

The Interrelationship between EFL Learners' Levels of Reading Anxiety and Their Levels of Cognitive Test Anxiety: An Analysis of EFL Learners' Speed of Processing an IELTS Reading Test

Zahra Loghmani (Corresponding author)

Ferdowsi University of Mashhad, Iran

E-mail: leilaloghmani@yahoo.com

Behzad Ghonsooly

Ferdowsi University of Mashhad, Iran

Received: May 28, 2012 Accepted: June 5, 2012 Published: September 1, 2012

doi:10.5296/ijl.v4i3.1867 URL: <http://dx.doi.org/10.5296/ijl.v4i3.1867>

Abstract

This study investigated the EFL learner's speed of processing an IELTS reading test, in relation to their scores on Foreign Language Reading Anxiety Scale (FLRAS) and Cognitive Test Anxiety Scale (CTAS). The association between their scores on the two aforementioned scales was also examined to find if there was any significant relationship. 196 senior university EFL learners majoring in either English translation or English literature were participating in the first phase of the study. Out of them 46 were chosen according to their FLRAS scores -23 of them were low-anxiety group and 23 were high-anxiety group- who participated in the second stage of the study. Their speed of reading and processing an IELTS reading test and their levels of CTAS were then examined. To find the relationship, the Pearson Product-moment formula was used and the results indicated that the higher were the EFL learners' scores on FLRAS and CTAS, the more time they needed to finish the reading task. A positive correlation between the EFL learners' levels of Foreign Language Reading Anxiety and their scores on CTAS was also found.

Keywords: Reading anxiety, Cognitive test anxiety, Speed of processing, IELTS reading test

1. Introduction

Anxiety is one of the most prevalent emotional states that students feel in any learning situations. One of these learning situations that cause a high level of anxiety is Second Language (L2) classes. Horwitz and cope (1986) defined Language Anxiety (LA) as “a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process” (p. 128). They believed that language learner’s underdeveloped communicative skills in L2 results in a feeling of insecurity, and LA is an inherent counterpart of that insecurity.

LA can be seen in all four domains of language learning (speaking, listening, reading, and writing). However, as the literature indicated, the majority of research projects are related to oral performance (Horwitz & others, 1986; young, 1991; Daly. 1991; Phillips, 1992). Gradually, a more detailed analysis of students’ performance in different language skills identified the existence of anxiety related to listening, writing, and reading as well as speaking. Therefore inquiries on the effect of anxiety on different language skills began to appear in the 1990s (e.g., Cheng, Horwitz & Schallert, 1999; Saito, Horwitz, & Garza, 1999; Vogely, 1998). Among these language skills, the concept of anxiety in reading situations or, Reading Anxiety (RA), had not drawn scholar’s attention until recently (Saito et al., 1999). Consequently, in the present study, it has been tried to investigate the interrelationship between RA and, one other widely studies domains of anxiety in educational settings, i.e. Cognitive Test Anxiety (CTA) by answering the following research questions and forming the subsequent research hypothesis:

- 1) Is there any significant relationship between EFL learners’ RA levels and their speed of processing an IELTS reading test?
- 2) Is there any significant relationship between EFL learners’ scores on CTAS and their speed of processing an IELTS reading test?
- 3) Is there any relationship between EFL learners’ RA levels and their CTAS scores?

Based on these research questions the following research hypotheses were made:

- 1) There is no significant relationship between EFL learners’ levels of RA and their speed of processing an IELTS reading test.
- 2) There is no significant relationship between EFL learner’s CTAS scores and their speed of processing an IELTS reading test.
- 3) There is no significant relationship between EFL learners’ levels of RA and their scores on CTAS.

2. Literature Review

2.1 Anxiety

The notion of anxiety was first introduced in psychology. According to Hilgard et al. (1971) “anxiety is commonly described by psychologists as a state of apprehension, a vague fear that

is only directly associated with an object” (Hilgard, Atkinson, & Atkinson, 1971; cited in Scovel, 1978, p. 134). Anxiety is “the subjective feeling of tension, apprehension, nervousness, and worry associated with an arousal of the autonomic nervous system” (Spielberger, 1983; in Horwitz & Cope 1986). It is one of the most well known emotions, “a feeling of uneasy suspense” (Rachman, 1998).

MacIntyre and Gardner (1991) described three approaches to which anxiety has been investigated. They were trait anxiety, state anxiety, and situation specific anxiety. The first one as they thought was a “general personality trait that was relevant across several situations”. Its negative effects were thought to “Impair cognitive functioning, to disrupt memory, to lead to avoidance behaviors and to have several other effects” (Eysenck 1979, in MacIntyre & Gardner, 1991). The second approach was interested in “the here-and-now experience of anxiety as an emotional state” and the last was “the specific forms of anxiety that occur consistently over time within the given situation”, which seems to be more closely related to situations such as public speaking, examinations, class participations like L2 classes or other types of anxiety provoking situations such as writing or reading. Consequently, one branch of anxiety studies is the study of anxiety in foreign language settings or Language Anxiety (LA) studies.

As many scholars (e.g. Horwitz et al., 1986), in the field of LA believe there are three types of LA: 1) communication Apprehension, 2) test anxiety, and 3) fear of negative evaluation. The exclusive element of the first one according to Lucas (1984) is the metacognitive awareness, which both speaker and listener have about the fact that full comprehension of foreign language message is impossible. It is a type of shyness or fear linked to communicating with people (McCroskey, 1970). However in particular L2 related situations, this phenomenon is associated with fear of communicating with people in the target language (oral communication anxiety), especially using it in public (stage fright) and in apprehension about not understanding or misinterpreting the target language (receiver anxiety) (Wheless, 1975). In L2 classroom, communication apprehension is, as Cubucku (2007) indicated, why many talkative people remain silent. The second includes the frequent fear of tests in the language classrooms. This can be defined as “unpleasant feeling or emotional state that has physiological and behavioral concomitants and that is experienced in formal testing or other evaluative situations” (Dusec 1980:88). In the language classroom it refers to “worry over frequent testing, which may become a source of frustration for learners, as their proficiency is assessed while it is being acquired” (Toth, 2008). High anxious students in testing situations usually are those idealist students who cannot tolerate a less than perfect performance; as a result, they put unrealistic demands on themselves and think of any performance lower than their ideal one, as a failure (Horwitz et al. 1986). The third type “shows itself in situations when people live in fear of being evaluated” (Cubucku, 2007). In foreign language setting, it may refer to academic or personal evaluations of learners based on their performance and competence in L2 (Toth, 2008). As Horwitz et al. (1986) specified, although fear of negative evaluation seems in some way similar to test anxiety, yet it is broader in scope since it is not limited to specific test-taking situations. Instead, it can be the case in any social settings such as a job interview or an L2 speaking situation and the like.

2.2 Test Anxiety

One manifestation of anxiety in learning contexts is test anxiety. The term ‘test anxiety’ refers to “the set of phenomenological, physiological, and behavioral responses that accompany concern about possible negative consequences or failure of an exam or a similar evaluative situation” (Sieber et al., 1977). Test-anxious behavior is usually aroused when a person thinks of a test as an indicator of his or her intellectual, motivational, and social capabilities (Sarason & Sarason, 1990).

It is generally believed that test anxiety is a situation-specific anxiety that refers to “the anxiety states and worry conditions that are experienced during examinations” (Spielberger & Sarason, 1989). One of the most commonly accepted definitions of test anxiety is the one stated by Spielberger (1972), who was also a proponent of test anxiety as a situation-specific anxiety. He defined test anxiety as an “unpleasant state characterized by feelings of tension and apprehension, worrisome thoughts and the activation of the autonomic nervous system when an individual faces evaluative achievement-demanding situations”.

Topp (1989) believed that test anxiety among learners negatively related not only to their test performance but also for their attainment of degrees and even the choice of their future careers. Students with high levels of test anxiety tend to choose occupations, which contain less evaluative situations; as a result, they may not entirely challenge their cognitive capabilities (Krohne & Laux, 1982).

Benjamin et al. (1981) believed that learners who undergo high levels of test anxiety inclined to assign attention to “task-irrelevant responses or to poor study habits and skills”. They may have difficulty in understanding the instruction or misread the questions. Correspondingly Horwitz et al. (1986) stated that students with high level of test anxiety are usually distracted by test-irrelevant thoughts and evaluative pressure in testing situations. They would also experience physical conditions such as muscle tension, sweating, racing heartbeat, and depression. Moreover, they may put unrealistic demands on themselves and feel that any less-than-perfect performance on a test is a failure. Consistent with Cassady (2004), those who are highly anxious in testing situations, repeatedly ported that they usually procrastinate (Cassady & Johnson, 2002; Kalechstein, Hocevar, Zimmer, & Kalechstein, 1989), select surface-level processing strategies (Benjamin et al., 1981; Mueller, 1980), and repetitive memorization strategies (Naveh-Benjamin et al., 1987).

Young (1999) cited that factors influencing the learners’ test anxiety level are their perceptions of test validity, time limit, test techniques, test format, length, testing environment, and clarity of test instructions. In addition, learners’ ability, task difficulty, fear of getting bad marks and lack of preparation can be considered as influential factors in learners’ responses to a test (Selami & Fatih).

According to Morris and Liebert (1970), test anxiety consists of two distinct components: ‘worry’ and ‘emotionality’. Goonan (2003) defined Worry as being associated with cognitive aspects of anxiety which are rooted in fears of failure, negative comparison with others, and self-doubt about one’s capabilities. The second components, emotionality, relate to

physiological symptoms of anxiety such as fast heartbeats, increasing muscle tension, sweating, and cold hands (Morris & Liebert, 1970). Nevertheless, emotionality is the learner's subjective consciousness of the intensified autonomic arousal rather than the arousal itself (Schwarzer, 1984). Different studies revealed that worry has a stronger association with performance than emotionality (Deffenbacher, 1980., Goonan, 2003., Tryon, 1980).

Three models describe the causes of test anxiety. The first model is 'the learning-deficit model' (Kleijn et al., 1994) in which, the problem lies in learner's preparation for the test. Accordingly, learner with high level of test anxiety has or uses insufficient learning strategies when s/he is in the preparation stage of the examination (Mealey and Host, 1992). The second model is 'the interference model' (Kleijn, et al., 1994). This model indicates that learners, who are highly anxious during the testing situation, usually are distracted by test-irrelevant thoughts that affect their performance negatively (Sarason, 1975). Finally, the third model consist of learners who think they are well prepared for the test while in reality, they are not. As a result, they foster doubt about their abilities that will cause anxiety for the next examination (Birjandi & Alemi, 2010).

2.2.1 Cognitive Test Anxiety

According to Cassady and Johnson (2001), test anxiety was first introduced as a "singular attribute that could be measured with unidimensional scales (i.e., Sarason, 1961)". However, later works suggested that test anxiety was expected to be a mixture of "heightened physiological activity" and "self-deprecating ruminations" (Sarason, 1961, p: 201-202). These two dimensions are what modern research on test anxiety referred to as emotionality and worry. Afterwards, most studies in the realm of test anxiety were conducted focusing on developing better measures of this construct (Liebert & Morris, 1967; Spielberger, Gonzalez, Taylor, Algase, & Anton, 1978) or examining the effects of the two elements of test anxiety on each other (Hembree, 1988 : cited in Cassady & Johnson, 2001).

Since the term 'worry' could not be an appropriate representative of the full range of cognitive processes associated with test anxiety, the term 'Cognitive Test Anxiety (CTA)' was used as an alternative (Furlan et al., 2009). CTA, according to Furlan et al. (2009), is formed by "individuals' cognitive reactions to evaluative situations, or internal dialogue regarding evaluative situations, in the times prior to, during, and after evaluative tasks".

As Cassady (2004) stated, high levels of Cognitive Test Anxiety (CTA), increase the probability of students' poor performance in exams. As a classical explanation, this means that irrelevant thinking and intensified feelings of worry during the testing situation interrupt learners' conscious thinking, and make them incapable of revealing their full potential through a "retrieval-blocking process" (Morris, Davis, & Hutchings, 1981; Sarason, 1986; Sarason, Pierce, & Sarason, 1996; Zohar, 1998). However, modern interpretations of CTA, according to Cassady (2004), give prominence to processing deficiencies that seem to go together with feelings of anxiety during or at different phases in the learning-testing succession (Cassady, in press; Cassady & Johnson, 2002; Covington, 1985; Schwarzer & Jerusalem, 1992). This view to CTA indicates that those learners who suffer from test anxiety, have also problems with encoding, organizing and storing the content, that generally end in

an unsatisfactory representation of the learning material on testing situations (Benjamin, McKeachie, Lin, & Holinger, 1981; McKeachie, 1984; Mueller, 1980; Naveh-Benjamin, 1991).

Based on Cassady (2004), in processing the information, the first problem that higher test-anxious students face is their lack of attention. These students regularly experience high levels of emotionality or physiological aroused states before or during an examination, which further cause distraction and lead to reduced performance on the test (Geen, 1980; Wine, 1980). Benjamin et al. (1981) specified that these students have also problems with appropriate cognitive functioning, which means that they have difficulty in encoding, organizing, and storing the course content. They usually lack effective learning strategies and skills that encourage long-term learning (Naveh-Benjamin et al., 1987) and commonly use surface-level processing strategies (Benjamin et al., 1981; Mueller, 1980), as well as memorization (Naveh-Benjamin et al., 1987) and procrastination (Cassady & Johnson, 2002; Kalechstein, Hocevar, Zimmer, & Kalechstein, 1989). Based on Cassady (2004), one basic deficiency that higher test-anxious students usually undergo is their problem with retrieval of information. Consequently, they repeatedly reported that they ‘knew it cold’ before the exam, but the information just escaped from their minds when they were taking the test (Covington & Omelich, 1987).

Research suggested that students with high levels of CTA are commonly involved in thoughts such as comparing themselves with other students based on their test performance, or being pre-occupied with the consequence of a poor performance in evaluative situations. Before the exam, they have regularly felt unprepared for the test and are usually doubtful about their self-worth (Deffenbacher, 1980; Depreeuw, 1984; Hembree, 1988; Morris et al., 1981).

2.2.2 Cognitive Test Anxiety Scale

Cassady and Johnson (2002) developed cognitive Test Anxiety Scale (CTAS), which was a 27-item questionnaire, and surveyed only the cognitive domain of test anxiety. As scholars in the field of test anxiety believed, cognitive aspects of test anxiety are the most prevalent factors that affect learner’s performance on examinations (e.g., Benjamin et al., 1981; Everson, Smoldaka, & Tobias, 1994; Naveh-Benjamin et al., 1987).

According to Furlan et al. (2009), “the focus of the CTAS is about the tendency to engage in task-irrelevant thinking during test taking and preparation periods, the tendency to draw comparisons to others during test taking and preparation periods, and the likelihood either to have intruding thoughts during examinations and study sessions or to have relevant cues escape the learners’ attention during testing.”

The CTAS response format is a four-point Likert-scale ranging from “Not at all atypical of me” to “Very typical of me” and the range of possible scores is 27 to 108 (Furlan et al., 2009).

2.3 Reading Anxiety

There are many studies about the notion of Language Anxiety (LA) and its influence on language learning process, however the focus of most of these studies are on oral performance of language learners (Aida, 1994; Horwitz et al., 1986; Koch & Terrell, 1991; Phillips, 1992; Price, 1991; Young, 1991; Daly, 1991). Perhaps this is it because as Horwitz & others (1986) concluded, “speaking in the target language seems to be the most threatening aspect of foreign language learning” (p. 23). However, a more detailed analysis of students’ performance in different language skills identified the existence of anxiety related to listening, writing, and reading as well as in speaking. Thus inquiries on the effect of anxiety on different language skills began to appear in the 1990s (e.g., Cheng, Horwitz & Schallert, 1999; Saito, Horwitz, & Garza, 1999; Vogely, 1998). Yet the concept of RA had not drawn scholar’s attention until recently (Saito et al., 1999). Even so, this domain of language learning is still open to more investigation (Saito, Horwitz, & Garza, 1999; Sellers, 2000). As stated by Brantmeier (2005), “to date, the database of research concerning anxiety and L2 reading is not complete and therefore no generalization specific to reading can be formulated” (p. 69). In view of that, Reading Anxiety (RA) will be the heart of the present investigation.

Brantmeier (2005) indicated that foreign language RA can be examined from two different points of view: cognitive perspective and pedagogical perspective. From the cognitive view as it is claimed by Sellers (2000) reading is a cognitively demanding activity that requires the coordination of attention, memory, perception and comprehension processes; on the other hand RA uses processing capacity too; as a result it reduces the amount of attention needed for processing of the reading task that can cause RA. From the pedagogical viewpoint, those ineffective reading practices that are rooted in the misconception about reading can lead to RA. As Lee (1999) believed these misconceptions are ‘reading is just answering the reading comprehension tests’, ‘reading is a private act’ or ‘reading is a linear process’ (Lee, 1999 cited in Brantmeier, 2005).

According to Saito et al. (1999), two aspects of foreign language reading can be considered as potential sources of anxiety: (a) unfamiliar script and writing system and (b) unfamiliar cultural material. “With respect to the unfamiliar writing system, it seems likely that the less the learner can depend on the reliability of a specific system of sound-symbol correspondences, the more anxiety he or she would be expected to experience in the act of reading. In this case the reader would experience anxiety as soon as he or she attempts to decode the script because the reader would immediately experience difficulty in processing the text” (Saito et al., 1999). It can be imagined that learners feel anxious as soon as they start to extract meaning from the foreign language words, which are written in exotic symbols (Zhao, 2008).

After the learner’s first attempt to decode the symbols and associate them with sounds and words, he would try to extract meaning out of the strings of words. At this point unfamiliar cultural material, become perceptible because the learner cannot make sense of what he has just read. This phenomenon can also be anxiety provoking for foreign language readers (Saito

et al. 1999). It can be concluded that in reading a foreign language text, cultural strangeness does not cause an immediate anxiety in the learner as the unfamiliar script does (Zhao, 2008).

Based on their two potential sources of foreign language RA, Saito et al. (1999), also hypothesized that, the level of RA would be different with respect to different writing systems and fluctuate between different target languages. As an example, they observed that learners of Japanese were the most anxious language learners, followed by learners of French.

What was previously mentioned as possible sources of Foreign Language Anxiety, such as competitiveness, learner beliefs, instructor beliefs, teacher's comments on the learner's performance, fear of negative evaluation and classroom procedure can be considered as potential sources of Foreign Language Reading Anxiety (Zhao, 2008). Besides Brantmeier (2005) proposed after-reading tasks as a source of reading anxiety. He commented, "Different assessment tasks (oral and written) may require different types of reading, and consequently may invoke different types of anxiety" (p. 77).

Research on RA suggested Cultural differences, an unfamiliar writing system (Saito et al., 1999), unfamiliar grammatical structure (Zhang, 2002), unknown words and worry about "after-reading tasks" (Brantmeier, 2005; Oh, 1992), as the major sources of RA among foreign language learners.

Since it was believed that language learners could apply reading strategies as effective tools to help them in comprehending a text, some studies proposed that among different language skills, reading causes the least level of anxiety for foreign language learners (Abu-Rabia, 2004; Brantmeier, 2005 cited in Zhao, 2009). However, later attempts to understand the nature of skill-specific anxieties revealed that RA actually does exist and it has negative effects on the cognitive abilities of the learners (Saito et al., 1999; Sellers, 2000; Lee, 1999). Jafarigohar (2012) mentioned in his research that reading in a foreign language results in anxiety and insufficient language attainment "in conjunction of students' levels of reading anxiety and general foreign language anxiety" (Saito, Thomas, & Horwitz, 1998, p. 202).

Jalongo and Hirsh (2010) examined the effects of the affective domain on learning to interpret symbols, in a cognitive and Neuroscience-based investigation. They cited the contemporary Neuroscience explanation of the connection between fear and reading. As this connection will result in a final negative reaction and anxiety toward reading situations, it seems appropriate to be mentioned here.

"We know that the major networks of the brain are interconnected so, when a child reads the recognition network identifies letters and words while the strategic network simultaneously focuses on understanding the text and monitors progress toward that goal. At the same time the affective network—that seat of emotions known as the limbic system—activates such things as interest, motivation, anxiety, and so forth (Hinton et al. 2008). Far from acting independently in the old "right brain/left brain" way that is now known to be inaccurate, the affective or limbic system is interconnected with cortical areas involved in cognitive processing (Le Doux 2000 cited in Jalongo & Hirsh, 2010)."

Then they continued by stating that: “Reading and fear get connected in the same way that classical conditioning operates. An initially neutral stimulus (e.g., Reading aloud) is repeatedly paired with a noxious unconditioned stimulus (e.g., Teacher judgment, peer ridicule) and, as a result of this pairing, the learner forms an association between reading and negative emotions (Jalongo & Hirsh, 2010).”

2.3.1 Foreign Language Reading Anxiety Scale (FLRAS)

Foreign Language Reading Anxiety Scale (FLRAS) is developed by Saito et al. (1999). It consists of 20 five- point Likert scale ranging from “strongly agree” to “strongly disagree”. Students' self-reports of anxiety are elicited by this scale over various dimensions of reading, their target language reading perceptions, and their perceptions of the difficulty level of reading in their own language compared with the target language (Saito et al. 1999, p. 204 cited in Ghonsooly 2010).

3. Methodology

3.1 Participants

A total number of 196 senior EFL learners, majoring in either English Translation or English Literature, from three Universities in Iran took part in the first phase of this study. Their ages ranged from 21 to 28 with an average of 23. All of them were native speakers of Persian and had been studying English for more than 9 years at school and university. Out of them, 46 participants were chosen according to their scores on FLRAS. They were further divided into two groups labeling as low and high-anxious readers. Consequently, 23 of them scored more than 64, who were considered as high-anxious readers and 23 scored below 44 who were considered as low-anxious EFL learners in reading situations. These cutoff scores were based on calculation of the range of participants' FLRAS scores and dividing them into three groups as low, mid and high anxiety groups.

3.2 Instrumentation

The first instrument used in this investigation was Foreign Language Reading Anxiety Scale (FLRAS), developed by Saito et al. (1999) to assess RA levels of the EFL learners. The final 46 participants took part in the second phase of the study in which a software, the Cognitive Test Anxiety Scale (CTAS), and an IELTS reading text were also used. CTAS was developed by Cassady and Johnson (2002) to examine students' cognitive test anxiety levels. The IELTS reading test used in the current study was borrowed from Cambridge University official examination papers (2011). This reading text was made of approximately 900 words and 39 sentences. Finally, the specific software designed for the sake of the present study was used to measure the amount of time each participant needed to read each sentence of the IELTS text, and to get the primary impression of the text. They were not being asked to understand the text in a detailed fashion and just understanding each sentence holistically was enough to press the keyboard button for the next sentence.

3.3 Procedure

In the first phase of this study, 196 EFL learners took part, which were all senior students from three universities in Iran, majoring in either English Literature or English Translation. They were asked to fill out a questionnaire that contained both FLRAS and questions about their ages, their native languages, and their phone numbers. After scoring their papers, based on their acquired scores on FLRAS, 46 participants were chosen. The scores of 23 of them were below 44, which were considered as low-anxiety group and 23 of them scored above 64, which were supposed as high-anxiety group. Each of these 46 participants filled out a CTAS and read the IELTS reading text one by one and the above-mentioned software measured the amount of time each individual required to read and get the primary impression of each sentence of the text. Then their total time for reading the whole text was calculated and used as an indicator of their speed of processing an English text.

3.4 Data Analysis

To answer the three research questions of the present study, the Pearson Product-moment correlation coefficient analysis was applied, between the participants' FLRAS scores and their total time used to read the IELTS text for answering the first question. Another correlation was run between their CTAS scores and their total time used to read the IELTS text to answer the second question and finally the third correlation was done between the EFL learners' FLRAS scores and their CTAS scores to answer the last question.

4. Results

First is a Table of the total contributors who took part in the first phase of the study and filled out FLRAS and the background questionnaire. This Table shows that there was a total number of 196 EFL learners who participated in this study. There were 39 male and 127 female, yet 29 participants did not provide any background information. These 29 participants were labeled as unidentified group and their FLRAS scores were used in the total calculation of FLRAS mean. However, although there were very good cases of high and low-anxious readers among them, it was not possible to use them in the second part of the study, as they did not provide their contact information.

Table 1. Descriptive Statistics for Participants' characteristics and their FLRAS scores

		First University		Second University		Third University		Total	
Male		Number	Mean FLRAS	Number	Mean FLRAS	Number	Mean FLRAS	Number	Mean FLRAS
		7	40	11	59.45	21	47.23	39	49.39
Female		Number	Mean FLRAS	Number	Mean FLRAS	Number	Mean FLRAS	Number	Mean FLRAS
		44	48.14	41	52.59	43	44.77	128	48.46
Unidentified		Number	Mean FLRAS	Number	Mean FLRAS	Number	Mean FLRAS	Number	Mean FLRAS
		6	55.83	12	54	11	50.55	29	53.03
Total FLRAS MEAN		47.94		54.03		46		49.22	
AGE MEAN		22.75							

This Table also indicates that, disregarding the unidentified group, the number of female students was almost comparable along the three selected Universities and their mean scores (48.46) shows that they were a bit less anxious than the male participants were (male mean: 49.39).

Table 2. Descriptive Statistics of high vs. low FLRAS scores and their total required IELTS time

	Participant	Minimum	Maximum	Sum	Mean	Std. Deviation
FLRAS46	46	25	83	2276	49.48	15.873
IELTS time	46	5*	19*	447*	9.71*	3.537
Low FLRAS IELTS time	23	5*	12*	179*	7.77*	1.979
High FLRAS IELTS time	23	5*	19*	268*	11.65*	3.712

* These numbers are in terms of minutes.

With Table 2, the descriptive statistics of the two variables for the 46 participants of the study are presented. This information specifies that the average time needed for the low anxiety group to read the whole passage is almost 8 minutes while it is nearly 12 minutes for EFL learners who scored high on FLRAS. As a result, it can be indicated that the high-anxiety group needed more amount of time to read the IELTS text.

To explore the relationship between EFL learners' scores on FLRAS and their needed time for reading and processing the IELTS test, a two-tailed Pearson Product-moment correlation analysis was conducted and the result indicated that there was actually a positive correlation between the two variables (Table 3).

Table 3. Correlation between FLRAS scores and IELTS times

		FLRAS 46	IELTS time
FLRAS 46	Pearson Correlation	1	.578**
	Sig. (2-tailed)		.000
	N	46	46
IELTS time	Pearson Correlation	.578**	1
	Sig. (2-tailed)	.000	
	N	46	46

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

Based on Table 3, the correlation coefficient between EFL learners' FLRAS scores and their allocated time for reading and processing the IELTS reading test, is 0.57 and it is significant at $P < 0.01$. Consequently, the first null hypothesis can be rejected and it can be concluded that the more anxious the EFL learners are in a foreign language reading situation, the more time they need to process the text.

To answer the second question the same correlation formula was used to find the relationship between the participants' CTAS scores and their used amount of time for IELTS text processing and the results revealed that there exists a positive correlation ($r = 0.37$, $p < 0.01$; Table 5). Therefore, the second null hypothesis is rejected and it can be postulated that those EFL learners who are more anxious in testing situations are also in need of more time to read and process an English text.

Table 4. Descriptive Statistics for low and high flras groups' CTAS scores

	N	Range	Minimum	Maximum	Sum	Mean	Std. Deviation
Low FLRAS CTA	23	50	30	80	1083	47.09	13.538
High FLRAS CTA	23	42	49	91	1495	65.00	11.901

Table 5. Correlation between CTAS scores and IELTS time

		IELTS time	CTA 46
IELTS time	Pearson Correlation	1	.376**
	Sig. (2-tailed)		.010
	N	46	46
CTA 46	Pearson Correlation	.376**	1
	Sig. (2-tailed)	.010	
	N	46	46

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

Table 6. Correlation between FLRAS scores and CTAS scores

		FLRAS46	CTA46
FLRAS46	Pearson Correlation	1	.633**
	Sig. (2-tailed)		.000
	N	46	46
CTA46	Pearson Correlation	.633**	1
	Sig. (2-tailed)	.000	
	N	46	46
**, Correlation is significant at the 0.01 level (2-tailed).			

The information presented in Table 6 shows the relationship between EFL learners' FLRAS levels and their levels of CTAS. As it is obviously demonstrated there is a positive correlation between them ($r=0.63$) which is significant at $p<0.01$. In other words, it can be established that students with high levels of Foreign Language Reading Anxiety most likely suffer from high levels of Cognitive Test Anxiety as well. Therefore, the third null hypothesis is also rejected.

5. Discussion

Brantmeier (2005) specified that: "to date, the database of research concerning anxiety and L2 reading is not complete and therefore no generalization specific to reading can be formulated" (p. 69). Accordingly, Reading Anxiety (RA) and its relationship with Cognitive Test Anxiety was at the heart of this investigation.

As opposed to Lien (2011), the results of the present investigation indicated that female EFL learners were slightly less anxious than male language learners, both in reading and testing situations. However because in comparison with the number of female participants (128), the number of male contributors ($n=39$) was restricted, this outcome would not be generalizable to a broader context.

The results also showed that EFL learners' levels of RA were different according to the University in which they were studying. In other words the FLRAS mean of those students who were studying English in Third University (Public University; mean = 46.08) and First University (non-profit University; mean = 47.95) were lower than the Second University (Private University; mean = 54). This effect might be due to the differences in the participants' English proficiency level. It is commonly believed that the best students are accepted in public universities while the less knowledgeable students have to go to private universities. However, this is not an established idea and needs more investigation to find the underlying causes of this difference among students of different Universities.

Consistent with Calvo and Carreiras (1993), The correlation results of this study ($r = 0.57$, $p<0.01$ for FLRAS & IELTS times; $r = 0.37$, $p<0.01$ for CTA & IELTS times), also suggested that the higher were the EFL learners' anxiety levels, both in case of reading and testing, the more time they required to finish their reading task. According to Calvo and Carreiras (1993), the anxious students usually increase effort and time to compensate for their lack of processing capacity (cited in Chen, 2007). Despite it could be due to several factors

other than anxiety itself (e.g. Language proficiency, background information, inappropriate use of learning and reading strategies, intelligence and etc.), it is worth considering in reading comprehension testing contexts that the learners poor performance might not be just because of their lack of ability in L2 reading but it might be the natural outcome of their anxiety in reading or testing situations. Thus those EFL learners, who are highly anxious in these situations, need more time to calm down and complete the job than their low anxious counterparts.

Although It has commonly been stated , there is a negative relationship between FLRAS score and reading performance (e.g., Seller, 2000 ; Salazar-Liu, 2002), the surprising finding of this study was that the most high-anxious reader who scored 83 on FLRAS, was introduced as the best students of his class by his classmates.

The last correlation outcome between the participants' FLRAS scores and their CTAS scores ($r = 0.63$, $p < 0.01$) revealed that there was a positive correlation between their anxiety levels of both kinds. However the results did not support the idea that whoever is highly anxious in L2 reading situation would be automatically high anxious in testing context too. There were cases of low FLRAS scores who scored high on CTAS and vice versa. For example, the FLRAS score of 42, which was grouped as low-anxiety, scored 80 on CTAS, which was a high anxiety level on that scale. Alternatively, the highest FLRAS score was 83, while that participant's CTAS score was 70 . Even though 70 was considered as high score on CTAS, but confidently not as high as 83 was on FLRAS. Equally, the highest CTAS score, which was 91, was belonged to the individual whose score was 71 on FLRAS. However, it is clearly demonstrated that those who are highly anxious in reading situations are suffering from anxiety in testing circumstances as well.

Reference

- Abu-Rabia, S. (2004). Teachers' role, learners' gender differences, and FL anxiety among seventh-grade students studying English as a FL. *Educational Psychology*, 24, 711-721. <http://dx.doi.org/10.1080/0144341042000263006>
- Aida, Y. (1994). Examination of Horwitz, Horwitz, and Cope's construct of foreign language anxiety: The case of students of Japanese, *Modern Language Journal*, 78(2), 155-168. <http://dx.doi.org/10.1111/j.1540-4781.1994.tb02026.x>
- Aydin, S., Yavuz, F., & Yesilyurt, S.(?). Test anxiety in foreign language learning. *Sosyal Bilimler Dergisi*. Turkey.
- Benjamin, M., McKeachie, W. J., Lin, Y., & Holinger, D. P. (1981). Test anxiety: deficits in information processing. *Journal of Educational Psychology*, 73, 816-824.
- Birjandi, P., & Alemi, M. (2010). The impact of test anxiety on test performance among Iranian EFL learners. *Broad Research in Artificial Intelligence and Neuroscience (BRAIN)*, 1(4), 44-58.
- Brantmeier, C. (2005). Anxiety about L2 reading or L2 reading task? A study with advanced language learners. *The Reading Matrix*, 5, 67-83.

- Calvo, M. G., & Carreiras, M. (1993). Selective influence of test anxiety on reading processes. *British Journal of Psychology*, 84, 375-388. <http://dx.doi.org/10.1111/j.2044-8295.1993.tb02489.x>
- Cassady J. C., & Johnson RE (2002). Cognitive test anxiety and academic performance. *Contemp. Educ. Psychol.* 27(2):270 – 295. <http://dx.doi.org/10.1006/ceps.2001.1094>
- Cassady, J. C. (2004). The impact of cognitive test anxiety on test comprehension and recall in the absence of external evaluative pressure. *Applied Cognitive Psychology*, 18, 311-315. <http://dx.doi.org/10.1002/acp.968>
- Cassady, J. C., & Johnson, R. E. (2001). Cognitive test anxiety and academic performance. *Contemporary Educational Psychology*, 27, 270–295. <http://dx.doi.org/10.1006/ceps.2001.1094>
- Chen, M. L. (2007). *Test anxiety, reading anxiety and reading performance among university English as second language learners*. (Master's thesis). Retrieved from ProQuest Dissertations and Theses.
- Cheng, Y., Horwitz, E. K., & Schallert, D. L. (1999). Language anxiety: Differentiating writing and Speaking components. *Language Learning*, 49(3). <http://dx.doi.org/10.1111/0023-8333.00095>
- Covington, M. V. (1985). Test anxiety: causes and effects over time. In H. M. van der Ploeg, R.
- Covington, M.V., & Omelich, C. (1987). I knew it cold before the exam:a test of the anxiety-blockage hypothesis. *Journal of Educational Psychology*, 79, 393-400. <http://dx.doi.org/10.1037/0022-0663.79.4.393>
- Cubucku, F. (2007). Foreign language anxiety. Docuz Eylul University. Izmir, Turkey.
- Daly, J. (1991). Understanding communication apprehension: An introduction for educators. In E.K. Horwitz & D. J. Young (Eds.). *Language Anxiety: From Theory and Research to Classroom Implications*. Englewood Cliffs, NJ: Prentice Hall.
- Deffenbacher, J. L. (1980). Worry and emotionality in test anxiety. In Sarason, I. G. (Ed.). *Test Anxiety, Theory, Research, and Applications*. Hillsdale, NJ: Lawrence Erlbaum.
- Depreeuw, E. A. M. (1984). A profile of the test-anxious student. *International Review of Applied Psychology*, 33, 221–232. <http://dx.doi.org/10.1111/j.1464-0597.1984.tb01430.x>
- Dusek, J. B. (1980). The development of test anxiety in children. In Sarason, I. G. (Ed.). *Test Anxiety, Theory, Research, and Applications*. Hillsdale, NJ: Lawrence Erlbaum.
- Everson, H. T., Smodlaka, I., & Tobias, S. (1994). Exploring the relationship of test anxiety and metacognition on reading test performance: A cognitive analysis. *Anxiety, Stress, and Coping*, 7, 85-96. <http://dx.doi.org/10.1080/10615809408248395>

Eysenck, M.W. (1979). Depth, elaboration and distinctiveness. In L.S. Cermak and F.I.M. Craik (Eds) *Levels of processing in human memory*. Hillsdale, NJ: Lawrence Erlbaum.

Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of *cognitive developmental inquiry*, 34, 906–911.

Furlan, L.A., Cassady, J. C., & Perez, E.R. (2009). Adopting the cognitive test anxiety scale for use with Argentinean university students. *International Journal of Testing*, 9, 3-19. <http://dx.doi.org/10.1080/15305050902733448>

Geen, R. G. (1980). Test anxiety and cue utilization. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications* (pp. 43–61). Hillsdale, NJ: Lawrence Erlbaum.

Ghonsooly, B., & Elahi. M. (2010). Learners' self-efficacy in reading and its relation to foreign language reading anxiety and reading achievement. *Journal of English Language Teaching and Learning*, 53(217).

Goonan, B. (2003). Overcoming test anxiety: giving students the ability to show what they know. Reproductions supplied by EDRS 257271.

Hembree, R. (1988). Correlates, causes, and treatment of test anxiety. *Review of Education Research*, 58, 47–77.

Hilgard, E.R., Atkinson, R.C. ,& Atkinson, R.L. (1971). *Introduction to psychology* (5th Ed.). New York: Harcourt.

Hinton, C., Miyamoto, K., & Della-Chiesa, B. (2008). Brain research, learning and emotions: Implications for education research, policy and practice. *European Journal of Education*, 43(1), 87–103. <http://dx.doi.org/10.1111/j.1465-3435.2007.00336.x>

Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal*, 70, 125-132. <http://dx.doi.org/10.1111/j.1540-4781.1986.tb05256.x>

Jafarigohar, M., & Behrooznia, S. (2012). The Effect of anxiety on reading comprehension among distance EFL learners. *International Education Studies*, 5(2).

Jalongo, M.R., & Hirsh, R.A. (2010). Understanding reading anxiety: new insights from Neuroscience. *Early Childhood Educational Journal*, 37(6), 431-435. <http://dx.doi.org/10.1007/s10643-010-0381-5>

Kalechstein, P., Hocevar, D., Zimmer, J. W., & Kalechstein, M. (1989). Procrastination over test preparation and test anxiety. In R. Schwarzer, H. M. van der Ploeg, & G. D. Spielberger (Eds.), *Advances in test anxiety research*, 6, 63–76). Lisse, The Netherlands: Swets Zeitlinger.

Kleijn, W. C., Van der Ploeg, H. M., & Topman, R.M. (1994). Cognition, study habits, test anxiety, and academic performance, *Psychological Reports*, 75, 1219-1226. <http://dx.doi.org/10.2466/pr0.1994.75.3.1219>

- Koch, A. S., & Terrell, T. D. (1991). Affective reactions of foreign language students to natural approach activities and teaching techniques. In E. K. Horwitz & D. J. Young (Eds.), *Language anxiety: From theory and research to classroom applications*: 109–126. Englewood Cliffs, NJ: Prentice-Hall.
- Krohne, H. W., & Laux, L. (1982). Achievement, stress and anxiety. Washington, DC: Hemisphere. <http://dx.doi.org/10.1146/annurev.neuro.23.1.155>
- LeDoux J.E. (2000). Emotion Circuits in the Brain, *Annual Review of Neuroscience*, 23:155-184.
- Lee, J. F. (1999). Clashes in L2 reading: Research versus practice and readers' misconceptions. In D. J. Young (Ed.), *Affect in foreign language and second language learning: a practical guide to creating a low-anxiety classroom atmosphere* (pp. 49-63). New York: McGraw-Hill.
- Liebert, R. M., & Morris, L. W. (1967). Cognitive and emotional components of test anxiety A distinction and some initial data. *Psychological Reports*, 20, 975–978. <http://dx.doi.org/10.2466/pr0.1967.20.3.975>
- Lien, H.Y. (2011). EFL learners' reading strategy use in relation to reading anxiety. *Language Education in Asia*, 2(2), 199-212. <http://dx.doi.org/10.5746/LEiA/11/V2/I2/A03/Lien>
- Lucas, J. (1984). Communication apprehension in the ESL classroom : Getting our students to talk. *Foreign Language Annals*, 17, 593 – 598. <http://dx.doi.org/10.1111/j.1944-9720.1984.tb01748.x>
- MacIntyre, P.D. & Gardner, R.C. (1991). Language anxiety : its relationship to other anxieties and to processing in native and second languages. *Language Learning* 41(4): 513-53. <http://dx.doi.org/10.1111/j.1467-1770.1991.tb00691.x>
- McCroskey, J. C. (1970). Measures of communication-bound anxiety. *Speech Monographs*, 37, 269-277.
- McCroskey, J. C. (1970). Measures of communication-bound anxiety. *Speech Monographs*, 37, 269-277. <http://dx.doi.org/10.1080/03637757009375677>
- McKeachie, W. J. (1984). Does anxiety disrupt information processing or does poor information processing lead to anxiety? *International Review of Applied Psychology*, 33, 187–203. <http://dx.doi.org/10.1111/j.1464-0597.1984.tb01428.x>
- Mealey, D. L., Host, T. R. (1992), Coping with Test Anxiety, *College Teaching*, 40(4), 147-150.
- Morris, L., Davis, D. & Hutchings, C. (1981). Cognitive and Emotional Components of Anxiety: Literature Review and Revised Worry-Emotionality Scale. *Journal of Educational Psychology*, 73, 541-555. <http://dx.doi.org/10.1037/0022-0663.73.4.541>

- Morris, L.W., & Liebert, R. M. (1970). Relationship of cognitive and emotional components of test anxiety to psychological arousal and academic performance. *Journal of Consulting and Clinical Psychology*, 35, 332-337. <http://dx.doi.org/10.1037/h0030132>
- Mueller, J. H. (1980). Test anxiety and the encoding and retrieval of information. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications* (pp. 63–86). Hillsdale, NJ: Erlbaum.
- Naveh-Benjamin, M. (1991). A comparison of training programs intended for different types of test-anxious students: further support for an information-processing model. *Journal of Educational Psychology*, 83, 134–139. <http://dx.doi.org/10.1037/0022-0663.83.1.134>
- Naveh-Benjamin, M., McKeachie, W. J., & Lin, Y. (1987). Two types of test-anxious students: Support for an information processing model. *Journal of Educational Psychology*, 79, 131–136. <http://dx.doi.org/10.1037/0022-0663.79.2.131>
- Phillips, E. M. (1992). The effects of language anxiety on students' oral test performance and attitudes. *The Modern Language Journal*, 76(1): 14-26. <http://dx.doi.org/10.1111/j.1540-4781.1992.tb02573.x>
- Price, M. L. (1991). The subjective experience of foreign language anxiety: Interviews with highly anxious students. In E. K. Horwitz & D. J. Young (Eds.), *Language anxiety: From Theory and research to classroom applications*: 101–108. Englewood Cliffs, NJ: Prentice-Hall.
- Rachman. (1998). *Anxiety*, Psychology Press. Hove. East Sussex, UK.
- Saito, Y., Horwitz, E., & Garza, J. (1999) Foreign Language Reading Anxiety. *The Modern Language Journal*, 83, 202-218. <http://dx.doi.org/10.1111/0026-7902.00016>
- Saito, Y., Thomas, G. J., & Horwitz, E. K. (1998). Foreign Language Reading Anxiety. *The Modern Language Journal*, 83(2), 202-218. <http://dx.doi.org/10.1111/0026-7902.00016>
- Salazar-Liu, E. (1998). Students apprehensions about English Oral Conversation. The Proceedings of the Symposium on Maximizing Effectiveness through Minimizing Anxiety in the ESL classroom: *Student Anxiety and Teaching Methods*, 33-41. Taoyuan: Department of Applied English , Ming Chuan University.
- Sarason, I. G. (1961). Test anxiety and the intellectual performance of college students. *Journal of Educational Psychology*, 52, 201–206. <http://dx.doi.org/10.1037/h0049095>
- Sarason, I. G. (1975), Test Anxiety and the Self-disclosing Coping Model, *Journal of Consulting and Clinical Psychology*, 43, 148-152. <http://dx.doi.org/10.1037/h0076507>
- Sarason, I. G., Pierce, G. R., & Sarason, B. R. (1996). Domains of cognitive interference. In I. G. Sarason, G. R. Pierce, & B. R. Sarason (Eds.), *Cognitive interference: Theories, methods, and findings* (pp. 139–152). Mahwah, NJ: Erlbaum.
- Sarason, I.G., & Sarason, B.R. (1990) . Test Anxiety, in H. Leitenberg (Ed.) *Handbook of Social and Evaluative Anxiety* (pp. 476-96). New York: Plenum Press.

Schwarzer, & C. D. Spielberger (Eds.), *Advances in test anxiety research* (Vol. 4, pp. 55–68). Lisse, The Netherlands: Swets & Zeitlinger.

Schwarzer, R., & Jerusalem, M. (1992). Advances in anxiety theory: a cognitive process approach. In K. A. Hagtvet, & T. B. Johnsen (Eds.), *Advances in test anxiety research* (Vol. 7, pp. 2–31). Lisse, The Netherlands: Swets & Zeitlinger.

Scovel, T. (1978). The effect of affect on foreign language learning : a review of the anxiety research. *Language Learning*, 28(1), 129 – 141.
<http://dx.doi.org/10.1111/j.1467-1770.1978.tb00309.x>

Sellers, V. D. (2000). Anxiety and reading comprehension in Spanish as a foreign language. *Foreign Language Annals*, 33(5):512–520.
<http://dx.doi.org/10.1111/j.1944-9720.2000.tb01995.x>

Sieber, J.E, O'Neil JR., H. F., & Tobias, S. (1977). *Anxiety, learning and instruction*. Hillsdale, NJ: Erlbaum.

Spielberger, C. (1983). *Manual for the state-trait anxiety inventory*. Palo Alto, CA: Consulting Psychologist Press.

Spielberger, C. D., Gonzalez, H. P., Taylor, C. J., Algaze, B., & Anton, W. D. (1978). Examination stress and test anxiety. In C. D. Spielberger & I. G. Sarason (Eds.), *Stress And anxiety* (Vol. 5, pp. 167–191). New York: Wiley.

Spielberger, C.D., & Sarason, I.G. (Ed.). (1989). *Stress and anxiety* (Vol. 12). Washington: Hemisphere Publishing Corporation.

Topp, R. (1989). Effect of Relaxation or exercise on understanding. *Test Anxiety, Perceptual and Motor Skills*, 69, 35-41. <http://dx.doi.org/10.2466/pms.1989.69.1.35>

Toth, Zs. (2008). A foreign language anxiety scale for Hungarian learners of English. *WoPaLP*, 2.

Tryon, G. S. (1980). The measurement and treatment of test anxiety. *Review of Educational Research*, 50, 343-372.

Vogely, A. J. (1998). Listening comprehension anxiety: Students' reported sources and solutions. *Foreign Language Annals*, 31, 67–80.
<http://dx.doi.org/10.1111/j.1944-9720.1998.tb01333.x>

Wheless, L. R. (1975). An investigation of receiver apprehension and social context dimensions of communication apprehension. *The Speech Teacher*, 24, 261-268.
<http://dx.doi.org/10.1080/03634527509378169>

Wine, J. D. (1980). Cognitive-attentional theory of test anxiety. In I. G. Sarason (Ed.), *Test anxiety: Theory, research, and applications* (pp. 349–378). Hillsdale, NJ: Lawrence Erlbaum.

Young, D. J. (1991). Creating a low-anxiety classroom environment: What does language anxiety research suggest? *Modern Language Journal*, 75, 426–437.
<http://dx.doi.org/10.1111/j.1540-4781.1991.tb05378.x>

Zhao, A. (2009). *Foreign language reading anxiety: investigating English-speaking university students learning Chinese as a foreign language in the united states*. (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses.

Zohar, D. (1998). An additive model of test anxiety: Role of exam-specific expectations. *Journal of Educational Psychology*, 90, 330–340.
<http://dx.doi.org/10.1037/0022-0663.90.2.330>