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Critical Thinking Skills, Critical Reading and Foreign Language Reading Anxiety in Iran Context

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Critical thinking is crucial to the learning process, cognitive development, and effective information seeking. People can use critical thinking skills to understand, interpret, and assess what they hear or read in order to formulate appropriate reactions or responses. The present study intends to investigate the predictive power of critical thinking skills on critical reading and foreign language reading anxiety of Iranian intermediate EFL learners. To this end, 177 intermediate adults male Iranian EFL learners from Khatam ol-Anbia university took part in the study by completing Michigan test of English language proficiency, the California critical thinking skills test, Critical reading scale and foreign language reading anxiety scale. Using KR-21 and Cronbach's Alpha, the reliability of questionnaires was re-estimated. Data were analyzed through multiple regression analyses. The results of multiple regression indicated there was a statistically significant predictive of critical thinking skills. Additionally, Results indicates that a negative relationship between critical thinking skills and foreign language reading anxiety exists as measured by FLRAS. The quantitative findings gathered through CTS and FLRA scales suggest that when there is an increase in CTS of the students, FLRA decreases and vice versa.

Keywords: critical thinking skills, critical reading, foreign language reading anxiety, EFL learner, learning

INTRODUCTION

There are many contributing factors in the process of learning a foreign language. Some students learn a new language more quickly and easily than others. This simple fact is known by all who have themselves learned a second language or taught those who are using their second language in school. Clearly, some language learners are successful by virtue of their sheer determination, hard work and persistence. These factors can be broadly categorized as internal and external. Internal factors are those that the individual

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language learner brings with them to the particular learning situation such as: age, personality, motivation (internal), experience, cognition, and native language. External factors are those that characterize the particular language learning situation such as: curriculum, instruction, motivation (external), culture, social status, and access to native speakers (Lightbown, Pasty & Spada, 2013).

Critical Thinking Skills

Critical thinking has been one of the hottest issues since the times of ancient Greece. Over the past few decades, many definitions of critical thinking have been offered, but there is no consensus on its definition. As Mason (2007) rightly claims, many philosophers have developed theories of critical thinking. Ennis (1996) argues that critical thinking comprises particular skills such as being able to assess reasons appropriately, or to identify false arguments. Dewey (2001) views critical thinking as a method of intelligent learning that employs and rewards mind. According to Astleitner (2007), critical thinking is a higher-order thinking skill which includes evaluating arguments, and is a purposeful, self-regulatory judgment which ends in interpretation, analysis, evaluation, and inference. Paul and Elder (2007) maintain that critical thinking is the disciplined art of verifying that can be used as the best thinking a person is able to in any system of conditions.

As to the importance of critical thinking, Levine (2002) states that experience may be a great teacher, but it cannot teach us much; just some repeating experiences and happenings. We learn only when we use our creativity, and it happens when we think about our experiences more than only experiencing them. In other words, thinking is very important and has impact on every aspect of our life. In much the same vein, Weiler (2004) acknowledges that critical thinking is crucial to the learning process, cognitive development, and effective information seeking.

Paul and Elder (2002) hold that developing critical thinking is a progressive process which requires hard work, and becoming an excellent thinker is not possible by just taking a beginning course. So, the crucial characteristics of a critical thinker demand a long-lasting period of development. Furthermore, Paul and Elder (2005) give four reasons why critical thinking is becoming more and more important: "accelerating change, intensifying complexity, escalating interdependence, and increasing danger'' (p.12). Moreover, Hale (2008) states that critical thinking can penetrate every aspect of human life if it is substantively conceived and engaged. He emphasizes the importance of critical thinking in education and claims that critical thinking and education are inter-related and inseparable.

Critical Reading

Reading is a deliberate process undertaken in human communication to reduce ambiguity about connotations a given text expresses; it also includes the conciliation of open and hidden meaning between the text and its reader. Reading is a mental process for interpreting symbols (Chang, 1983). According to Anderson (2003), "reading is an active, fluent process which involves the reader and the reading material in building

meaning". Crystal (2007), likewise, points out that reading "crucially involves appreciating the sense of what is written:

We read for meaning".

Reading comprehension refers to the understanding of our conclusions after the negotiations of meaning between a text and the reader and involves the assimilation and interpretation of both existing and external schema (Rayner, Foorman, Perfetti, Pesetsky, & Seidenberg, 2001). Critical reading refers to an awareness of the fact that all texts are crafted objects, written by persons with particular dispositions or orientations to the information, regardless of how factual or neutral the products may be (Freebody & Luke, 1990). Critical reading is conceived of as active reading, requiring an activity on the part of the learner (Schwegler, 2004). As a matter of fact, critical reading suggests more than the ability to understand the explicit meaning of the passage. In addition, it involves application, analysis, evaluation and imagination. Enhanced critical reading skill has recently been called for in a variety of contexts including educational (Huijie, 2010), advertising (Pirozzi, 2003), media (Millan, 1995), among others.

Foreign language reading anxiety

Anxiety, a complicated phenomenon, is a kind of emotion. The issue of anxiety in second language (L2) learning has concerned language educators and researchers for many years. A substantial amount of research has been conducted in this area and suggests that anxiety is an important factor in second language acquisition (Na, 2007; Wei, 2007). Language learning anxiety was – until quite recently – normally associated with productive skills. Today, there is an increasing recognition of anxiety in receptive skills; that is, reading and listening. One of the relatively less-explored types of anxiety is reading anxiety – a specific phobia, a situational type and an unpleasant emotional reaction toward reading which has physical and cognitive reactions.

Of the four skills, reading can be regarded as especially important because reading is assumed to be the central means for learning new information (Grabe & Stoller, 2001). When L2 readers read second language texts, they try to decode unfamiliar scripts, writing system, and cultural materials. If encountering difficulty in processing them, they may get frustrated with reading, and experience anxiety. Freese (1997) points out that some students encounter problems when reading. They read the paragraphs in the text but are still unaware of what they have read. Saito, Horwitz, and Garza (1999) showed that reading is an important source of input; however, it is also an anxiety provoking activity.

Statement of the problem

From an educational perspective, there is a general agreement among scholars and researchers on the importance of raising students' critical awareness in schools and in the classroom. Many of them have found significant relationships between critical thinking and academic achievement (Giancarlo & Facione, 2001; Jacobs, 1995; Villavicencio, 2011; Yeh & Wu, 1992). Jacobs (1995), for example, made use of the California Critical Thinking Skills Test (CCTST) in order to examine the role of critical

thinking in private university students' scores on the Student Aptitude Test (SAT). The results indicated that CCTST scores were strongly related to students' verbal intelligence as measured by the SAT. In another study, Villavicencio (2011) studied the relationship between critical thinking and achievement among 220 engineering students. It was found that critical thinking was significantly positively correlated with students' final grades. Moreover, Yeh and Wu (1992) investigated the relationship between critical thinking and elementary and secondary school students' academic achievement. They employed the Cornell Critical Thinking Test, Level X (CCT-X) for measuring critical thinking, and found that scores from this test correlated significantly with students' total achievement scores. In a similar vein, McCutcheon et al. (1992) explored the relationship between critical thinking skills and academic achievement among 60 psychology students. The results of their study revealed that two subscales of Watson-Glaser Critical Thinking Appraisal (WGCTA), i.e. the ability to draw valid inferences and the ability to weigh and interpret evidence, were predictors of higher achievement scores.

Significance of the study

Critical thinking is an important requirement for successful academic study in the success in education (Giancarlo & Facione, 2001). Critical thinkers must engage in highly active listening and reading (Elder & Paul, 2006) to further their critical thinking skills. People can use critical thinking skills to understand, interpret, and assess what they hear or read in order to formulate appropriate reactions or responses. These skills allow people to organize the information that they hear and read, understand its context or relevance, recognize unstated assumptions, make logical connections between ideas, determine the truth values, and draw conclusions (Flemming, 2011). Conversely, engaging in focused, effective listening and reading also allows people to collect information in a way that best promotes critical thinking and, ultimately, successful communication.

Research Questions

The purpose of the present study is to answer the following research questions:

RQ1: Which subscale of critical thinking skills is a stronger predictor of EFL learners' critical reading?

RQ2: To what extent critical thinking skills can predict foreign language reading anxiety?

LITERATURE REVIEW

Critical Thinking Skills

Research on critical thinking in relation to second language learning is still in its infancy. Most of the studies done have been triggered by the claim made by some western scholars who have gone to the extreme of taking a universalist stance claiming that Asian students are deficient in critical thinking abilities. Scholars such as Fox (1994) and Atkinson (1997) consider critical thinking as a form of western cultural

thinking and hold that Asian students are not able to think critically because such thinking is a form of cultural thinking that is alien to Asians.

Critical thinking is claimed to be important in the acquisition of language skills particularly writing and reading (Elder & Paul, 2006). Rashid and Hashim (2008) aimed to investigate the relationship between critical thinking and language proficiency. They administered the Cornell Critical Thinking Test (CCTT) and English language proficiency test to 280 undergraduate students of University Utara Malaysia (UUM). The results indicated that there was a significant correlation between critical thinking ability of Malaysian students and their English language proficiency.

Kamali and Fahim (2011) investigated the relationship between critical thinking ability, resilience and reading comprehension of texts containing unknown vocabulary items. 63 intermediate EFL learners were given Honey's (2004) appraisal test, Connor and Davidson's (2003) Resilience Scale, a vocabulary checklist, and a validated battery of four reading tests.

Results showed that (a) the levels of critical thinking had a significant effect on the scores of the participants on the resilience scale, (b) the levels of critical thinking had significant effect on the participants' comprehension of texts with unfamiliar vocabulary items, and (c) the levels of resilience had significant effect on the participants' comprehension of texts with unfamiliar vocabulary items.

Critical Reading

With regard to the similarity between critical reading and critical thinking, Thistlethwaite (1990) points out that critical thinking skills frequently listed in textbooks for teaching critical thinking are similar to, or perhaps the same as those listed in reading texts described as critical reading skills (p.587). For example, critical thinking skills such as withholding judgment until confirming or disconfirming evidence is gathered, questioning, being flexible, inferring, predicting outcomes and recognizing bias are some of the skills that can also be found in critical reading textbooks (Sherbourne, 1981).

Commeyras (1990) also raises this issue. She states that "The claim that critical thinking is closely related to reading comprehension is similar to the view that reasoning is an integral part of reading. Critical thinking, which involves reasoning, is the process the reader uses to determine which interpretations are consistent with textual evidence and background knowledge" (p.201). This view is also supported by Colins, Brown and Larkin (1980).

A research project on measuring high-school students' level of critical reading skills and identifying the relationship (if any) between students' critical reading levels and critical thinking dispositions and reading frequency in both English and Turkish was done by Isik (2010). Data were gathered through two scales, namely, Critical Reading Scale and California Critical Thinking Dispositions Inventory. The results revealed a positive and direct correlation, though not significant, between the students' critical reading levels and their critical thinking dispositions. Regarding the relationship between the students'

critical reading levels and reading frequency, the findings showed no relationship between these two variables.

Elder and Paul (2006) claim that critical thinking is important in the acquisition of language skills, particularly reading. Several studies confirm that critical thinking is related to language learning in general and reading comprehension, in particular. For example, a research was conducted on the relationship between the critical thinking ability of test takers and their performance on the reading section of PBT (paper-based TOEFL). The results indicated a positive, high correlation between the two variables. The researcher finally mentioned some implications regarding MDI (Measurement-Driven Instruction) reading courses which aimed at providing learners with some handy strategies to boost their performance on high stakes language proficiency tests (Fahim, Bagherkazemi & Alemi, 2010).

Similarly, Boloori (2010) conducted a study to evaluate the predictive power of critical thinking of Iranian English language learners on their performance on inferential reading comprehension tests. She found a significant correlation between critical thinking and inferential reading comprehension. In another study, Kamali and Fahim (2011) reported a significant relationship between critical thinking and reading abilities of learners. According to them, critical thinking is a strong predictor of learners' achievement. Fahim and Saeepour (2011) investigated the impact of teaching critical thinking skills on reading comprehension of Iranian EFL learners. Using debate in the classroom as a kind of critical thinking activity, the researchers administered a validated reading comprehension test and a standard critical thinking appraisal test to the participants. The results showed that teaching critical thinking skills could enhance readers' reading comprehension ability. The reverse order is also true; Gomez (2010) reported that students who received structured reading lessons had better performance on critical thinking skills test in comparison with those who received traditional reading instruction.

But Aleger (1993), in his study on the effects of thinking skills on students' reading comprehension, found that all students experienced significant gains in reading comprehension, but no statistical differences were found between experimental and control groups.

Foreign Language Reading Anxiety

In one of the pioneering studies on FLRA, Saito, Garza, and Horwitz (1999) investigated FLRA among learners of Japanese, French and Russian. To explore this construct, Saito et al. (1999) used the Foreign Language Classroom Anxiety Scale (FLCAS), measuring language anxiety related to various aspects of foreign language learning, and Foreign Language Reading Anxiety Scale (FLRAS), eliciting reading anxiety, to examine native English speakers of 192 French, 114 Japanese, and 77 Russian learners. In their study, two aspects of foreign language reading were investigated which had great effect on eliciting anxiety: unfamiliar scripts of writing systems and unfamiliar cultural materials (p. 203). They found that despite the intuition of teachers, reading in a foreign language is anxiety provoking for some students.

Moreover, Saito et al. (1999) concluded that FLRA was a phenomenon related to, but distinct from, general FL anxiety. They pointed out that reading was anxiety provoking to some foreign language learners although participants in general reported slightly less reading anxiety than general foreign language anxiety. It was also found that increasing students' reading anxiety levels leads to the decrease of students' final grades.

In a study, Lien (2011) attempted to investigate EFL learners' reading strategy use in relation to reading anxiety. One hundred and eight EFL freshmen participated in this study and three instruments were administered to them: a questionnaire to investigate the background and reading habits of the participants, the Foreign Language Reading Anxiety Scale to investigate the participants' reading anxiety, and the Survey of Reading Strategies to investigate the participants' extensive reading strategies use. A negative correlation was found between reading anxiety and reading strategies.

Regarding the correlation between anxiety and critical thinking, it is inferred that anxiety leads the individual to mental disruption and prevents him or her from high level thinking; therefore, it can disrupt critical thinking (Broadbear, 2005). In a similar study, Fahim (2014) found a significant negative correlation between foreign language anxiety and critical thinking.

METHOD

Participants

To meet the purpose of this study, 260 volunteer learners took part in the study aging 18-22. They were studying English at Khatam ol-Anbia University in Tehran, Iran. The mother tongue of the participants was Farsi, and they were at intermediate proficiency level according their scores obtained from proficiency test. The Michigan Test of English Language Proficiency (MTELP) was administered to homogenize the participants in terms of their level of proficiency. After the administration of the MTELP, 83 of the learners were excluded due to extreme scores. Ultimately, with regard to the results of the proficiency test, 177 out of 260 were selected.

Instruments

The following four instruments were used for the purpose of this study:

I. Michigan Test of English Language Proficiency (MTELP):

In order to obtain a homogeneous group, the MTELP as a general proficiency test was administered for controlling the learners in terms of their language proficiency level prior to the experiment. The 100–item multiple-choice test has three parts, containing 40 grammar items, 40 vocabulary items, and reading passages followed by 20 comprehension questions.

- *California Critical Thinking Skills Test (CCTST-B-34)*:

An English version of the CCTST-Form B was used to determine the participants' critical thinking skills. This test contains 34 multiple choice items with only one true answer. Each item is followed by four or five alternatives with 5 subscales checking

respondents' analysis, evaluation, inference, deductive reasoning, and inductive reasoning (Erwin,2000). Six types of scores are obtained from the CCTST: an overall score, and five sub-scales scores (analysis, evaluation, inference, deductive reasoning, and inductive reasoning), and the highest score is 34. It should be stated that for answering these questions, participants do not need to possess knowledge in a specific area.

The test developers believe that the CCTST has been designed on some general knowledge, developing gradually in the process of natural maturation. The test items cover different topics, with most questions combining content with reasoning. CCTST is a standard test which is being extensively used in most studies in the fields of Education and Psychology. According to the questionnaire manual, participants should complete the test in 45 minutes.

Many studies have used California Critical Thinking Skills Test, and its reliability and validity have been checked several times. Facione and Facione (1994) estimated the reliability of the test and found it acceptable (α= .70-.71). There have been a number of other studies in the Iranian context which have approved the reliability of CCTST at a considerably positive level (Khalili & Hossein Zadeh, 2003; Babamohammady & Khalili, 2004). Khalili.et al. (2003) reported that the reliability index of the scale was 0.62, and the construct validity of all subscales was between 0.60-0.65 with highly positive correlation. In this study, Cronbach's alpha coefficients turned to be 0.81.

- *Critical Reading Scale (CRS)*:

Zhou, Jiang and Yao (2015) designed the questionnaire on the basis of Facione's List of Core Six CT Skills (1991). The questionnaire on CT Ability in English Reading is composed of the following two main parts, concerning the participants' personal background information (gender, major, grade) and their CT abilities.

The second part has a Likert-type scale (5=agree; 4=basically agree; 3=hard to say; 2=not quite agree; 1=disagree) and allows students to describe their routine reading behavior.

- *Foreign Language Reading Anxiety Scale (FLRAS)*:

It was developed by Saito et al. (1999) to "elicit students' self-reports of anxiety over various aspects of reading, their perceptions of reading in their target language, and their perceptions of the relative difficulty of reading as compared to other language skills" (p. 204). The scale is a self-report with 20 Likert-type items scored on a 5-point scale, ranging from strongly disagrees to strongly agree. The possible range of scores in the FLRAS is from 20 to 100, and the lower scores in the FLRAS indicate lower levels of reading anxiety.

No pilot study of FLRAS was made because reading anxiety has shown high internal reliability and high validity across studies (Wang, 2010). Saito.et al. (1999) reported an alpha coefficient of .86 for internal consistency in the FLRAS. The reliability of reading

anxiety questionnaire was re-estimated in the context of this study, and the alpha coefficient turned out to be .93.

Data Collection Procedure and Analysis

From a total of 260 learners, approximately 66% of the total number of learners was selected to participate in the study. 83 participants were excluded from the study because of high or low levels of proficiency measured through the Michigan Test.

To achieve the purpose of the study, the following procedure was followed. At the first stage, the participants were explained about the study procedure. Next, the MTELP was given to the participants in order to homogenize the participants. They had 45 minutes to complete this test. Only the intermediate students were remained in the research and students with extreme scores were removed. Then, the critical reading and critical listening scales were administered. In the next stage, the reading anxiety scale and listening anxiety scale were given to the same participants in their original version. In all stages, if the participants have questions, the researcher answered them. The obtained data were submitted to statistical analysis.

FINDINGS

Ensuring the Reliability of the Research Instruments

Tables 1 and 2 show the descriptive statistics of Michigan test and California Critical Thinking Skills Scale.

Table 1
Descriptive Statistics of Michigan Test of English Language Proficiency

N	Mean	Std. deviation	Variance	Minimum	Maximum
177	60.47	7.39	82.56	43	82

Table 2
Descriptive Statistics of California Critical Thinking Skills Scale

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Analysis	177	1	10	1102	5.011	2.485
Evaluation	177	1	15	1387	6.928	3.298
Inference	177	0	10	1199	5.867	2.488
Deduction	177	2	17	1490	7.493	3.471
Induction	177	2	11	1577	8.045	2.402
Valid N (list wise)	177					

In order to compute the reliability of instruments several procedures were used. As Table 3 shows, KR-21 was used for calculating the reliability of MTELP, and Cronbach's Alpha was used for Critical Thinking Skills Test, Critical Reading Questionnaire, and Foreign Reading Anxiety Questionnaire.

Table 3
Reliability Statistics of Reading Anxiety Questionnaire

Instrument	Statistical Procedure	Result
Michigan Test of English Language Proficiency (MTELP)	KR-21	.937
California Critical Thinking Skills Test (CCTST)	Chronbach's Alpha	.813
Critical Reading Questionnaire	Chronbach's Alpha	.911
Foreign Reading Anxiety Questionnaire	Chronbach's Alpha	.933

The First Research Question

In the first research question, the researchers sought to explore which subscale of critical thinking skills was a stronger predictor of EFL learners' critical reading. According to the results of the model summary (Table 4), analysis shared about 5%, analysis and evaluation 15%, analysis, evaluation and inference 17%, analysis, evaluation, inference, and deduction 22%, and analysis, evaluation, inference, deduction, and induction collectively account for about 23% of the variance with critical reading.

Table 4
Results of the Model Summary

Model	R	R Square	Adjusted R Square
1	.249a	.060	.054
2	.398b	.162	.153
3	.463c	.211	.179
4	.502d	.235	.221
5	.499e	.271	.239

a. Predictors: (Constant), Analysis
b. Predictors: (Constant), Analysis, Evaluation
c. Predictors: (Constant), Analysis, Evaluation, Inference
d. Predictors: (Constant), Analysis, Evaluation, Inference, Deduction
e. Predictors: (Constant), Analysis, Evaluation, Inference, Deduction, Induction

Table 5 gives the results of the ANOVA performed on the models. The F-value and significance levels indicate that all the five models are statistically significant. The results show that the predictive power of the models is significant.

Table.5
Results of ANOVAa Performed on the Models

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7382.394	1	4075.232	12.276	.001b
	Residual	60798.321	175	312.144		
	Total	68180.715	176			
2	Regression	12398.283	2	5580.171	18.113	.000c
	Residual	55782.432	174	312.382		
	Total	68180.715	176			
3	Regression	13589.355	3	4822.211	16.967	.000d
	Residual	54591.360	173	280.419		
	Total	68180.715	176			
4	Regression	17216.688	4	4064.916	14.456	.000e
	Residual	50964.047	172	257.284		
	Total	68180.715	176			
5	Regression	16944.594	5	3427.747	14.635	.000f
	Residual	51236.121	171	268.464		
	Total	68180.715	176			

a. Dependent Variable: CR
b. Predictors: (Constant), Analysis
c. Predictors: (Constant), Analysis, Evaluation
d. Predictors: (Constant), Analysis, Evaluation, Inference
e. Predictors: (Constant), Analysis, Evaluation, Inference, Deduction
f. Predictors: (Constant), Analysis, Evaluation, Inference, Deduction, Induction

To see how much of the variance in critical reading is accounted for by each of the five predictors, the standard coefficients and the significance of the observed t-value for each predictor was checked. Table 6 shows that for every one standard deviation (SD) of change in one's analysis, there will be about .23 of a SD change in ones' critical reading. In model two, when analysis and evaluation are taken together, for every one standard deviation of change in one's analysis and evaluation, there will be .18 and .33 of a standard deviation change in one's critical reading, respectively. In model three, when analysis, evaluation, and inference are taken together, for every one SD change in one's analysis, evaluation, and inference, there will be .17, .30, and .23 of a SD change in one's critical reading, respectively. In model four, when analysis, evaluation, inference, and deduction are taken together, for every one SD change in one's analysis, evaluation, inference, and deduction, there will be .13, .31, .20, and .15 of a SD change in one's critical reading, respectively. In model five, when analysis, evaluation, inference, deduction, and induction are taken together, for every one SD change in one's analysis, evaluation, inference, deduction, and induction, there will be .6, .29, .22, .16, and .22 of a SD change in one's critical reading, respectively. The relationship between these variables and critical reading is positive. This means that as one's subscales of critical thinking skills improve; his/her critical reading also increases. But in the cases that the Beta value is greater than .05 (analysis in model four, analysis and deduction in model five), they are not statistically significant.

Table 6
Standard Coefficients and the Significance of the Observed T-Value

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	49.926	2.819		19.418	.000
	Analysis	.161	.045	.240	3.512	.001
2	(Constant)	41.734	3.380		11.337	.000
	Analysis	.127	.044	.179	2.433	.009
	Evaluation	.231	.051	.325	4.872	.000
3	(Constant)	34.423	4.085	.182	8.157	.000
	Analysis	.107	.043	.311	2.402	.017
	Evaluation	.248	.050	.235	4.901	.000
	Inference	.197	.051		3.431	.001
4	(Constant)	30.546	4.662		6.796	.000
	Analysis	.444	.064	.132	1.761	.080
	Evaluation	.235	.060	.313	4.534	.000
	Inference	.177	.052	.206	3.282	. 001
	Deduction	.147	.054	.158	2.352	.020
5	(Constant)	21.549	5.002		4.545	.000
	Analysis	.041	.042	.065	.672	.502
	Evaluation	.210	.051	.291	4.515	.000
	Inference	.186	.051	.226	3.089	.002
	Deduction	.167	.060	.164	1.842	.067
	Induction	.201	.071	.224	2.771	.006

The Second Research Question

The aim of the second research question was to investigate to what extent critical thinking skills can predict foreign language reading anxiety. Model summary (Table 7) shows that analysis shared about 8%, analysis and evaluation for 13%, analysis, evaluation and inference 14%, analysis, evaluation, inference, and deduction 27%, and analysis, evaluation, inference, deduction, and induction collectively account for about 33% of the variance with foreign language reading anxiety.

Table 7
Model Summary of Critical Thinking Skills

Model	R	R Square	Adjusted R Square
1	.291a	.081	.089
2	.345b	.136	.133
3	.403c	.149	.140
4	.542d	.281	.275
5	.584e	.319	.332

Table 8 gives the results of the ANOVA performed on the models. The F-value and significance levels indicate that all the five models are statistically significant. The results show that the predictive power of all the models is significant.

Table 8
Results of ANOVAa Performed on the Models

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6819.376	1	5627.375	16.772	.000b
	Residual	73339.835	175	380.603		
	Total	80159.211	176			
2	Regression	8896.487	2	4647.265	13.438	.000c
	Residual	71262.724	174	336.464		
	Total	80159.211	176			
3	Regression	12133.766	3	3946.321	12.754	.000d
	Residual	68025.445	173	332.973		
	Total	80159.211	176			
4	Regression	24224.368	4	4977.198	19.456	.000e
	Residual	55934.843	172	288.856		
	Total	80159.211	176			
5	Regression	20043.878	5	5312.234	20.533	.000f
	Residual	54115.333	171	263.653		
	Total	80159.211	176			

a. Dependent Variable: Foreign Language Reading Anxiety
b. Predictors: (Constant), Analysis
c. Predictors: (Constant), Analysis, Evaluation
d. Predictors: (Constant), Analysis, Evaluation, Inference
e. Predictors: (Constant), Analysis, Evaluation, Inference, Deduction
f. Predictors: (Constant), Analysis, Evaluation, Inference, Deduction, Induction

To see how much of the variance in foreign language reading anxiety is accounted for by each of the five predictors, the standard coefficients and the significance of the observed t-value for each predictor was checked. Table 9 shows that for every one standard deviation (SD) of change in one's analysis, there will be about .26 of a SD change in ones' FLRA. In model two, when analysis and evaluation are taken together, for every one standard deviation of change in one's analysis and evaluation, there will be .25 and .21 of a standard deviation change in one's FLRA, respectively. In model three, when analysis, evaluation, and inference are taken together, for every one SD change in one's analysis, evaluation, and inference, there will be .22, .20, and .23 of a SD change in one's FLRA, respectively. In model four, when analysis, evaluation, inference, and deduction are taken together, for every one SD change in one's analysis, evaluation, inference, and deduction, there will be .12, .16, .19, and .35 of a SD change in one's FLRA, respectively. In model five, when analysis, evaluation, inference, deduction, and induction are taken together, for every one SD change in one's analysis, evaluation, inference, deduction, and induction, there will be .03, .15, .16, .30, and .22 of a SD change in one's FLRA, respectively. The relationship between these variables and FLRA is negative.

This means that as one's subscales of critical thinking skills improve, his/her reading anxiety decreases. But in the cases that the Beta value is greater than .05 (analysis in model four, analysis in model five), they are not statistically significant.

Table 9
Standard Coefficients and the Significance of the Observed T-Value for Each Predictor

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	70.566	3.234		25.649	.000
	Analysis	-.234	.054	-.269	-3.545	.000
2	(Constant)	79.415	3.644		20.850	.000
	Analysis	-.156	.038	-.254	-3.474	.001
	Evaluation	-.157	.067	-.215	-2.124	.004
3	(Constant)	85.720	4.658		18.454	.000
	Analysis	-.151	.086	-.224	-3.677	.002
	Evaluation	-.153	.046	-.201	-2.754	.007
	Inference	-.177	.043	-.238	-3.466	.002
4	(Constant)	94.433	4.544		20.754	.000
	Analysis	-.053	.065	-.126	-1.653	.071
	Evaluation	-.140	.072	-.161	-2.433	.022
	Inference	-.144	.033	-.196	-2.654	.004
	Deduction	-.346	.064	-.354	-5.367	.000
5	(Constant)	102.432	5.164		20.754	.000
	Analysis	-.024	.057	-.034	-.432	.664
	Evaluation	-.233	.053	-.154	-2.356	.025
	Inference	-.143	.042	-.162	-2.575	.009
	Deduction	-.345	.050	-.302	-5.456	.000
	Induction	-.253	.042	-.223	-3.644	.000

DISCUSSION

Based on the findings of this study, all the five subscales of critical thinking skills were predictors of critical reading and foreign language reading anxiety. Based on these results, it can be concluded that if we want to enhance EFL learners' critical reading level or decrease their anxiety, their critical thinking skills should be improved. It was revealed that evaluation had the most significant (positive) contribution to the prediction of critical reading. In the same way, deduction and induction had the most significant (negative) contribution to reading anxiety.

As the first finding of this study showed, critical thinking skills can predict critical reading. This result is in line with some previous studies. For example, Elder and Paul (2006) claimed critical thinking is important in the learning of reading skills. Boloori (2010) found a significant correlation between critical thinking and reading comprehension. Fahim, Bagherkazemi, and Alemi (2010) also concluded that test takers with higher critical thinking abilities showed better performance on the reading comprehension section of TOEFL. Isik (2010) showed a direct positive correlation between the students' critical reading levels and their critical thinking dispositions. Kamali and Fahim (2011) reported levels of critical thinking had a significant effect on the participants' comprehension of texts. Similarly, Fahim and Saeepour (2011) showed that teaching critical thinking skills could enhance readers' reading comprehension ability.

Based on the relationship between CTS and CR, Thistlethwaite (1990) and Sherbourne (1981) point out that critical thinking skills are similar to, or perhaps the same as, critical reading skills (p. 587). Commeyras (1990) and Colins, Brown, and Larkin (1980) are of similar opinion. They state that critical thinking is closely related to reading comprehension and that reasoning is an integral part of reading.

However, these findings do not corroborate those of Aleger (1993), who found that all students experienced significant gains in reading comprehension; no statistical differences were found to exist between experimental and control groups.

Furthermore, the findings of the present study about the predictive power of CTS and FLRA lend support to those of Hsu (2004) and Lien (2011). Hsu (2004) explored reading anxiety and reading comprehension of college EFL students and found that anxious students tended to recall less content than less anxious students.

Regarding the meaningful correlation between anxiety and critical thinking, Broadbear (2005) asserted that anxiety leads the individual to mental disruption and prevents him or her from high level thinking; therefore, it can disrupt critical thinking. Barkhordari, et al. (2011) also supported the negative correlation between gravitation to critical thinking and anxiety.

CONCLUSION

Based on the findings of two research questions in this study, all the five subscales of critical thinking skills were good predictors of critical reading, and foreign language reading anxiety. Therefore, teachers and learners should consider all skills comprehensively and do not exclude or insist in each skill. Critical thinking skills are complex, and it is crucial that they be introduced in the first years of education and further refined over the course of the program. "Critical thinking is more than the successful use of the right skill in an appropriate context. It is also an attitude or disposition to recognize when a skill is needed and the willingness to exert the mental effort needed to apply it" (Halpern, 2000, p. 72).

The teaching of critical thinking is a complex endeavor even in normal circumstances. If teaching critical thinking remains a course goal, multiple opportunities to practice each skill should be included to increase the probability of a significant improvement in all skills. This may mean reducing the number of faculty involved and spending more time on each issue covered.

IMPLICATIONS

The findings of this study might be useful for EFL teachers and learners, material developers, and syllabus designers. Once teachers grasp the concept and value of critical thinking skills development in their classrooms, they will begin to see opportunities all around them for encouraging their students in this area. Most experienced teachers recognize that the more you know about the backgrounds and interests of your students, the more appropriate and engaging your classes will become. This element is even more significant for classes with a focus on critical thinking. Although it is true that an experienced teacher can create a critical thinking atmosphere

in almost any lesson, it is not true that students will respond to various lessons or topics equally well. Consider as an example a grammatical unit on the use of the future tense. A teacher wishing to help promote critical thought in their class might ask a series of discussion questions on the ethical issues surrounding future increases in life expectancy. This lesson could be highly successful if it is appropriate to the students' age level, background knowledge, and language proficiency. More appropriate questions could certainly be found for an ESP Engineering class or for a group of 12-13 year-old boys and girls. The point is that tailoring lessons specifically to the interests of your students can go quite far in encouraging student engagement, an element that is essential to the development of critical thinking (Halvorsen, 2005).

Meanwhile, the findings of the present study may have implications for learners. Learners should be given more opportunities to develop their critical thinking in the process of language learning. For promoting critical reading, using tasks as a way to make readers engaged, care should be taken to consider these tasks as "uniquely situated, emergent interactions based on participants' goals and not merely task objectives and invariant task procedures" (Lantolf, 2000, p. 44). The use of critical thinking would assist EFL learners to work better in learning a foreign language. In order to perform properly in society, and develop independent learning, individuals must be able to think critically and reason effectively.

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