

# The Effect of Teaching Critical Thinking on Iranian EFL Learners' Essay Writing

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**Abstract**—The present study made an attempt to determine the effect of teaching critical thinking skills on Iranian EFL learners' essay writing ability. To do this, a sample of 60 EFL learners was selected based on their performance on Preliminary English Test (PET). The participants were randomly assigned to two equal groups of control and experimental. An essay-writing test functioning as pre-test was administered on both groups in order to ensure their homogeneity in terms of writing ability. The groups received 10 sessions of writing instruction; however, experimental group received additional instruction and practice regarding the techniques of critical thinking. Finally, both groups took an essay writing posttest in order to compare their writing achievements. Both pretest and posttest were scored by two raters using TOEFL rating scales. The results of paired and independent sample t-tests showed that critical thinking techniques significantly enhanced EFL learners writing ability.

**Index Terms**—critical thinking, writing ability, essay writing

## I. INTRODUCTION

Socio-affective, cognitive and meta-cognitive variables have a remarkable effect on learners' learning (O'Malley, Chamot, Stewner-Manzanares, Russo, & Kupper, 1985). It seems that cognitive factors have a profound effect on the quality of learning in students and, also they can deepen the process of understanding the concepts and solving the problems.

It is believed that the art of teaching is encouraging the students to challenge the problems and find suitable solution for them. In this regard, cognitive strategies are very compatible with engaging learner's mind in this process. In recent years, numerous studies are carried out on learners' cognitive skills as well as the strategies which are utilized by learners in foreign and second language learning (Brown, 2000). One of the cognitive skills is critical thinking that is defined as "self-directed, self-disciplined, self-monitored, and self-corrective thinking" (Paul & Elder, 2005, p. 1). "In other words, critical thinking is an active, purposeful, organized, cognitive process we use to carefully examine our thinking and the thinking of others in order to clarify and improve our understanding" (Chaffee, p. 1988).

Paul and Elder (2005) underlined critical thinking and believed that critical thinking is a process by which critical thinkers improve the quality of their thinking by imposing intellectual standards upon it. Halpern (1998) has defined critical thinking as "thinking that is purposeful, reasoned, and goal directed. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions" (p. 5). While Halpern (1998) does use the term critical thinking, most cognitive-based theorists have preferred to use "thinking skills" (or, more narrowly, higher order thinking skills) rather than critical thinking as a generic term for the movement (Lewis & Smith, 1993; Sternberg, 1987).

Although there is a wealth of definitions given for critical thinking, they are lacking in comprehensiveness. Educators have long acknowledged the importance of the term in educational settings. Sezer (2008) holds that critical thinking is the process of actively and skillfully analyzing, synthesizing and evaluating information. Wade (1995) identified eight features of critical thinkers:

Critical thinkers involve in asking questions, defining a problem, examining evidence, analyzing assumptions and biases, avoiding emotional reasoning, avoiding oversimplification, considering other interpretations, and tolerating ambiguity.

Benesch (1999) believed that when we shift to a critical thinker, we enhance awareness that prevents us to utilize fast and fix solution. Indeed, critical thinking is not a harmless academic exchange, but a political discussion with serious implications about what should and should not be taught in EAP and L2 composition classes and in developing any program the teacher selects certain aspects of content knowledge which will enable students to gain access to the cultural and linguistic practices. Also, Atkinson (1997) makes a distinction between critical and uncritical thinkers in this perspective that uncritical thinkers let some incongruous factors interfere their thoughts and actions, but critical thinkers do not let it happen. He claims that two equally talented persons, although would be homogeneous regarding their talent and knowledge, surely would be different in thinking critically at analyzing and evaluating options and

alternatives. In other words, critical thinkers would be a better problem solvers and decision makers. Similarly, Gelder (2003) makes a distinction between critical and uncritical thinker and states critical thinker knows that if somebody presents a reason to accept a position, that reason probably involves unstated assumptions which should be exposed and questioned in a systematic way.

An individual thinking critically uses the scientific method to understand the ordinary world. This is true because critical thinking mimics the well-known method of scientific investigation: a question is identified, a hypothesis is formulated, relevant data are gathered, the hypothesis is logically tested and evaluated, and eliciting a reliable conclusion from the result (Stapleton, 2002; Angeli & Valanides, 2009, as cited in Malmir & Shoorcheh, 2012). Critical thinking entails the principles of scientific method and is an essential tool of inquiry in education. Therefore, educators put an emphasis on teaching critical thinking skills in language classrooms where learners have the chance to express themselves, evaluate others' judgments and ask questions at high levels.

Hay (2007) knows critical thinking as the only eminent reason for teaching literature, because it teaches students to read and think more critically. He believes that although thinking is amazingly hard, it is the most rewarding thing we can devote our time to. Malmir and Shoorcheh (2012) investigated the effect of critical thinking on Iranian advanced EFL learners' speaking ability. They provided critical thinking techniques in addition to routine techniques for writing instruction for experimental group. They found that those students who received instruction on critical thinking strategies outperformed on the oral interview post-test and general speaking ability.

Writing in a foreign language has proved to be a complex skill which needs special attention in EFL teaching and learning. Because of complexity of the writing process, it is difficult to envisage a model for writing in term of its 'sub-skill' (see Abbott & Berninger, 1993; Grabe & Kaplan, 1996, for an attempt to arrive at such a model). Most existing writing models focus on the writing process (Chenoweth & Hayes, 2001; Flower & Hayes, 1980; Hayes, 1996; Kellogg, 1996) or on the development of writing proficiency (Bereiter & Scardamalia, 1987) more than on the characteristic of the cognitive and linguistic resources needed for writing. Through applying metacognitive teaching (in which the teacher is a facilitator of knowledge and the students are problem solvers and in charge of their learning) and hands-on/minds (in which students generate ideas and are provided with freedom to be physically active in their search of knowledge), Hay (2007) provided evidence that these strategies have the potential to activate students in a dynamic learning environment and can positively impact the range, quantity and quality of students' critical thinking. More surprisingly, as a result of using these strategies students could define, analyze, and evaluate their life events thoroughly.

"Writing and critical thinking are seen as closely linked, and expertise in writing is seen as an indication that students have mastered the cognitive skills required for university work" (Weigle, 2002, p. 5). Writing is claimed to be a higher form of critical thinking as well as a problem solving activity where a combination of various skills are tapped. Clearly writing proficiently necessitates gaining thinking and reasoning skills. Freely and Steinberg (2000) stress the significance of discussions, debates and problem solving activities to foster critical thinking in students.

Khodabakhsh, Jahandar and Khodabandehlou (2013) conducted a study to investigate the effect of critical thinking tasks on paragraph writing ability of Iranian EFL learners. After selecting a homogenous sample of the participants, they were assigned to two groups of control and experimental. The experimental group received special treatment with critical thinking tasks. Using ANCOVA, it was found that critical thinking tasks could significantly improve the paragraph writing ability of EFL learners.

Writing has been used as a strategy by teachers to improve conceptual learning and to help students organize their thoughts. Due to the lack of familiarity with appropriate strategies, most of learners have profound problems and passive role in writing process. Critical thinking is one of the cognitive strategies that let the learners wear the dependency of teachers and make them active in writing process. But, it has not been given sufficient attention by language teachers and researchers.

This study is also designed based on the motivation to apply the techniques of critical thinking into writing classroom and provide a dynamic learning situation. The following research question was posed to address the purpose of the study:

Does teaching critical thinking skills have any significant effect on the development of Iranian EFL learners' essay writing?

## II. MATERIALS AND METHODS

### A. Sample Preparation

The researchers selected a random sample of 60 out of 90 newly employed personnel of oil and Gas Company in Asaluyeh, Iran. They were male and female native speaker of Persian holding B.S and M.S degrees. Concerning the purpose of the study, the participants needed to be familiar with the aspects of cognitive strategies and in order to apply the principles of critical thinking, therefore they were selected from those who were supposed to be at the intermediate level of language proficiency. The age of the participants ranged from 23 to 30. They were homogenized based on their performance on Preliminary English Test (PET) whose mean and standard deviation were 46.13 and 10.09 respectively. They were randomly assigned into two groups of control and experimental.

### B. Procedures

According to Cambridge ESOL Examination, PET was compatible to investigate learners' proficiency level. The Preliminary English Test (PET) was used to determine the learner's homogeneity and to show whether the learners' knowledge of English is at the same level. It has four sections (Listening, Reading, Writing and Speaking). The listening section has four parts and the participants listened to each part twice, so for each part of the test, the participants had time to look through the questions and check their answers. It included 25 questions. The reading section has five parts and includes 35 questions. The writing section had 2 parts. The participants were supposed to write a paragraph in order to measure composition skills in standard written English. The speaking section included 4 parts which were designed to elicit a wide range of speaking skills from the candidates.

To measure the quality of the participants' writing before treatment, a pre-test on English writing was used. The participants of both groups took writing pre-test in order to ensure their homogeneity in terms of writing ability. They were required to write an English composition on one topic *some people think that strict punishments for driving offences are the key to reducing traffic accidents. Others, however, believe that other measures would be more effective in improving road safety.* Within 45 minutes during regular class time. This topic was thus chosen for writing so that the students would not feel too difficult and could display their English writing ability. The composition should be no less than 250 English words. A similar version of this test was used at the end of the study as posttest. The one topic of the posttest was about *the pros and cons of watching television.* The pretest and posttest were corrected and scored by two raters. The mean of two raters' scores were considered as final score of the participants.

A pilot study was undertaken to find out the agreement between the two raters. The number of participants in the pilot study was of 20 and inter-rater correlation obtained was .83 with Sig. of .00 demonstrating a perfect agreement between the two raters. The selected two raters judged the writing tasks according to the rating criteria of TOEFL Rating Scale of Writing. TOEFL writing rating scale is a criterion with maximum of 6 and minimum of 0. The criteria are specified as follows:

- Score 6 demonstrates clear competence in writing on both the rhetorical and syntactic levels, though it may have occasional errors.
- Score 5 demonstrates competence in writing on both the rhetorical and syntactic levels, though it probably has occasional errors.
- Score 4 demonstrates minimal competence in writing on both the rhetorical and syntactic levels.
- Score 3 demonstrates some developing competence in writing, but it remains flawed on either the rhetorical or syntactic level, or both.
- Score 2 demonstrates serious disorganization or underdevelopment—little or no detail, or irrelevant specifics.
- Score 1 demonstrates a piece of writing that is incoherent and may be undeveloped and contain severe and persistent writing errors

After administering the Preliminary English Test (PET), 60 students who obtained the criterion were randomly assigned to two equal groups of control and experimental. The participants of both groups take writing pre-test in order to ensure their homogeneity in terms of writing ability. Then, both groups received 10 sessions of writing instruction. In the experimental group, 20 minutes of every session was allocated to provide the techniques of critical thinking such as problem solving activities, raising questions, teaching logical reasoning, evaluating others' arguments regarding their writing. Then, the principles of essay writing were taught and a topic was given to the participants for writing. Every student had the opportunity to express his/her opinions on the proposed topics and practice critical thinking skills. In control group, the common techniques of writing instruction were provided for the learners. The topics given to the learners were similar to those of experimental group. Finally, the participants of both groups were asked to write an essay on the proposed topic functioning as the posttest of the study.

### III. RESULTS AND DISCUSSION

The data were collected and submitted to statistical analyses using SPSS 21.0 in order to pursue the purpose of the study. PET was administered among 80 EFL learners at the beginning of study. The descriptive statistics of the obtained scores (such as mean, standard deviation, minimum, maximum and skewedness) on each of the measured skills as well as their total score on PET are shown in Table 1.

TABLE 1.  
DESCRIPTIVE STATISTICS OF THE SCORES OBTAINED FROM PET

	N	Minimum	Maximum	Mean	Std. Deviation	Skewedness
Proficiency test	80	21	74	46.13	10.09	.108

Too distant scores from below and above the mean were omitted in order to homogenize the participants regarding their level of language proficiency. In this case, 20 learners were excluded from the main analysis. The descriptive statistics of selected scores are shown in Table 2.

TABLE 2.  
DESCRIPTIVE STATISTICS OF HOMOGENIZED PARTICIPANTS

	N	Minimum	Maximum	Mean	Std. Deviation	Skewedness
Proficiency test	60	36	56	49.12	4.33	.077

Regardless of participants' obtained scores on the PET, they were randomly assigned to two groups of control and experimental. Pretest was administered on the participants of both groups in order to check their pre-knowledge of writing at the beginning of the study. Each English writing task was scored independently by two experienced teacher according to TOEFL rating scale. The descriptive statistics related to the pretest scores are shown in Table 3.

TABLE 3.  
DESCRIPTIVE STATISTICS OF GROUPS' PERFORMANCE ON PRETEST

		N	Minimum	Maximum	Mean	Std. Deviation	
Pretest	Experimental	Rater 1	30	0	2.5	2.17	2.30
		Rater 2	30	1	2	2.13	2.37
	Control	Rater 1	30	1	2	2.70	2.89
		Rater 2	30	1	2	2.87	2.01

A Pearson-product moment correlation coefficient was performed in order to test the inter-rater reliability of scores on pretest given by two raters in two groups of the study. The results of correlation for control and experimental groups, as the Table 4 shows, confirmed that there is a significant relationship between the scores of pretest given by two raters in both experimental and control groups. Thus, the inter-rater reliability of scores was acceptable.

TABLE 4.  
INTER-RATER RELIABILITY OF THE GROUPS ON PRETEST

		Pretest (Rater 1)
Control Group/Pretest (Rater 2)	Pearson Correlation	.985**
	Sig. (2-tailed)	.000
Experimental Group/Pretest (Rater 2)	Pearson Correlation	.935**
	Sig. (2-tailed)	.000
N		30

The mean (arithmetic average) of two sets of pretest writing scores for both experimental and control groups was calculated as shown in Table 5.

TABLE 5.  
DESCRIPTIVE STATISTICS OF CONTROL AND EXPERIMENTAL GROUP ON PRETEST

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest experimental (Mean)	30	.50	2	2.15	2.325
Pretest control (Mean)	30	1	2	2.78	1.941

As mean of the scores in Table 5 shows, little differences were found between the scores of two sets of raters of writing pretest. The data collected from the participants' pretests and posttests were analyzed quantitatively to answer the questions addressed in the study.

In order to find the effects of treatment on the learners, both control and experimental groups received a writing posttest. Like pretest, similar statistical analyses are provided in order to test the null hypothesis of the study. The descriptive statistics of groups' performance on posttest is presented in Table 6.

TABLE 6.  
DESCRIPTIVE STATISTICS OF GROUPS' PERFORMANCE ON POSTTEST

		N	Minimum	Maximum	Mean	Std. Deviation	
Posttest	Experimental	Rater 1	30	2	5	3.68	2.37
		Rater 2	30	2	4.5	3.80	2.53
	Control	Rater 1	30	1.5	3	2.50	2.15
		Rater 2	30	1	3	2.53	2.04

The inter-rater reliability of the control and experimental group's performance on posttest was calculated by means of Pearson correlation. The results of statistical analysis are provided in Table 7.

TABLE 7.  
INTER-RATER RELIABILITY OF THE CONTROL AND EXPERIMENTAL GROUPS ON POSTTEST

		Pretest (Rater 1)
Control Group/Posttest (Rater 2)	Pearson Correlation	.989**
	Sig. (2-tailed)	.000
Experimental Group/Posttest (Rater 2)	Pearson Correlation	.993**
	Sig. (2-tailed)	.000
N		30

The results suggested a strong and significant correlation between two raters' scores on posttest scores of both groups. The mean of two raters' scores on posttest of each group was considered for final analysis.

In order to test the null hypothesis of the study in finding whether teaching critical thinking skills has any significant impact on Iranian EFL learners' essay ability, a paired sample t-test was performed between the pretest and posttest

scores of experimental group whose participants received critical thinking techniques. The results are provided in Table 8.

TABLE 8.  
PAIRED SAMPLES T-TEST BETWEEN PRETEST AND POSTTEST OF EXPERIMENTAL GROUP

Pair 1	Posttest– Pretest	Mean	Std. D	Std. Error Mean	T	df	Sig.
		1.59	1.47	.26	2.9	29	.00

The results of paired samples t-test indicated that there is a significant difference ( $t = 2.92, p < .05$ ) between the participants of the experimental group's performance on pretest and posttest. In other words, the critical thinking skills caused learners' progress in writing ability.

Furthermore, an independent sample t-test was performed between the posttest scores of control and experimental groups. The results are provided in Table 9.

TABLE 9.  
INDEPENDENT SAMPLES TEST BETWEEN CONTROL AND EXPERIMENTAL GROUPS ON POSTTEST

Levene's Test for Equality of Variances							
	F	Sig.	t	Df	Sig.	Mean Difference	Std. Error Difference
Posttest	1.64	.20	3.30	58	.00	1.75	1.10

The results, as shown in Table 9, showed that there is a significant difference between the posttest scores of both control and experimental groups ( $t = 6.82, p < .05$ ) in such a way that experimental group outperformed on posttest. In other words, the findings of this study confirmed the significant difference between the two groups. Thus, due to the findings of this study, we can deduce that the critical thinking can improve essay writing ability of EFL learners.

The results of the study were consistent with the general view of the contribution of cognitive strategies to improving language skills and the positive effect of critical thinking on other language skills, especially writing, was analyzed in recent decades. Assadi, Davatgar and Jafari (2013) in a study tried to find out the effect of critical thinking on Iranian EFL learners' writing improvement. The findings showed that writing performance of participants was affected by critical thinking instruction. Soleimani and Kazazi (2014) examined the impact of critical thinking on writing of the learners of teaching English as a foreign language, TEFL, students in Tehran Payame Noor University. The results of the study demonstrated that critical thinking had a statistically significant effect on TEFL students' writing. Because there is a close relationship between reading and writing skill, (Winterowd, 2000) and as far as this study was concerned, critical thinking can enhance EFL learners' writing skill as well as reading.

Some other studies were not in line with the present research. For instance, in the study reported here, the critical thinking and writing experiences of 34 registered nurses in an online course at an Ontario university were considered from several perspectives: perception of writing competence; demonstration of levels and kinds of critical thinking; and demonstration of writing competence. Although the participants' perceptions of their writing competence increased significantly, these results were not reflected in their levels of writing competence when compared to that of younger nurse-learners and students in an Arts course at the university. The study did not demonstrate that online writing results in different levels of critical thinking; it did, however, suggest a connection between and among online writing, different kinds of critical thinking, and assignment design (Carter, 2008). Emilia (2010) reported a study in striving for detecting students' ability and difficulty in writing an English undergraduate thesis at a state university of Indonesia. The article placed emphasis on the students' ability and difficulties in writing a data presentation and discussion chapter, which are related to critical capacity looked at in this study. The paper started with a brief introduction, which provided the background and the theories underlying the study. It was followed by an account of the methodology, in which it is argued that the study used a case study method, particularly text analysis (Travers, 2001) and involved nine theses selected randomly and analyzed on the basis of the elements of a conventional research report (Thody, 2006) and the Transitivity system of systemic functional grammar, developed by Halliday (1994). The paper then specified the results, revealing that despite their good control in the discourse semantic level, students in general still needed a lot of guidance and assistance in writing a data presentation and discussion chapter. Fahim and Hashtroudi (2012) investigated to find out whether or not teaching techniques of critical thinking could effect on Iranian EFL university students' argumentative essays. 63 university students of Islamic Azad university aged of 21 studying translation participated in the study. The selected participants were those fallen within two SD above and below the mean on TOEFL. They were demanded to write a two-paragraph argumentative essays at the onset of the semester and then after 6 sessions. Treatment was delivered to the experimental group. The students' essays were scored on the basis of Unrau's scoring guide by two English teachers. The finding of the study showed that techniques of critical thinking can improve students' critical thinking and cannot contribute them to write more argumentative essays.

#### IV. CONCLUSION

The present study conducted through using the critical thinking techniques and writing test, was an attempt to verify the effect of critical thinking on essay writing ability. As the result of posttest scores revealed, teaching writing while

using cognitive strategies, especially critical thinking, would lead to better learning among EFL learners. Indeed, the critical thinkers tend to devote more time to decide and analyze the validity of information and argument based on possible evidences and reasons during writing. Engaging students more deeply in the process of writing through critical thinking can have the positive and effective consequences for EFL learners.

The result of the study can carry implications for EFL teachers and syllabus designers in this regard. First, in order to understand more profoundly, teachers and syllabus designers should expose EFL learners to critical thinking principles at the beginning of the education. Second, it is recommended that teachers fit cognitive strategies into the curriculum to avoid any misunderstanding for EFL learners, because the level of cognitive strategies should be compatible with syllabus design.

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