

A Comparative Study of Critical Thinking Skills of EFL Learners and Humanities Students

Moloud Mohammadi

Department of English Language, Science and Research Branch, Islamic Azad University, Tehran, Iran

Ghafour Rezaie Golandouz*

Department of English, Garmsar Branch, Islamic Azad University, Garmsar, Iran

Abstract

Managing the unprecedented challenges of information age requires self-sufficient individuals with basic critical thinking abilities whose meta-cognitive knowledge is to be enhanced through educational modules. Critical thinking is known as a cognitive activity for the aim of perception and evaluation of findings, as well as phenomena on the basis of skills, such as reasoning and analysis. This is a comparative study to determine level of critical thinking skills of EFL learners and compare them to the skills of humanities students. To this end, California Critical Thinking Skills Test- Form B was used as the instrument to obtain the required data from 235 EFL and Humanities students of B.A., within the age range of 20-28, randomly selected from Islamic Azad University. The CCTST-Form B comprises 34 multiple-choice questions with one correct answer in five aspects of cognitive skills of critical thinking. The data was coded and transferred into SPSS software. The results of the study showed that EFL students were not different in terms of their critical thinking skills based on grade and gender, while gender in Humanities students was associated with different skills; and Humanities students reported lower level of critical thinking skill when compared with EFL students.

Keywords: thinking; higher order thinking; critical thinking skills; EFL learners; humanities students

INTRODUCTION

In the information era, being able to think, especially in a different way from other typical ways, will make people successful in life. The term critical thinking emanates from the mid-late 20th century, with several definitions of critical thinking as there are researchers on the subject. It must be said that Dewey (1933) introduced learning to think as the main purpose of education, and also focused on the development of applying critical thinking skills in education (cited in Barjesteh and Vaseghi, 2012). Thinking is equivalent to being human, and is generally known as a purposeful mental activity, its background, its subcategories, and its implications have been defined in

many different ways. Ruggiero (2011) states that thinking comprised two main processes of creative thinking (production of ideas through spreading one's focus) and critical thinking (evaluation of ideas through narrowing one's focus, recognizing main ideas, and classifying ideas), and that long-term endeavor is necessary for developing skills of thinking critically, specifically in second language. It must be said that in those educational systems, students are only assessed according to their grades in final exams.

Several forms of thinking have been recognized of which, six different thinking skills were singled out by the department of labor and reported by Kane, Berryman, Goslin, and Meltzer (1990) as: creative thinking, decision making, and problem solving, and seeing objects in the mind's eye, reasoning, and knowing how to learn. Critical thinking is rooted in various academic disciplines and categorized in three different approaches of philosophy, psychology and education (Fahim and Shakouri Masouleh, 2012). The philosophical approach of critical thinking has focused on an ideal person who is still following the traditional views of critical thinking, and defined his characteristics (Lewis & Smith, 1993). The difference between cognitive psychological approach and philosophical approach is that, first one tends to focus on how people actually think and finally, one defines critical thinking by introducing types of actions or behaviors critical thinkers can carry out (Lewis & Smith, 1993). Lewis and Smith (1993) clarified that this approach considers all the necessary skills that a critical thinker can execute. While Willingham (2007) claimed that "seeing both sides of an issue, being open to new evidence that disconfirms your ideas, reasoning dispassionately, demands that claims be backed by evidence, deducing and inferring conclusions from available facts, solving problems, and so forth" (p. 8). The third approach to critical thinking focuses on the field of education, and the most famous model of this approach is the Bloom's taxonomy of thinking (1956), which was republished by Munzenmaier and Rubin (2013), and is usually used in situations that teachers focus on information processing skills or higher-order thinking skills (which is also known as critical thinking). The Bloom's taxonomy (1956) comprised diverse levels such as knowledge, comprehension, application, analysis, synthesis, and evaluation and the new version of Bloom's taxonomy model is composed of remembering, understanding, applying, analyzing, evaluating and creating.

Some of the definitions of critical thinking in the first domain are: "Reflective and reasonable thinking that is focused on deciding what to believe or do" (Ennis, 1985, p. 45). It also involves "Skillful, responsible thinking that facilitates good judgment because it; 1. relies upon criteria, 2. is self-correcting, and 3. is sensitive to context" (Lipman, 1988, p. 39). It also includes "The propensity and skill to engage in an activity with reflective skepticism" (McPeck, 1990, p. 8); "purposeful, self-regulatory judgment which leads to interpretation, analysis, evaluation, and inference, as well as explaining the evidential, conceptual, methodological, criteriological, or conceptual considerations, upon which judgment is based" (Facione, 1990, p. 3). It involves "Disciplined, self-directed thinking that exemplifies the perfections of thinking, appropriate to a particular mode or domain of thought" (Paul, 1992, p. 9); and thinking which is "aimed at forming a judgment," (Bailin, Case, Coombs, & Daniels, 1999, p. 287). The definitions

provided for critical thinking in second scope are as follows: “the mental processes, strategies, and the representation of people used in solving problems, make decisions, and learning new concepts” (Sternberg, 1986, p. 3). It also involves “the use of those cognitive skills or strategies that increase the probability of a desirable outcome” (Halpern, 1998, p. 450). Moreover, it also involves “seeing both sides of an issue, being open to new evidence that disconfirms your ideas, reasoning dispassionately, demands that claims be backed by evidence, deducing and inferring conclusions from available facts, solving problems, and so forth” (Willingham, 2007, p. 8). Explaining the importance of mastering the abovementioned skills, Jackson and Newberry (2012) also claimed that college students are expected to be proficient in applying both lower-level skills (knowledge and comprehension) and higher-level skills (application, analysis, synthesis, and evaluation) in every aspect of life.

Going back to the notion of critical thinking, Watson and Glaser (1980) defined it as “a bundle of skills, knowledge, and attitudes which enables the individuals in making inferences, deductions, interpretations, recognizing the assumptions, as well as evaluating the arguments” (p. 134). Rudd, Baker, and Hoover (2000) defined critical thinking as “a reasoned, purposive, and introspective approach for solving problems of addressing questions with incomplete evidence and information, for which an incontrovertible solution is unlikely” (p. 5). It was also defined by Rudinow and Barry (2004) as a collection of perceptual tools, each of which was defined with several logical activities and techniques. These tools are used in finding the logic behind issues, making decisions, defining relations, recognizing priorities, etc.

Costa and Kallick (2008) introduced critical thinking skills as the most important skill of the 21st century, which are used to determine the capability of thinking, in understanding the logical connections among issues, theories, and ideas, to perceive the importance and priorities of ideas, to evaluate possible arguments, and to propose solutions.

Moreover, several debates have been carried out in order to propose an exact definition for the term critical thinking, its domain and skills. It is worthy of note that in several studies, scholars such as Halpern (1998) used terms of critical thinking and higher order thinking interchangeably, while, some other scholars such as Facione (1990) preferred to make a clear distinction between these two terms. Facione (1990) also defined characteristics of a critical thinker as a person who is “habitually inquisitive, well informed, trustful of reason, open minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider” and insistent in searching results (p.1). Mason (2008) considered critical thinking as the capability to utilize different types of information derived from different sources, to process the gathered information in a responsive, creative and logical way, to challenge the probable solutions, to analyze them culturally and historically, and to offer conclusions which can be defended and justified. Core elements of critical thinking skills and process are defined in many ways among which is Facione’s (1990) model, which contains five skills of:

- Analysis: recognizing the implied inferential connections among declarations and predications, questions, proposals, and purports etc.
- Evaluation: evaluating the credibility of declarations or other statements, which are prepared to describe individual's perception, condition, experience, adjudication, credence, or idea; and to appraise the rational strength of the particular relationships among declarations, explanation or other types of delineation.
- Inferences: recognizing and retaining components in order to provide sensible conclusions; to define hypotheses; to recognize linked information, and to avoid falling apart from the information provided, declarations, rules, judgments, ideas, notions, questions, or other types of delineation.
- Explanation: specifying the results of reasoning and thinking; defining those reasoning and thinking as evidential, perceptual, systematic, and criteriological contemplations, based on which individuals conclude. This skill is known as inductive reasoning.
- Self-regulation: Facione (1990, p.10) defined this skill as "self-consciously to monitor one's cognitive activities, the elements used in those activities, and the results educed, particularly by applying skills in analysis, and evaluation of one's own inferential judgments with a view toward questioning, confirming, validating, or correcting either one's reasoning or one's results". This skill is also known as deductive reasoning.

According to Schafersman (1991), critical thinking is an important and vital subject in modern education. All instructors are interested in teaching students the skills of critical thinking. Paul and Elder (2002) also defined it as the disciplined art of ensuring whether you are using the best thinking you are capable of in any set of occasions. Another definition of critical thinking which is proposed by McPeck (1990) is that, critical thinking is the "skill and propensity to engage in an activity with reflective skepticism" (p.7). Siegle (1980) provides three reasons that make critical thinking an educational ideal; critical thinking inspires instructors to respect students' rights to question and challenge instructions, prepares students for sufficiency as adults, and introduces rational traditions of science, art, mathematics, history and literature. Two main concepts of critical thinking, namely critical thinking skills and critical thinking dispositions, were the subject of many studies, and were defined in the early 21st century by Facione, Giancarlo, Facione, and Gainen (1995). They reported that critical thinking skills consist of analysis, interpretation, self-regulation, inference, explanation and evaluation and dispositions containing truth seeking, open-mindedness, analyticity, being structured, self-confidence, and cognitive maturity.

Based on the objectives of the current study, EFL learners, humanities students, teachers, lesson planners, material developers, and managers are the main groups of benefactors. Learners will be able to progress their skills of critical thinking when faced with materials of various types. Teachers are individuals who stimulate learners, utilize skills in courses (specifically critical thinking skills), and use different teaching techniques, so as to provide an effective learning environment. It is worthy of note that

human beings are not born with the ability to think critically, and, as Mendelman (2007) claims, critical thinking should be taught to learners in almost every course.

Providing proper activities and lesson plans for different groups of students, will result in gaining successes in the process of learning and, apparently, in meeting individual requirements which will impact learners' manner of thinking. Effectively, the objectives of this study are classified as follows: To describe critical thinking skills of Iranian EFL and humanities students based on their grades and gender, and to compare these two groups. Considering the abovementioned points, all efforts were made to answer the following research questions:

1. Do critical thinking skills of Iranian EFL students differ in terms of their grades?
2. Do critical thinking skills of Iranian EFL students differ in terms of their gender?
3. Do critical thinking skills of Iranian humanities students differ in terms of their grades?
4. Do critical thinking skills of Iranian humanities students differ in terms of gender?
5. Is there any statistically significant difference between Iranian humanities students and EFL students in terms of their critical thinking skills?

METHODOLOGY

Participants

The participants of the current study were 126 B.A. students of English (99 females and 18 males) and 129 B.A. students of humanities (91 females and 27 males), within the age range of 20 to 28, among which 117 students of EFL and 118 students of humanities responded completely. All the participants had passed at least 4 semesters and were randomly selected from the Islamic Azad University (including Central Tehran Branch, North Tehran Branch, South Tehran Branch, Islam-Shahr Branch, Shahr-e-Rey Branch, and Roudehen Branch) and Kharazmi University.

Instrumentation and procedure

The CCTST-B which was primarily designed by Facione (1990) consists of 34 multiple choice items with one correct answer designed to assess five different areas of evaluation, analysis, inference, inductive reasoning, and deductive reasoning. Generally, there were 6 scores for each participant that make up the total critical thinking skill and 5 scores for each sub-skill. Participants were asked to answer questions in 45 min. It was repeatedly discussed by various researchers that the questions of the CCTST are reliable as a research tool and correlated with test theoretical structure, in which all subscales measured a single construct (Critical thinking). In addition, the CCTST is developed to distinguish between the persons with different levels of critical thinking skill (as reported in Khalili & Soleimani, 2003; Williams, Glasnapp, Tilliss, Osborn, Wilkins, Mitchell, Kershbaum, & Schmidt, 2003). Reliability of Persian version was also calculated and reported by Dehghani, Jafari Sani, Pakmehr and Malekzadeh (2011) to be 78%. Khalili and Hosseinzadeh (2003) reported the confidence coefficient as 62%. They

also reported the content validity and construct validity which were estimated and addressed to be positively high between 0.61-0.74.

RESULTS

In order to test the normality of data, the Kolmogorov-Smirnov test was run on critical thinking data which indicated that independent variables of the study were significantly deviant from normal ($p < .05$); so, non-parametric statistics was used to test the hypotheses of this study. Each research question was examined as follows.

Question 1: In order to answer this question, the data on each individual critical thinking subscale and total score were divided based on the two levels of the independent variable (i.e. grades). To compare the EFL third and fourth graders, Mann-Whitney U test as a non-parametric test (as opposed to independent samples t test) was used for each critical thinking subscale and total score since the data was found to be non-normal.

Table 1: Descriptive Statistics (question 1)

Grade	N	Mean	SD	Skewness		Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error	
3.00	Evaluation	47	4.234	1.683	.441	.347	1.055	.681
	Analysis	47	2.085	1.585	1.153	.347	2.225	.681
	Inference	47	3.957	1.366	.080	.347	-.376	.681
	Deductive	47	5.127	2.038	-.277	.347	-.440	.681
	Inductive	47	3.893	1.591	.182	.347	-.135	.681
	Total	47	9.978	2.427	.169	.347	.514	.681
	Valid N (listwise)	47						
4.00	Evaluation	70	4.528	1.683	-.192	.287	-.157	.566
	Analysis	70	2.114	1.518	.824	.287	.253	.566
	Inference	70	3.500	1.767	.219	.287	-.225	.566
	Deductive	70	5.042	2.046	.097	.287	-.299	.566
	Inductive	70	3.985	1.527	.075	.287	-.016	.566
	Total	70	9.871	2.958	.150	.287	-.225	.566
	Valid N (listwise)	70						

The Mann-Whitney U test results for each critical thinking subscale and total score compared across the grades are given in Table 2. Evidently, third and fourth graders are not significantly different from each other in terms of each critical thinking subscale and total score ($p > 0.05$). In other words, the null hypothesis to this question is accepted.

Table 2: Mann-Whitney U tests results (question 1)

	Evaluation	Analysis	Inference	Deductive	Inductive	Total
Mann-Whitney U	1447.00	1635.50	1367.00	1573.50	1598.50	1576.00
Sig. (2-tailed)	.261	.957	.114	.688	.792	.699

a. Grouping Variable: grade

Question 2: To find the answer to this question, the data on each individual critical thinking subscale and total score were divided based on the two levels of the

independent variable (i.e. gender). The descriptive statistics of the data are given in Table 3.

Table 3: Descriptive Statistics (question 2)

gender	N	Mean	SD	Skewness		Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error	
Male	Evaluation	18	4.555	1.247	1.188	.536	2.204	1.038
	Analysis	18	1.666	1.495	.409	.536	-1.297	1.038
	Inference	18	3.388	1.419	-.094	.536	-1.638	1.038
	Deductive	18	4.444	1.688	.438	.536	-.420	1.038
	Inductive	18	4.444	1.247	1.268	.536	2.758	1.038
	total	18	9.333	2.196	.271	.536	-1.295	1.038
	Valid N (listwise)	18						
Female	Evaluation	99	4.383	1.753	.018	.243	-.056	.481
	Analysis	99	2.181	1.541	1.054	.243	1.231	.481
	Inference	99	3.737	1.663	.076	.243	-.124	.481
	Deductive	99	5.191	2.078	-.150	.243	-.345	.481
	Inductive	99	3.858	1.584	.096	.243	-.389	.481
	total	99	10.020	2.831	.089	.243	.019	.481
	Valid N (listwise)	99						

The Mann-Whitney U test results for each critical thinking subscale and total score compared across the genders are presented in Table 4. Evidently, males and females are not significantly different from each other in terms of each critical thinking subscale and total score ($p > 0.05$). In other words, the null hypothesis to this question is accepted.

Table 4: Mann-Whitney U tests results (question 2)

	Evaluation	Analysis	Inference	Deductive	Inductive	Total
Mann-Whitney U	843.500	725.500	781.000	681.500	695.500	759.000
Sig. (2-tailed)	.714	.200	.396	.109	.131	.315

a. Grouping Variable: gender

Question 3: In order to investigate the third research question, the data on each individual critical thinking subscale and total score were divided based on the two levels of the independent variable (i.e. grades). The descriptive statistics of the data are given in Table 5.

Table 5: Descriptive Statistics (question 3)

Grade	N	Mean	SD	Skewness		Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error	
3.00	Evaluation	38	4.5000	1.88522	.549	.383	.836	.750
	Analysis	38	1.9474	1.64312	1.169	.383	1.314	.750
	Inference	38	3.0526	1.50580	1.109	.383	.937	.750
	Deductive	38	4.6316	2.37579	.784	.383	.451	.750
	Inductive	38	3.7368	1.78104	.391	.383	.899	.750
	Total	38	9.0263	3.72346	1.228	.383	2.794	.750
	Valid N (listwise)	38						
4.00	Evaluation	80	4.2000	1.71663	.251	.269	-.221	.532
	Analysis	80	1.9000	1.40163	.720	.269	.378	.532
	Inference	80	3.4875	1.62258	.023	.269	-.242	.532

Deductive	80	4.7750	1.88918	.634	.269	.760	.532
Inductive	80	3.7125	1.54423	.308	.269	-.299	.532
Total	80	9.2000	2.84805	.669	.269	.717	.532
Valid N (listwise)	80						

The Mann-Whitney U test results for each critical thinking subscale and total score compared across the grades are shown in Table 6. Evidently, third and fourth graders are not significantly different from each other in terms of each critical thinking subscale and total score ($p > 0.05$). In other words, the null hypothesis to this question is accepted.

Table 6: Mann-Whitney U tests results (question 3)

	Evaluation	Analysis	Inference	Deductive	Inductive	total
Mann-Whitney U	1392.000	1488.500	1206.500	1404.500	1519.000	1414.500
Sig. (2-tailed)	.454	.852	.065	.500	.995	.541

a. Grouping Variable: grade

Question 4: In order to answer this question, the data on each individual critical thinking subscale and total score were divided based on the two levels of the independent variable (i.e. gender). The descriptive statistics of the data are presented in Table 7. In order to compare the humanities males and females, Mann-Whitney U test as a non-parametric test (as opposed to independent samples t test) was used for each critical thinking subscale and total score, since the data was found to be non-normal.

Table 7: Descriptive Statistics (question 4)

gender		N	Mean	SD	Skewness		Kurtosis	
		Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Male	Evaluation	27	3.888	1.908	1.140	.448	2.735	.872
	Analysis	27	1.777	1.527	1.524	.448	4.027	.872
	Inference	27	3.333	1.818	.580	.448	-.601	.872
	Deductive	27	4.555	2.342	.739	.448	.676	.872
	Inductive	27	3.555	1.783	1.089	.448	1.285	.872
	total	27	8.703	3.811	1.674	.448	4.632	.872
	Valid N (listwise)	27						
Female	Evaluation	91	4.417	1.719	.156	.253	-.294	.500
	Analysis	91	1.956	1.467	.746	.253	.094	.500
	Inference	91	3.351	1.530	.221	.253	-.005	.500
	Deductive	91	4.780	1.965	.701	.253	.702	.500
	Inductive	91	3.769	1.571	.076	.253	.008	.500
	Total	91	9.274	2.925	.594	.253	.498	.500
	Valid N (listwise)	91						

The Mann-Whitney U test results for each critical thinking subscale and total score compared across the genders are shown in Table 8. Evidently, males and females are not significantly different from each other in terms of each critical thinking subscale and total score ($p > 0.05$). In other words, the null hypothesis to this question is accepted.

Table 8: Mann-Whitney U tests results (question 4)

	Evaluation	Analysis	Inference	Deductive	Inductive	total
Mann-Whitney U	982.50	1134.50	1166.00	1122.00	1069.50	1016.50
Sig. (2-tailed)	.109	.536	.682	.489	.298	.171

a. Grouping Variable: gender

Question 5: Is there any statistically significant difference between Iranian humanities students and EFL students in terms of their critical thinking skills? In order to answer this question, the data on each critical thinking subscale and total score were divided based on the two levels of the independent variable (i.e. EFL vs. humanities). The descriptive statistics of the data are presented in Table 9.

Table 9: Descriptive Statistics (question 5)

group	N	Mean	SD	Skewness	Kurtosis			
	Statistic	Statistic	Statistic	Statistic	Std. Error			
Humanities	Evaluation	118	4.296	1.770	.376	.223	.204	.442
	Analysis	118	1.915	1.476	.910	.223	.802	.442
	Inference	118	3.347	1.592	.329	.223	-.206	.442
	Deductive	118	4.728	2.049	.683	.223	.629	.442
	Inductive	118	3.720	1.616	.342	.223	.205	.442
	total	118	9.144	3.141	.937	.223	1.943	.442
Valid N (listwise)		118						
EFL	Evaluation	117	4.410	1.682	.059	.224	.141	.444
	Analysis	117	2.102	1.539	.951	.224	.999	.444
	Inference	117	3.683	1.627	.086	.224	-.198	.444
	Deductive	117	5.076	2.034	-.050	.224	-.405	.444
	Inductive	117	3.948	1.547	.115	.224	-.121	.444
	total	117	9.914	2.746	.144	.224	.000	.444
Valid N (listwise)		117						

The Mann-Whitney U test results for each critical thinking subscale and total score compared across the majors are shown in Table 10. Evidently, EFL and humanities students are only different from each other in terms of total critical thinking score $p < 0.05$). In other words, the null hypothesis to this question is partially rejected. Specifically, based on the descriptive statistics in Table 3.9, the humanities students are of significantly lower mean, regarding the total critical thinking score than the EFL students.

Table 10: Mann-Whitney U tests results (question 5)

	Evaluation	Analysis	Inference	Deductive	Inductive	total
Mann-Whitney U	6553.50	6415.00	6028.50	6033.00	6249.00	5630.50
Sig. (2-tailed)	.495	.337	.087	.091	.200	.014*

a. Grouping Variable: group

This study investigated any probable difference of critical thinking skills between Iranian EFL and Humanities students. Several studies have been carried out on finding the differences of critical thinking skills among different engineering fields and humanities fields of study. The results from a study conducted by Myers and Dyer (2006) regarding this topic, showed that there was no difference concerning the critical thinking skills between male and female students in Agriculture and Life Sciences, and

Leadership Development. Amini, Madani, and Asgarzadeh (2014) also claimed that there was no difference between male and female in terms of their skills to think critically, while they were working on critical thinking skills of engineering students. The Mann-Whitney test showed that there was no significant difference in critical thinking skills between male and female students of EFL and humanities. Khamesian (2009) conducted a study on finding the relationship between CTS and writing skills in EFL engineering students, where it was demonstrated that in most cases, male and female students performed differently. This is also in contrast with the findings of Doolittle and Welch (1989) who claimed that there were no overall performance differences between male and female on their critical thinking skills. Moafian and Ghanizadeh (2011), and Taghva, Rezaei, Ghaderi, and Taghva (2014) concluded that there was no statistically significant difference in critical thinking skills between male and female students of different fields of study. The results showed that there was no difference between males and females in terms of their critical thinking ability, based on which females and males got the same scores. This is in line with the findings of this study. Working on the final research question, Mann-Whitney test results showed that EFL learners and humanities students are different in terms of total critical thinking skills based on which humanities students are of significantly lower mean, regarding the total critical thinking score than those of EFL learners.

Amini et al. (2014) tried to determine any significant difference between critical thinking skills of engineering students and humanities students, and claimed that there was no statistically significance difference between engineering and humanities students, specifically on skills of inference, evaluation, and deductive reasoning. Generally, there was no statistically difference in critical thinking skills between engineering students and architecture, art, and science students. It must be mentioned that based on Facione's (1990) norms, both groups of EFL and humanities students of this study are placed in weak group which claims that they definitely need to improve their critical thinking skills. Nikoopour, Farsani and Nasiri (2011) revealed a significant relationship between language learning strategies and critical thinking. They proved that cognitive, meta-cognitive and social strategies have impact on critical thinking, while other factors such as memory, recoument, and affective strategies have no relationship with critical thinking. Babamohammadi and Khalili (2005) stated that there was a significant difference in mean scores between students of different educational years of BS. In both groups, no significant relationship between age and sex of the students as well as their mean score in California critical thinking skills test (CCTST) were reported. Generally speaking, one of the studies on the topic of critical thinking which was carried out by Khorasani and Farimani (2010) showed that there are both critical thinkers and non-critical thinkers in the Iranian setting, which is a teacher-centered setting. Further studies conducted by Khorrami Seraj and Moazami Far (2008) showed that there was no statistically significant difference in critical thinking between engineering students and humanities students; however, both groups suffer from low level of critical thinking skills. Khodamoradi, Sayyedzakerin, Shahabi, Yaghmayi, and AlaviMajd (2011) showed that there was no statistically significant difference in total scores of critical thinking skills among students of various fields of study.

DISCUSSION AND CONCLUSION

The basic thrust of the present study was to compare the CTS of students of EFL and Humanities, in order to determine if the current education program is effective on its students' CTS. As indicated in the preceding section of this study, the role of gender and experience was also investigated in order to present more dependable results. Critical thinking is a complex mental activity, which demands greater levels of cognitive skills while working on various issues and problems, especially in decision making activities, problem solving tasks, and distinguishing inferences. Mitrevski and Zajkov (2012, p. 14) indicated that critical thinking requires the following phases:

- Asking fundamental and essential questions, defining problems exactly, composing and classifying them clearly and accurately;
- Providing and evaluating similar information, by means of brain-storm techniques, summarizing ideas to interpret them;
- Drawing well-constructed conclusions and resolutions, and evaluating their relevant standards;
- Thinking freely in a framework of evaluating, thinking, assessing, and recognizing;
- Interacting efficiently in order to raise probable solutions in complicated issues.

The data gathered from 117 EFL learners and 118 humanities students responding to the California Critical Thinking Skills Test Form-B, which was developed by Facione (1990) showed that; the first hypothesis of this study (critical thinking skills of Iranian EFL students do not differ in terms of their grades) was accepted. The investigation of second research question of this study proved that critical thinking skills of males and females students of EFL do not differ from each other. Result of Mann-Whitney U test indicated that the third null hypothesis (critical thinking skills of Iranian humanities students do not differ in terms of their grades) was accepted. Investigation of the fourth research hypothesis (critical thinking skills of Iranian humanities students do not differ in terms of their gender) was accepted, and finally, the fifth hypothesis (there is no statistically significant difference between Iranian humanities students and EFL students in terms of their critical thinking skills) was defined, in order to compare two groups of learners, and the results indicated that in critical thinking, the humanities students are of significantly lower mean based on the total critical thinking score, than the EFL students.

This study like many other studies on the field of education, have some implications for teaching and learning. No doubt, one of the aims of education for any student is to think critically, in fact, critical thinking is a process that is widely acknowledged in literature to be crucial to the learning process. Moreover, teaching students to think critically is one of the most important aims of higher education. Considering the fact that there was no difference between performances of both groups on critical thinking skills, it should be noted that both groups of EFL and humanities students need to improve their ability to think critically. One significant group of people who may benefit would be students. Students of variant field are often open to new approaches that may help improve their

skills, implicitly or explicitly. Since critical thinking skills are tagged as skills of the century, educators may have a great tendency to find and propose new approaches, in order to help students improve their critical thinking skills. This study was conducted in order to distinguish the differences between students of humanities and EFL focusing on their critical thinking skills, to assess their proficiency level of critical thinking. The study was carried out with the aim of assisting curriculum developers in the process of designing most advantageous curricula. The main challenge instructors may face when trying to improve learners' knowledge is that all those existing resources are not doing a satisfactory job in this new area. Accordingly, improving critical thinking skills of students can directly lead to learning a language better. Critical thinking techniques aid teachers to include explicit instruction of critical thinking and learners to use them efficiently in their interactions with their classmates. It is necessary to provide course books and materials that invoke critical thinking skills. Therefore, materials developers need to make an effort to create lessons with this aim and encourage students to reflect on their progress. Thus, test developers are expected to bring about changes in constructing new generation of tests integrating critical thinking skills and improving students' ability to think critically.

REFERENCES

- Amini, M., Madani, A., & Asgarzadeh, Z. (2014). A study of engineering students' critical thinking skills, *Iranian Journal of Engineering Education*, 36, 39-53
- Baba Mohammadi H, & Khalili, H. (2005). Comparison of critical thinking skills in students of nursing in continuous and interrupted BS sections of Semnan University of Medical Sciences. *Journal of Medical Education*, 6(2), 169-174.
- Barjesteh, H., & Vaseghi, R. (2012). Critical thinking: A reading strategy in developing English reading comprehension performance, *Sheikhbahaee EFL Journal*, 1(2), 21-34.
- Costa, A., & Kallick, B. (2008). *Learning and leading with habits of mind: 16 Characteristics for Success*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Dehghani, M., Jafari Sani, H., Pakmehr, H., & Malekzadeh, A. (2011). Relationship between students' critical thinking and self-efficacy beliefs in Ferdowsi University of Mashhad, Iran. *Procedia Social and Behavioral Sciences*, 15, 2952-2955.
- Doolittle, A., & Welch, C. (1989). Gender differences in performance on college-level achievement test. ACT Research Series 89-9. Iowa City: ACT.
- Ennis, R. H. (1985). A logical basis for measuring critical thinking skills. *Educational Leadership*, 43(2), 44-48.
- Facione, P. A. (1990). *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction (executive summary)*. The Delphi Report, Millbrae, CA: California Academic Press.
- Facione, P.A., Giancarlo, C.A., Facione, N. C., & Gainen, J., (1995). The disposition toward critical thinking. *Journal of General Education*, 44(1), 1-25.

- Fahim, M., & Shakouri Masouleh, N (2012). Critical thinking in higher education: A pedagogical look. *Theory and Practice in Language Studies*, 2(7), 1370-1375.
- Halpern, D. F. (1998). Teaching critical thinking for transfer across domains: Dispositions, skills, structure training, and metacognitive monitoring. *American Psychologist*, 53(4), 449-455.
- Jackson, D., & Newberry, P. (2012). *Critical Thinking: A User's Manual*. Boston, MA: Wadsworth
- Kane, M., Berryman, S., Goslin, D., & Meltzer, A. (1990). *Identifying and describing the skills required by work*. <http://wdr.doleta.gov/SCANS/idsrw/>
- Khalili H., & Hossein Zadeh, M. (2003). Investigation of reliability, validity and normality Persian version of the California Critical Thinking Skills Test; Form B (CCTST). *Journal of Medical Education*, 3(1), 29-32.
- Khalili, H, & Soleimani, M. (2003). Determining the trust, credibility and norm scores of the California Critical Thinking Skills Test-Form B (CCTST-B). *Journal of Babol University of Medical Sciences*, 2, 84-90.
- Khamesian, M. (2009). *The relationship between critical thinking skills and writing skills in EFL engineering learners*, Unpublished master's thesis, Islamic Azad University, Science and Research Branch, Tehran, Iran
- Khodamoradi, K., Sayyedzakerin, M., Shahabi, M., Yaghmayi, F., & AlaviMajd, H. (2011). Comparing the degree of critical thinking skills in the freshman and senior students of selective fields in the Tehran University of medical sciences, *Journal of medical in Azad University*, 21(2), 134-140.
- Khorasani, M. M., & Farimani, M. A. (2010). The analysis of critical thinking in Fariman's teachers and factors influencing it. *Journal of Social Science of Ferdowsi University*, 6(1), 197-230.
- Lewis, A., & Smith, D. (1993). Defining higher order thinking. *Theory into Practice*, 32(3), 131-137.
- Lipman, M. (1988). Critical thinking - What can it be? *Educational Leadership*, 46(1), 38-43.
- Mason, M. (2008). *Critical Thinking and Learning*. Oxford: Blackwell Publishing.
- McPeck, J. E. (1990). Critical thinking and subject specificity: A reply to Ennis. *Educational Researcher*, 19(4), 10-12.
- Mendelman, L. (2007). Critical thinking and reading. *Journal of Adolescent & Adult Literacy*, 51(4), 300-302.
- Mitrevski, B., & Zajkov, O. (2012). Physics lab, critical thinking and gender differences. *Macedonian Physics Teacher*, 48, 13-18.
- Moafian, F., & Ghanizadeh, A. (2011). A correlational analysis of efl university students' critical thinking and self-efficacy, *The Journal of Teaching Language Skills (JTLS)*, 3(1), 119-149.
- Munzenmaier, M.S. & Rubin, N. (2013). *Bloom's Taxonomy: What's Old is New Again*, Santa Rosa CA, The eLearning Guild. <http://onlineteachered.mit.edu/edc-pakistan/files/best-practices/session-2/Pre-Session-Munzenmaier-Rubin-2013.pdf>

- Myers, B. E. and Dyer, J. E. (2006). The Influence of Student Learning Style on Critical Thinking Skill. *Journal of Agricultural Education*, 47(1), 43-52.
- Nikoopur, J., Amini Farasani, M., & Nasiri, M. (2011). On the relationship between critical thinking and language learning strategies among Iranian EFL learners. *Journal of Technology & Education*, 5(3). 195-200.
- Rudd, R., Baker, M., & Hoover, T. (2000). Undergraduate agriculture student learning styles and critical thinking abilities: Is there a relationship. *Journal of Agricultural Education*, 42(3), 2-12.
- Rudinow, J. & Barry, V. E. (2004). *Invention to Critical Thinking*. Boston: Wadsworth Publishing.
- Ruggiero, V. (2011). *Beyond feelings: A guide to critical thinking* (9th Ed.). New York: McGraw-Hill.
- Seraj-khorami, N., & MoazamFar, F. (2008). The comparison of critical thinking and identity styles between students of technical engineering students with humanity students. *New Findings in Psychology*, 3(9), 63-77.
- Schafersman (1991). *An introduction to critical thinking*. www.freeenquiry/criticalthinking.html
- Siegle, H. (1980). Critical thinking as an educational ideal. *The Educational Forum*, 1, 7-24
- Sternberg, R. J. (1986). *Critical thinking: Its nature, measurement, and improvement*. Retrieved from <http://eric.ed.gov/PDFS/ED272882.pdf>
- Taghva, F., Rezaei, N., Ghaderi, J., & Taghva, R. (2014). Studying the Relationship between Critical Thinking Skills and Students' Educational Achievement (Eghlid Universities as Case Study), *International Letters of Social and Humanistic Sciences*, 25, 18-25
- Watson, G., & Glaser, E. (1980). *Watson-Glaser Critical Thinking Appraisal*. SanAntonio: Psychological Corporation.
- Williams, K. B., Glasnapp, D. R., Tilliss, T. S., Osborn, J., Wilkins, K., Mitchell, S., Kershbaum W., & Schmidt, C. (2003). Predictive validity of critical thinking skills for initial clinical dental hygiene performance. *US National Library of Medicine National Institutes of Health*, 67(11), 1180-1192.
- Willingham, D. T. (2007). Critical thinking: Why is it so hard to teach?. *Arts Education Policy Review*, 109(4), 21-32.