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Computer Anxiety and Computer Self-Efficacy as Predictors of Iranian EFL Learners' Performance on the Reading Section of the TOEFL iBT

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Abstract

The present study attempted to find out which of the two variables of computer anxiety and computer self-efficacy can best predict Iranian EFL learners' performance on the reading section of the TOEFL iBT and whether there is any relationship between computer anxiety and computer self-efficacy. To this end, 75 English major participants, both male and female were administered two questionnaires including Computer Anxiety Rating Scale (CARS) and Computer Self-Efficacy Scale (CSES), as well as the reading section of the TOEFL iBT. Also, the participants' proficiency level was determined using their scores on the Oxford Quick Placement Test (OQPT). This study was carried out at Alzahra University, University of Tehran, and Allame Tabataba'ei University. The collected data were analyzed through multiple regression and correlation procedures. The findings revealed that there are no significant differences between computer anxiety and computer self-efficacy as predictors of Iranian EFL learners' TOEFL iBT reading comprehension. Therefore, both independent variables were found to be effective in predicting learners' performance, with the effect of self-efficacy being stronger. Additionally, a significant relationship was found between Iranian EFL learners' computer anxiety and computer self-efficacy. That is to say, computer anxiety modestly affects self-efficacy and vice versa. The results of the study may be helpful for both teachers and test takers.

Key words: Computer Anxiety; Computer Self-Efficacy; TOEFL iBT; Predictors of reading comprehension; Technology

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INTRODUCTION

As technology advances and permeates the learning environment, computer use becomes an important skill for EFL learners. Many EFL learners may dread using computers. This fear can be the result of their inability in manipulating a computer in general or completing a task through a computer in particular.

Computer anxiety

Computer anxiety is defined as the fear expressed toward computers when one is using or is about to use them (Chua et al, 1999). Bozionelos (2001) believes that computer anxiety is a negative emotional state which can influence users' interaction with the computer.

Computer anxiety has also been found to significantly affect computer-related activities such as utilization of computer, skills related to computing, attitudes toward and perceptions of computers, benefits obtainable from computers or software applications, and perceived ease of computer use (Venkatesh, Morris, & Ackerman, 2000). Moreover, a high level of computer anxiety has been found to negatively correlate with learning computer skills (Harrington, McElroy, & Morrow, 1990), resistance to the use of computers (Torkzadeh & Angula, 1992; Rosen & Weil, 1995), and poorer task performance. It is widely accepted that computer anxiety typically causes avoidance of computer use by teachers (Rosen & Weil, 1995) or students (Harrington, Mcelroy, & Morrow, 1990).

Computer anxiety is reduced by exposing individuals to computers, but this is subject to the type of exposure. For example, Leso and Peck (1992) and Woodrow (1991) found that exposure to a programing course did not reduce

computer anxiety. A number of studies put an emphasis not only on the type of exposure to computers, but also on its intensity.

Several researchers have focused on negative attitudes toward computer technology. While certain studies have examined the association between computer anxiety and computer utilization (Czaja *et al*, 2006), some have investigated the potential relationship between computer anxiety and a diversity of other variables, including demographic features, computer ownership, and computer experience (Fuller, Vician & Brown, 2006).

Computer Self-Efficacy

Derived from the concept of self-efficacy, "computer self-efficacy is the extent of an individual's perceived ability to use a computer" (Embi, 2007, p. 18). Delcourt and Kinzie (1993) defined computer self-efficacy as the degree to which computer users are confident with their capacity to comprehend and apply computer skills and knowledge. They found that individuals with high computer self-efficacy will feel knowledgeable and skilled in using computer hardware and software. However, those who have low computer self-efficacy may believe that they will experience difficulty in using computers. Computer self-efficacy has been found to be associated with attitudes toward computer technology. According to Zhang and Espinoza (1998), a student's confidence about computer skills may affect the willingness to learn computer skills.

Fagan, Neil and Wooldridge (2004) stated that according to Bandura's Social Cognitive Theory, computer experience and computer self-efficacy and computer anxiety provide a causation model in that each of them determines the other one. In other words, computer experience positively correlates with self-efficacy and self-efficacy negatively correlates with anxiety.

According to Teo and Koh (2010), self-efficacy can also exert influence on behavior of learners. A high degree of computer self-efficacy leads learners to become competent users of computers whereas a low degree of computer self-efficacy makes learners fearful of using a computer. Also learners who are highly self-efficient are more likely to complete the tasks successfully (Teo & Koh, 2010).

The Relationship between Computer Anxiety and Computer Self-Efficacy

Beckers and Schmidt (2001) considered computer self-efficacy as being attached to computer anxiety, whereas Colley, Gale, and Harris (1994) claimed that all three notions of computer self-confidence, anxiety, and attitudes, belong to the same underlying construct, which they preferred to call attitudes. However, computer experience may initiate positive attitudes toward technology and can reduce the level of computer anxiety (Matthews & Shrum, 2003). BalogÙlu and Cevik (2008), consistent with Sang, Valcke, van Braak, & Tondeur (2010), stated that the level of self-efficacy and self-confidence of regular computer users rises with using computers, and eventually they will experience lower levels of computer anxiety.

Absence of knowledge about computers can generate psychological anxiety, thus, decreasing the development of confidence. This psychological anxiety, or fear of working with computer-based technology, embraces losing control, losing career to a younger person, losing important information, and embarrassment of not being competent enough to learn computer technical vocabulary (Gardner, Render, Ruth, & Ross, 1985).

As Brown (2007) expresses, anxiety is closely intertwined with the notions of self-esteem and self-efficacy. Similarly, according to Saade and Kira (2009) and Hauser, Paul and Bradely (2012), computer use anxiety and computer self-efficacy are two variables that are believed to have a great impact on users' performance of computers. Self-efficacy is identified by anxiety in that reduced levels of anxiety and increased experiences of use intensifies the levels of self-efficacy.

Davis (1989) found that perceived technological efficacy was positively and significantly correlated with the use of and intention to use technology. He also found that perceived technological efficacy was significantly correlated with both self-reported current usage (r = .63) and self- and predicted future usage (r = .85). Igbaria and Parasuraman (1989), examining the interactions between attitudes toward computer use and anxiety toward usage, found that attitudes are negatively correlated with anxiety. Anxiety toward computer use was negatively correlated with computer abilities and skills and as a result low levels of anxiety toward computer use ought to be related to higher computer knowledge and skills, and vice versa (Chu & Spires, 1991).

Anxiety level has an impact on self-efficacy. Self-efficacy is a moderating factor between computer anxiety and computer performance. Inadequate amount of self-efficacy in using computers may raise levels of anxiety, whereby paucity of knowledge about computers brings a sense of fear, hence a loss of confidence will result (Howard & Smith, 1986). Compeau and Higgins (1995) indicated a correlation between self-efficacy and learning to use computer software.

The confidence that learners bring with themselves to the learning situation, is a crucial factor that leads to a successful learning of a language. Besides, having enough information and knowledge about using computers helps learners to fully accomplish language tasks. As a result, enough instruction must be given to learners through computer courses. Beliefs about competence to effectively practice technology were strongly correlated with decisions about whether and how much to benefit from technology. An analysis in Finland (Igbaria & Iivari, 1995) revealed that self-efficacy was directly correlated with perceived usefulness, perceived ease of use and usage, but negatively with computer anxiety. This Finnish study also revealed that individuals with high levels of self-efficacy will more appropriately interact with computers and are less anxious than those with low levels of self-efficacy. If

individuals consider that they will face difficulties using a computer, then they will avoid it because of this fear. In this regard, Zhang and Espinoza (1998) suggested that computer-related self-efficacy has an effect on perceptions, attitudes, and beliefs about technology.

Computer-Assisted Testing and TOEFL

Along with the technological advances that we observe in our daily life, language testing experts try to use computers in language testing situations in order to promote the validity of the assessment process and use the subsequent benefits. The Test of English as a Foreign Language (TOEFL) has been administered through computers for a long time, and the Internet-based version (iBT) replaced the traditional paper-and-pencil tests in 2005. Since then, the iBT starts with a reading section of 3-5 passages, 12-14 questions each, 60-100 minutes.

The shift from a traditional PBT to CBT and then to iBT has caused many improvements and innovations. For example, test-takers can now control the swiftness of the evaluation and look into previous questions in some sections of the test. The toolbar on the screen allows test-takers to turn on, turn off, or mute the volume, offers a few number of help tips and a clock that notifies test-takers of the time left in each section. Test-takers can hide the clock if they click 'hide time' on the toolbar at any time.

That the iBT is a high-stakes test for test-takers around the world offers the justification for studies on the validity and reliability of the iBT version. Although since 2000, a number of studies have been directed on the construct validity of the test, few studies have concentrated on test-takers (Cohen & Upton, 2006; Lawrence & Yigal, 2010). Test-taker accounts disclose potentials of a test that would not otherwise be manifested and are critical to understanding issues and elements associated with construct-irrelevant and construct-dependent variance (Fox, 2003).

Since computer assisted testing (CAT) was introduced to the field of language testing, there have been some disagreements over the possible shortcomings accompanying these types of tests, and many comparisons have been made between iBT and traditional paper-and-pencil tests. Despite all the advantages which can be gained from the use of computers in language testing, practitioners must be very careful in applying the new technology when using it for high-stakes tests such as IELTS and TOEFL because these tests are regarded as reliable measurements of English language proficiency (Dooey, 2008). These concerns show that there are some obvious and unknown aspects of using technology in testing that may cause some problems or have impacts on the examinee's performance.

In an article on the effect of individual differences on the equivalence of computer-based and paper-and-pencil assessments, McDonald (2002) stated that the use of computers and related technologies increasingly impacts all areas of our daily lives. He advocated using computer assisted testing especially adaptive tests and considered them to be more efficient than paper-and-pencil tests (McDonald, 2002). However, some believe that computer-assisted tests and paper-based tests are the same, with the only difference being the test delivery format. Indeed, beneficial aspects of computer are not effectively used in preparing tests. Accordingly, the only contribution of these tests is the reliability of scoring, savings in time, and easier analysis of results (Singletone, 1997).

Computer-assisted testing can restrict, as well as improve, test administration and interpretation. Although PBT and CBT administration of tests often yield equivalent results, discrepancies in results have occasionally been found to exist. French (1986) suggested that the equivalency of outcomes from dissimilar types of administration modes should be recognized for each instrument. Establishing equivalency will decrease the probability that computer administration is manipulating the nature of test results. Scoring errors are additional impending restriction for computer-assisted test administration. Most (1987) stated that, "The computer itself does not contribute error, but the complex nature of computer programming and the difficulty involved in reading computer programs or code makes it easy to make program errors which are difficult to find" (p. 377).

Worries have been raised about the validity and soundness of computer-based test interpretation. Eyde and Kowal (1987) discovered differences in CBTI reports produced from a single collection of scores from one instrument. Eyde and Kowal (1987) stated, "Buyers should be aware of the limitations of computer products and remind themselves that computer output is only as good as the data behind the decision rules used to produce the interpretation" (p. 407).

Changing the mode of delivery of a standardized test such as TOEFL, from a paper-and-pencil format to an electronic format conveys both promises and threats (Canale, 1986). Enhancements planned for electronic TOEFL tests in the next decade, perhaps, embrace modifying item administration to examinees' ability levels, constructing new item types which will permit constructed responses, allowing test takers to regulate the pace of the assessment for example the speed with which the next listening item is played, adding images and visuals to contextualize items, providing instant feedback on machine scored items, allowing supple arrangement, and reporting scores sooner. These progresses are planned to make the TOEFL test more expressive to examinees, admissions officers, ESL/EFL teachers, and stakeholders who use the test outcomes.

1. THE STUDY

Numerous studies have explored the psychometric aspects of CAT, but research investigating the psychological effects of computer-assisted tests on test takers' performance is limited (Ortner & Caspers, 2011). If we are aware of test takers' weaknesses regarding computer

use and computer anxiety prior to taking a computerized test, we could design some supplementary courses to familiarize students with computer usage and to eliminate the element of anxiety.

Therefore, regarding the fact that some test takers are basically suffering from technophobia, and some may not have a complete mastery over computer terms and usage, the present study seeks to answer the following questions:

a. Is there a significant relationship between Iranian EFL learners' computer anxiety and computer self-efficacy?

b. Are there any significant differences between computer anxiety and computer self-efficacy as predictors of Iranian EFL learners' iBT reading comprehension?

In the present study, the researcher adopted a correlational research strategy and design. The study was concerned with three variables of interest including Iranian EFL learners' level of computer anxiety, computer self-efficacy, and their performance on the reading section of TOEFL iBT. It is worth noting that the context, institution, and place of origin were all controlled.

1.1 Population and Sample Selection

This study was carried out at Alzahra University, University of Tehran, and Allame Tabataba'ei University, all in Tehran. A total of 120 MA and BA students participated in the study. However, since 29 of them were excluded from data analysis based on the results obtained from the Oxford Quick Placement Test (described below), and 16 did not answer all the questionnaires administered for data collection, the final number of students reduced to 75. Both females (65.33%) and males (34.66%) participated in the study. They were Iranian students studying English Language Teaching, Translation, and English Literature, and their age ranged from 18 to 45. The participants were selected through convenience sampling. Data were collected in the second semester of 2014-2015 academic year.

Table 1
Demographic Features of the Participants

Feature	Item	Frequency	Percent
Age	18-24	43	57.33
	24-34	22	29.33
	34-higher	10	13.33
Sex	Male	26	34.66
	Female	49	65.33
University	Alzahra	13	17.33
	Allame Tabatab'ei	26	34.66
	Tehran	36	48

1.2 Instruments

Data for the present study were collected through the performance of the participants on the reading section of an iBT test and two questionnaires. To homogenize the participants, an Oxford Quick Placement Test (OQPT) was used. The instruments utilized in this study were the following:

1.2.1 Oxford Quick Placement Test (OQPT)

Participants' proficiency levels were measured by means of the Oxford Quick Placement Test (OQPT). This test contains 60 multiple-choice items with standardized difficulty which measure students' ability in cloze test, grammar, and vocabulary. The participants were supposed to choose the correct choices in 35 minutes.

1.2.2 Computer Anxiety Rating Scale (CARS)

The Computer Anxiety Rating Scale (CARS) was used to assess the subjects' level of computer anxiety. CARS is a 19-item self-report inventory, designed and validated by Heinssen et al. (1987). Items are scored on a five-point Likert-type scale with five choices ranging from "strongly disagree" rated as 1 to "strongly agree" rated as 5 (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree). The CARS scores range from 19, indicating a low level of computer anxiety, to 95, which would indicate a high degree of computer anxiety.

1.2 Computer Self-Efficacy Scale (CSES)

The participants' computer self-efficacy was measured using the Computer Self-Efficacy Scale (CSES) developed by Murphy, Coover, and Owen (1989). A total of 35 statements regarding participants' self-efficacy in using computers are coded on a Likert scale with five choices ranging from 1 (strongly disagree) to 5 (strongly agree).

1.2.4 TOEFL iBT Reading

The reading section of a TOEFL iBT was used to measure the participants' reading ability in English. In the short form of this section, there are two separately timed parts, with a passage in part one, and two in part two. The passages are 650-750 words each. There is a total of 60 minutes for the entire section. This time includes the time spent on reading the passages and answering the questions. Each passage is followed by between 12 and 14 question items of three types. The computer will present one question at a time. The participants responded to the TOEFL iBT Reading section through email.

1.3 Procedure

In the initial phase, 120 students (the available population) took the OQPT. The results of this test revealed that 91 participants were at the intermediate level of proficiency. Having been homogenized into one group of proficiency level, the participants were asked to fill out the required questionnaires (CARS & CSES) and answer TOEFL iBT Reading. The participants filled out the questionnaires in a 30 minute session with a five-minute break time between them. Since the study sought to examine the computer anxiety and computer self-efficacy level of the Iranian EFL learners, the participants were required to answer the TOEFL iBT Reading through E-mail using their personal computers. The process of distributing and collecting

the questionnaires took about 3 weeks. Three of the participants assisted the researcher in this process. Prior to completing the questionnaires, the participants were briefed on how to answer the questionnaires. It was also clarified that contribution to the study is voluntary. Finally, the participants were ensured of anonymity and data disposal.

2. RESULTS AND DISCUSSION

The data collected from the questionnaires and the test were analyzed using parametric statistical analyses, including descriptive statistics, Pearson correlation coefficients, and multiple regression, on the using the 21st version of the SPSS software (2012). The analyses were carried out at a significance level of p = .0. After the administration of research instruments, the reliability coefficient of the questionnaires using Cronbach's alpha were calculated as 0.71, 0.82 and 0.73 respectively. Therefore, the items of all three questionnaires indicated a good internal consistency.

2.1 Descriptive statistics before and after making students homogenized

Tables 2 and 3 show descriptive statistics for OQPT before homogenization. The highest score is (X=60) and the lowest one is (X=19) before making students homogenized. The mean score is (X= 40.71). Figure 1 shows the distribution of students` scores before making students homogenized.

Table 2
Descriptive Statistics for OQPT before Homogenization

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
OQPT.BH	120	41.00	19.00	60.00	40.7167	1.05766	11.58613	134.238
Valid N (listwise)	120							

Table 3
Summary of Descriptive Statistics for OQPT before Homogenization

N	Valid	120
	Missing	0
Mean		40.7267
Median		45.0000
Mode		46.00
Minimum		19.00
Maximum		60.00
Sum		4886.00

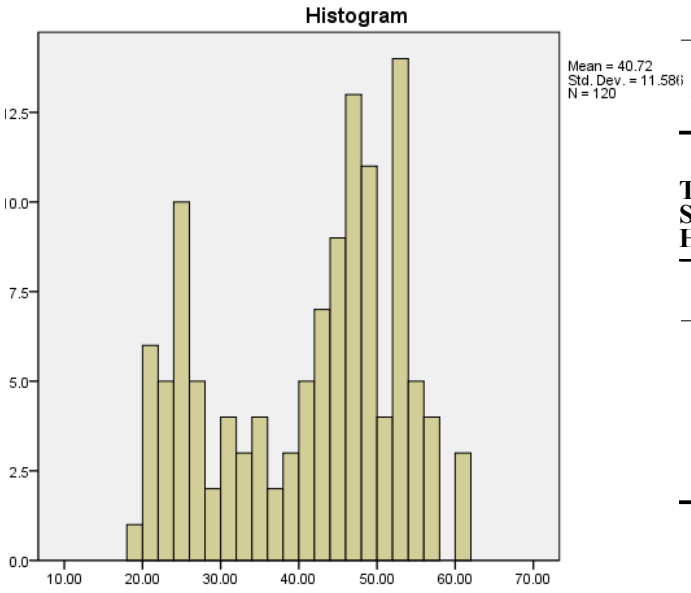

Figure 1
Histogram for OQPT before Homogenization

Table 4 shows that the highest score is (X=60) and the lowest one is (X=20) after making students homogenized. Table 5 shows the summary of descriptive statistives after making students homogenized. As it is shown in the table the mean score is (X= 48.49). Figure 2 shows the distribution of students` scores after making students homogenized.

Table 4
Descriptive Statistics of OQPT after Homogenization

	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Stat.	Stat.	Stat.	Stat.	Stat.	Std. Error	Stat.	Stat.
OQPT. BH	75	40.00	20.00	60.00	48.49	.98	8.53	72.79
Valid N (listwise)	45							

Table 5
Summary of Descriptive Statistics for OQPT after Homogenization

N	Valid	75
	Missing	45
Mean		48.49
Median		50.00
Mode		53.00
Minimum		20.00
Maximum		60.00
Sum		3637.00

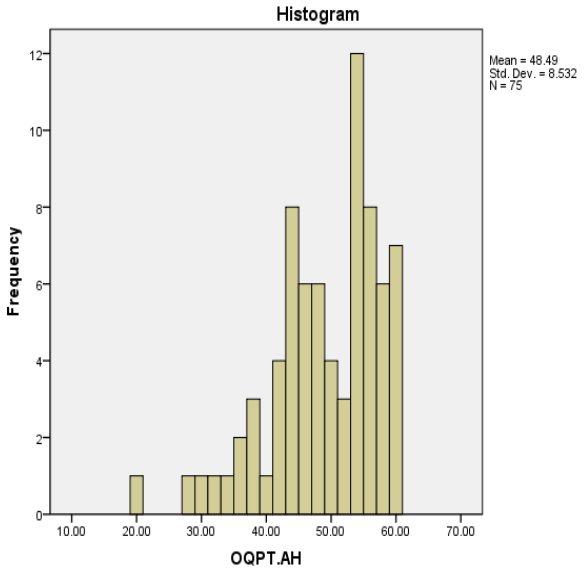

Figure 2
Histogram for OQPT after Homogenization

2.2 Reliability indices

The CARS (Computer Anxiety Rating Scale) and CSES (Computer Self-Efficacy Scale) questionnaires were piloted on 20 EFL learners who were almost similar in characteristics to the main participants of the study. The purpose was to verify the internal reliability of the questionnaires employing Cronbach's coefficient alpha. As Table 4.5 shows, the CARS and CSES reliability indices were .72 and .75, respectively.

Table 6
The CARS and CSES Reliability Indices

Reliability indices of the CARS and CSES Questionnaires	Number of Participants	Number of Items	Reliability index
CARS	20	19	.72
CSES	20	35	.75

2.3 Data From the Oxford Quick Placement Test (OQPT)

Table 7 and Figure 3 below present the descriptive results for the OQPT that was administered in order to homogenize the participants in terms of proficiency level. The mean score was 48.49, and the standard deviation was 8.53.

Table 7
Descriptive results for the OQPT

	N	Minimum	Maximum	Mean	Standard Deviation
OQPT	75	20	60	48.49	8.53
Valid N (listwise)	75				

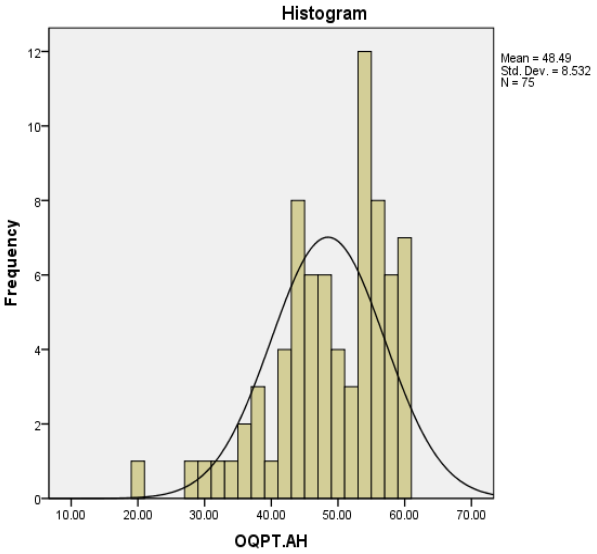

Figure 3
Distribution of the OQPT scores

Normal distribution of the data from the OQPT was confirmed using the one-sample Kolmogorov-Smirnov test. The results, given in Table 4.7, show that the observed *p* value (.10) is way above the selected level of significance (.05), meaning that the normality assumption was not violated.

Table 8
The results of the one-sample Kolmogorov-Smirnov test for the OQPT

		OQPT
N		75
Normal Parametersa,b	Mean	48.49
	Standard Deviation	8.53
Most Extreme Differences	Absolute	.14
	Positive	.08
	Negative	-.14
Kolmogorov-Smirnov Z		1.22
Asymp. Sig. (2-tailed)		.10

Note. a. Test distribution is normal; b. Calculated from data.

2.4 Pearson Product-Moment Correlation Coefficients

The scores obtained from the questionnaires and the iBT reading tests were all interval data. Additionally, to check the normality of the scores, the one-sample Kolmogorov-Smirnov test was used. The results (Table 4.8) show that the observed *p* values were .36, .07, and .12 for CSES, CARS, and reading scores, respectively, all being above the selected level of significance, .05. This indicates that

the normality assumption was not violated. The Pearson product-moment correlation coefficient was subsequently used for investigating the relationship between the CARS and CSES questionnaires and the reading scores.

Table 9
The results of the one-sample Kolmogorov-Smirnov test for the CARS and CSES questionnaires and the reading scores

		CSES	CARS	iBT Reading
N		75	75	75
Normal Parametersa,b	Mean	111.45	36.72	10.09
	Standard Deviation	35.21	17.46	2.37
Most Extreme Differences	Absolute	.10	.19	.13
	Positive	.10	.19	.13
	Negative	-.10	-.15	-.13
Kolmogorov-Smirnov Z		.91	1.67	1.17
Asymp. Sig. (2-tailed)		.36	.07	.12

Note. a. Test distribution is normal; b. Calculated from data.

2.5 Relationship Between Computer Anxiety and Computer Self-Efficacy

Pearson product-moment correlation test was applied to make sure if there is any relationship between the variables mentioned above or not. Before carrying out a correlation analysis it is a good idea to create a scatterplot first. This checks violation of the assumptions of linearity and homoscedasticity. Checking the scatterplots also provides a better idea of the nature of the relationship between the variables.

Figure 4.5 shows the fit line. As it is shown in the figure (4.5) the fit line shows a weak relation between WAT and SWS.

Regarding the distribution and shape of the data points, it is concluded that the assumptions of linearity and homoscedasticity are not violated. In the following section the correlation analysis results are provided.

The first null hypothesis predicted no significant relationship between Iranian EFL learners' computer anxiety and computer self-efficacy. To test this hypothesis and to measure the correlation between the two variables, the Pearson product-moment correlation coefficients were calculated. The results are summarized in Table 10.

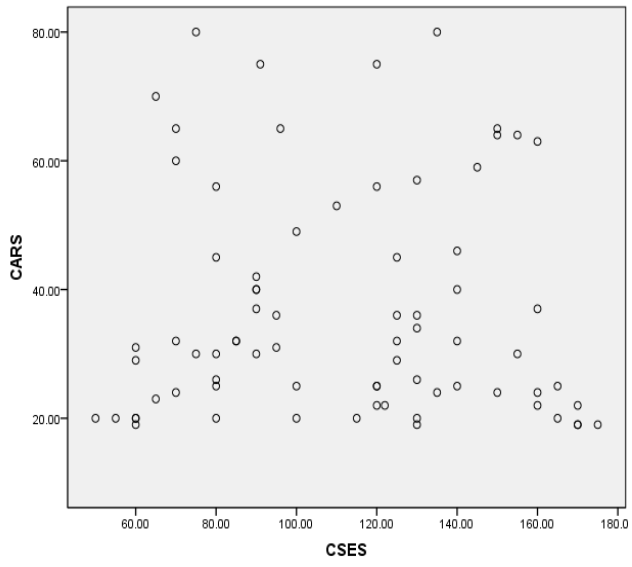

Figure 4
The Scatterplot of the Participants' Scores on WAT and SWS

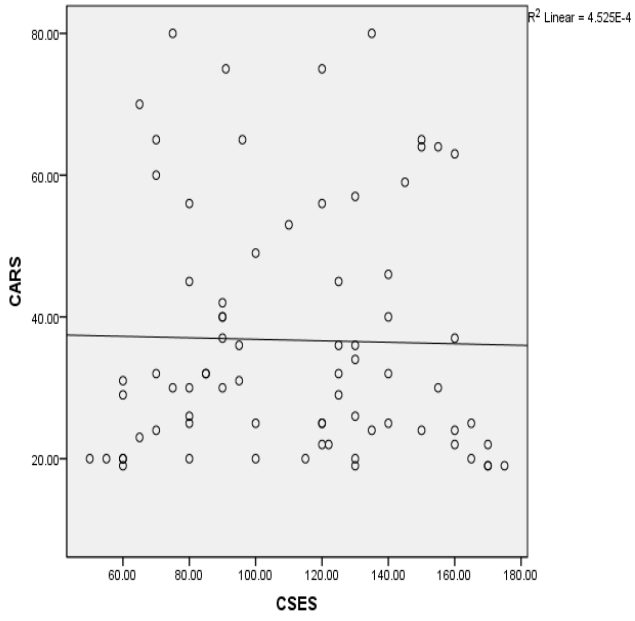

Figure 5
The Scatterplot Fit Line of the Participants' Scores on WAT and SWS

Table 10
Correlation between the CARS, CSES data and Reading iBT

		CSES	CARS	R.G
CSES	Pearson Correlation	1	-.021	.662
	Sig. (2-tailed)		.856	.000
	N	75	75	75
CARS	Pearson Correlation	-.021	1	-.124
	Sig. (2-tailed)	.856		.289
	N	75	75	75
R.G	Pearson Correlation	.662	-.124	1
	Sig. (2-tailed)	.000	.289	
	N	75	75	75

Note. Correlation is significant at the 0.01 level (2-tailed).

As Table 10 shows, a negative significant relationship was found between CSES and CARS (r = -.021, n = 75). Moreover, the correlation coefficient between CSES and reading grades (r = .66) was above the critical values of the Pearson product-moment correlation coefficient (r = .34). On this basis, we can have confidence in rejecting the null hypothesis. The alternative hypothesis that the results suggest is that "there is a significant relationship between Iranian EFL learners' computer anxiety and computer self-efficacy." In other words, learners with low computer anxiety have high computer self-efficacy, so they performed better on the reading section of the TOEFL iBT. Also, it was found that learners with high computer self-efficacy performed better on the reading section of the TOEFL iBT and learners with high computer anxiety do not perform well on the reading section of the TOEFL iBT.

As table 10 shows there is a negative significant relationship between CARS and CSES. The negative relationship means that when computer anxiety increases, the computer self-efficacy decreases and vice versa with increasing in computer self-efficacy the level of computer anxiety decreases. Moreover, the table indicates that there is a positive relationship between computer self-efficacy and learners` performance on reading section of the reading TOEFL iBT and a negative relationship between computer anxiety and learners` performance on reading section of the reading TOEFL iBT.

2.6 Differences between computer anxiety and computer self-efficacy as predictors of reading comprehension

Table 11 shows the independent variables (CARS and CSES scores) and the dependent variable (iBT reading comprehension scores) entered into the regression equation (stepwise criteria: probability of F<= 0.050).

Table 11
Variables Entered/Removed[b]

Model		Variables Entered	Variables Removed	Method
Dimension 0	1	CARS, CSES[a]	.	Enter

Note. a. All requested variables entered; b. Dependent variable: iBT reading comprehension.

As Table 12 below shows, there is a strong correlation (r = .67) between the variables. The table also shows that 43% of the changes in reading scores is related to the independent variables. In other words, independent variables (CARS and CSES) predicted nearly half of the variable variance of iBT reading scores.

Table 12
Model Summary[b]

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.67[a]	.45	.43	1.78

Note. a. Predictors: (Constant), CARS, CSES; b. Dependent variable: iBT reading comprehension.

According to Table 13 below, the multiple regressions pertinent to the two independent variables (CARS and CSES) and the dependent variable (reading scores) is a good model (F = 29.45 and sig = .00). This indicates that the independent variables were able to predict the performance of the participants concerning the dependent variable.

Table 13
ANOVA[b]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	188.25	2	94.12	29.45	.000a
Residual	230.08	72	3.19		
Total	418.34	74			

Note. a. Predictors: (Constant), CARS, CSES; b. Dependent variable: iBT reading comprehension.

Table 14 below shows the effect of each independent variable and also the degree of correlation between them.

Table 14 is in two parts. The first part shows the effect of each independent variable on the dependent variable. The values for the CSES (sig = .00 for t = 7.54) and the CARS (sig = .02 for t = 1.25) are well below the critical level of significance (sig = .05). Thus, it can be said that both have a significant effect on iBT reading scores. Moreover, Beta is .65 and .01 for CSES and CARS, respectively, suggesting that CSES was more effective than CARS.

The second part of Table 14 is concerned with the explanation of three kinds of correlation.

Zero-order Correlation: The zero-order correlation between the CSES and iBT reading scores is .66, which is high. Alternatively, the zero-order correlation between the CARS and reading scores is .24, which is significantly smaller than the values for the CSES. Zero-order correlation is the same as the Pearson product-moment correlation coefficient and shows the CSES to be more effective than the CARS.

Partial Correlation: The partial correlation is .66 and .24 for the CSES and the CARS, respectively. Thus, CSES is more effective.

Part Correlation: The part correlation for the CSES is .65, while the CARS has a part correlation of .21. This

indicates that the former is more effective than the latter in improving EFL learners' iBT reading comprehension scores.

Therefore, the second hypothesis that "there are no significant differences between computer anxiety and computer self-efficacy as predictors of Iranian EFL learners' iBT reading comprehension" is safely rejected. The CSES was more successful in predicting the performance of EFL learners on the reading section of the iBT.

Table 14
Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Standard Error	Beta			Zero-order	Partial	Part
(Constant)	5.68	.82		6.89	.00			
CSES	.04	.00	.65	7.54	.00	.66	.66	.65
CARS	-.01	-.01	.01	-1.25	.02	.24	.24	.21

Note. a. Dependent variable: iBT reading comprehension.

DISCUSSION

The main purpose of the present study was to investigate computer anxiety and computer self-efficacy as predictors of Iranian EFL learners' performance on the reading section of the TOEFL iBT. Based on the results, it can be concluded that both computer anxiety and computer self-efficacy were effective in predicting learners' performance. The study also indicates that self-efficacy was more effective than computer anxiety. Furthermore, a significant relationship was found between Iranian EFL learners' computer anxiety and computer self-efficacy. In other words, computer anxiety affects self-efficacy and self-efficacy affects computer anxiety. Learners with a high level of computer anxiety experience low computer self-efficacy, and learners with a low level of computer anxiety have a high computer self-efficacy. As the correlation between the CARS and CSES data indicates (r = .56), thus, it can be argued that there is a modest relationship between the two variables. This finding concurs with the results found by Achima, and Al Kassim (2015) that there is a weak relationship (r = .32*) between computer anxiety and computer self-efficacy among employees.

Another study was conducted by Asadi Piran (2014) to investigate the possible relationship between three indices of self (self-concept, self-efficacy, and self-esteem) and students' score in reading comprehension test. The results for the relationship between self-concept and reading comprehension scale (Spearman's rho=.65, Sig. =.01), and that of self-esteem and reading comprehension score (Spearman's rho=.35, Sig. =.01) was significant while the relationship between self-efficacy and reading comprehension score was not (Spearman's rho=.06, Sig. =.53) The results of this study showed that the reading comprehension scores were strongly affected by students' self-efficacy and self-esteem. The results of this study also confirmed the results of the study conducted by Embi (2007) who found a moderate negative relationship between the variables. It was revealed that the levels of computer self-efficacy have a moderate negative correlation with computer anxiety.

PEDAGOGICAL IMPLICATIONS

The findings of this research may be of some interest to both language teachers and test takers. The present study revealed that computer anxiety and computer self-efficacy affect learners' iBT reading performance. This finding can serve as an incentive for teachers to use computers in their classes with the hope of reducing learners' computer anxiety and increasing their computer self-efficacy. Moreover, this study should encourage teachers to design supplementary courses in an attempt to familiarize students with computers and to alleviate their computer anxiety.

Regarding the fact that some test takers suffer from technophobia and some may not have a complete mastery over computer terms and usage, the findings of the present study can impress on students the need to reduce their computer anxiety and to improve their computer self-efficacy so that they can perform better on computer-based tests.

Nowadays, with the advent of computer technology, learning has become an easier job, but as it was stated before, anxiety is one of the factors that can prevent students from using computers to facilitate their learning. Therefore, language teachers have to help students in overcoming this apprehension and increasing their self-confidence in accomplishing tasks. In particular, the results of this study may provide helpful information for language teachers in finding out the sources of anxiety pertaining to computer use and trying to find ways of helping students to overcome this problem for better achievement in not only testing, but also learning process.

Furthermore, students may have an excellent knowledge of a foreign language, but still be unable to perform properly when exposed to a computerized learning situation. Accordingly, we can claim that an electronic situation may increase their levels of apprehension, and they may feel that they are not self-efficient enough in their usage. Therefore, foreign language teachers may plan to utilize ways to decrease students' level of anxiety and increase their self-efficacy and literacy accordingly.

Additionally, since English is an essential part of any curriculum in Iran, the present study may be beneficial for the process of curriculum design and material development, in that curriculum designers can make use of more electronic materials in students' syllabuses.

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