vocabulary learning scores, $t(47) = 1.007$, $p = 0.32$, $p > 0.05$, between the experimental and control groups on the pretest. This result made the researchers conclude that the students in the two groups were almost equal regarding aviation-oriented vocabulary knowledge at the onset of the study.

Table 8

Independent Samples Test for Two Groups' Aviation-Oriented Vocabulary Learning (Pretest)

	Levene's Test for Variances		T-test for Means			
Factor	F	Sig.	T	DF	Sig. (2-tailed)	Mean Diff.
Equal variances assumed	0.548	0.463	1.007	47	0.321	0.730
Equal variances not assumed			1.010	46.514	0.320	0.730

Table 9 includes the mean, standard deviation, and number of students for the experimental group (M = 39.04, SD = 2.72, n = 24) and control group (M = 36.28, SD = 2.68, n = 25) on the posttest of aviation-oriented vocabulary.

Table 9

Descriptive Statistics of Two Group's Aviation-Oriented Vocabulary Learning Scores (Posttest)

Group	N	Mean	SD	SEM
Experimental	24	39.04	2.725	0.557
Control	25	36.28	2.685	0.537

As demonstrated in Table 10, the significance level of 0.86 associated with Levene's value is higher than the selected significance level of the study (.05) revealing that the data met the assumption of equality of variance. Furthermore, the independent samples t-test (Table 10) detected a statistically significant difference, $t(58) = 3.57$, $p = 0.001$, $p < 0.05$, in aviation-oriented vocabulary learning measures between the experimental and control groups on the posttest; therefore, the third null hypothesis of the study that says, "there is no statistically significant difference between the impacts of using E-learning praxis versus traditional teaching on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots" is rejected. In fact, as the mean score for the experimental is higher than the control group, the researchers can declare that using E-learning praxis is more effective than traditional teaching on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots.

Table 10

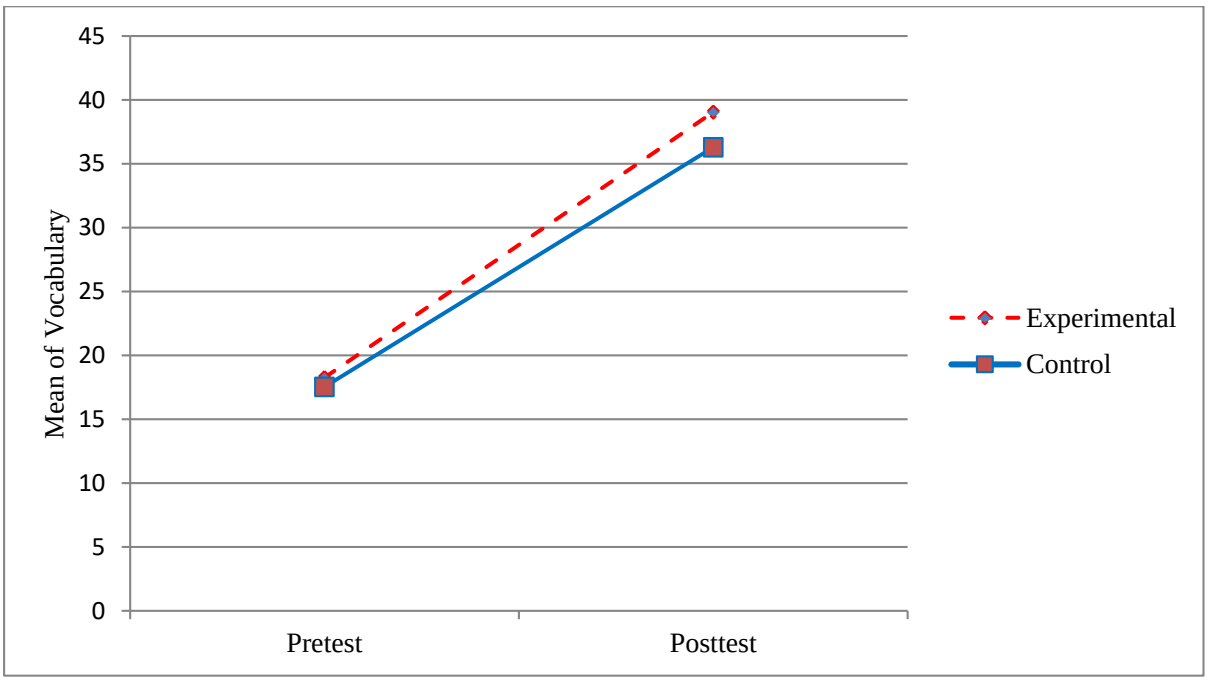
Independent Samples Test for Two Groups' Aviation-Oriented Vocabulary Learning (Posttest)

	Levene's Test for Variances		T-test for Means			
Factor	F	Sig.	T	DF	Sig. (2-tailed)	Mean Diff.
Equal variances assumed	0.030	0.863	3.572	47	0.001	2.762
Equal variances not assumed			3.571	46.848	0.001	2.762

Figure 1 contains a Line Chart that was made to illustrate the aviation-oriented vocabulary learning results for both groups on both pretest and posttest.

Figure 1

Two Groups' Means of Aviation-Oriented Vocabulary Learning (Pretest & Posttest)



In fact, Figure 1 indicates that the aviation-oriented vocabulary learning means for the two groups of students are not far from each other on the pretest, tough the mean for the experimental group

in which the students have been taught through E-learning praxis is considerably higher than the mean for the control group in which the students have experienced traditional teaching.

6. Discussion

For the aim of probing the probable effects of using E-learning praxis versus traditional teaching on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots, three research questions were posed by the current researchers.

The first research question of this study was about the effect of using E-learning praxis on the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. Paired samples t-test showed noticeable improvement for aviation-oriented vocabulary learning of the participants in the experimental group. In fact, this improvement can be attributed to the E-learning praxis method experienced by the students in the experimental group. Therefore, the first research question was positively answered.

The aim of the second research question was to investigate the effect of traditional teaching in the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. Similarly, the results of paired samples t-test revealed considerable progress for aviation-oriented vocabulary learning of the participants in the control group. That means traditional teaching method that was used to teach those students in the control group who was effective as well. In other words, the present researchers could give a positive response to the second research question.

Finally, the third research question of the current study inquired if there is a statistically significant difference between the impacts of using E-learning praxis versus traditional teaching on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. Actually, independent samples t-test proved that the students who were confronted with E-learning praxis method outperformed those who were taught vocabulary using traditional method.

This result parallels with that of Meloni (1998), in which he found that the E-learning is an interactive and engaging mode of instruction and learning. Also he found that E-learning encourages the students to learn English, and it increases their global awareness.

This result is in line with Wu, Xu, and Ge's (2012) study, in which they concluded that E-learning motivates learners to work independently as each learner can work on diverse activities with the "integrated learning environment". Similarly, according to Nedeva and Dimova (2010), e-learning addresses differentiation, and it helps students to work based on their own pace. In fact, they discovered that e-learning helps learners to be able to work faster and accomplish more activities than novice learners. This makes learners to keep their personal schedules as they work at their own pace and based on their own preferences.

The outcome of this study parallels with that of Fry's (2001) study, in which he found that E-learning adjusts to students' different learning styles as they can select from different activities and resources. It also allows students who are introvert finding the chance to interact virtually via Forums and Chats which develops their communicative competency. Moreover, in his research, he came to the conclusion that e-learning augments students' study time of English over the week which elevates their overall language proficiency.

Besides, conforming to our results, Rabah (2015) discovered that using e-learning, objectives can be achieved in the shortest time with least amount of effort. Both learners and teachers can be able to accomplish and keep up with development as they obtain experience that is provided by many specialists in the countless fields of knowledge. Also, according to Alsalem (2004), the context for e-learning helps learners or students to rely on themselves for the reason that teachers are no longer the solitary knowledge source. Instead, they become advisors and guides (Alsalem, 2004). Moreover, according to Zeitoun's (2008) study, e-learning assists in the preparation of the society to globally communicate and to dialogue with others.

However, this result contrasts with Nielson's (2011) research. In fact, he learned that the absence of face-to-face teaching and body language could result in its becoming a "solitary activity" since e-learning social interactions are principally virtual and different from face-to-face classroom interaction.

Furthermore, some learners might not be able to apply it if they lack Internet access. In fact, it results in a decrease of social relations between learners. Also, novice learners might not be able to contribute when they do not have human support.

7. Conclusions and Implications

The purpose of this study was to examine the effect of two different teaching styles, namely e-learning and traditional. Having done this research, three main conclusions were made. These three conclusions are explained below.

In fact, carrying out this research, we concluded that using E-learning praxis enhances the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. In fact, as Waterhouse (2005) believes, E-learning is an effective procedure since it stimulates student-focused or vigorous learning. It also lubricates anytime-anyplace learning which enjoys particular assets to adult learners and contemporary learners, encompassing workplace learning. Learners have more communication with course content. Furthermore, teacher can seek students' time on task. E-learning can reduce the cost of delivering teaching and it adds a comprehensive aspect to courses.

Also, we came to the second conclusion that using traditional teaching affects the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. Actually the traditional teaching that was teacher centered and the instructor pronounced the new words, explained the meaning or gave some synonyms and provided an example made some improvement in the control group. In fact, the traditional vocabulary teaching is used in some institutes and universities elsewhere and this teaching method is not useless at all.

And finally, the third conclusion of the present study was that using E-learning praxis is more effective than traditional teaching on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. According to Gagne (1985), the procedure of teaching assists people to attain in a quicker manner comparing to the incidental learning which did not need any teachings. The amalgamation of technology and multimedia instrumental to the ID is an instrumental way to accelerate and expedite learning (Alessi & Trollip, 2001; Clem, 2002).

In order to achieve the objectives of the study, the participants of the study were divided into two groups, namely experimental with 24 students and control with 25 students. The aviation-oriented vocabulary pretest, consisting of 50 items, was given to the students of the two groups. Then, in the

experimental group, XCLASS software was used to teach aviation vocabulary through listening to the aviation audio files and then sharing it via headphones and word files by means of their computers to the pre-determined groups and pair selected by the teacher. However, in the control group students were provided with the aviation vocabulary list a long with their Persian equivalent to be learned during the course. The course lasted 16 sessions of one hour and thirty minutes for the two groups. And finally, the students of the two groups took the aviation-oriented vocabulary posttest, including of 50 items.

Matched t-test showed that using both E-learning praxis and traditional teaching improve the aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots. Besides, the results of independent samples t-test indicated that using E-learning praxis is more effective than traditional teaching on aviation-oriented vocabulary knowledge of the Iranian upper-intermediate EFL pilots.

Based on the findings of this study the following implications are recommended:

1. E-learning praxis needs to be a priority in pilot language schools and institutions so that improvement in education can occur. Technology-aided practices should be placed in educational policies. Pilot school managers and teachers should collaboratively select a method that meets the individual needs of the learners.

2. It seems necessary to have the special training for the teachers so that they can apply technology into their teaching practices one example is the E-learning praxis of aviation-based vocabulary knowledge of the pilot students. To guarantee success and achievement, on the job training (OJT) or relevant workshops can be conducted.

3. It would be beneficial to give consideration to technological facilities such as language laboratories as well as providing state-of-the-art English software like XCLASS in this study.

4. Teachers should be provided with the support in terms of resources and time. Time provides the opportunity for planning and reflecting about the process of teaching regarding the use of new technology and software.

5. It is essential that a much greater effort be made by teachers to utilize technology to add more creativity to their work which is more fun and accepted more by the new generation of students.

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Authors' Contributions

All authors have conducted the study, collected data, analyzed and interpreted the data, and written up the manuscript.

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Competing Interests

The authors declare that there is no conflict of interest.

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