Effects of Critical Thinking Strategy Training on Male/Female EFL Learners' Reading Comprehension

Mansoor Fahim
Islamic Azad University, Science and Research Branch, Tehran, Iran
E-mail: Dr.mfahim@yahoo.com

Hamed Barjesteh
PhD Candidate in TEFL, Islamic Azad University, Science and Research Branch, Tehran, Iran
Department of ELT, Islamic Azad University, Ayatollah Amoli Branch, Amol, Mazandaran, Iran
Tel: 98-121-251-7009 E-mail: ha_bar77@yahoo.com

Reza Vaseghi (Corresponding author)
PhD Student in TESL, University Putra, Malaysia
Department of ELT, Islamic Azad University, Ayatollah Amoli Branch, Amol, Mazandaran, Iran
Tel: 60-147-156-488 E-mail: r.vaseghi@hotmail.com

Received: May 18, 2011 Accepted: November 22, 2011 Published: January 1, 2012
doi:10.5539/elt.v5n1p140 URL: http://dx.doi.org/10.5539/elt.v5n1p140

Abstract

The development of critical thinking (CT) skills has become a key goal for educators in first and second language contexts. There is evidence that the use of such activities has still not become widespread in a number of ELT situations. One reason for this may be lack of awareness about how levels of thinking can be conceptualized in ELT activities. This paper will report on a program designed by the authors at a university in Iran, which used taxonomy of CT skills drawn up by Facione (1990) to probe the effect of critical thinking strategies training on reading comprehension of Iranian EFL students. In so doing, 240 male and female Iranian EFL students were selected and screened into two proficiency levels based on the TOEFL tests. Each proficiency group was divided into critical and non-critical group. The results suggested CT skills significantly affected EFL learners' reading comprehension performance. However, the effect of critical thinking strategy training didn't vary across different language proficiency levels. Overall, the findings provide empirical support for the facilitative effect of critical thinking strategy training on reading comprehension performance of EFL learners.

Keywords: Critical Thinking Strategies training, Critical thinking ability, Traditional Strategies, Reading Comprehension, Language proficiency

1. Introduction

One of the most influential tools anyone can always have is the ability to think. Critical thinking skills are strategies people use to consider and evaluate new ideas. Renandya (2002, p. 273) postulates that reading receives a special focus in many second or foreign language teaching situations. There are a number of reasons for this issue. For example, many foreign language learners want to be able to read for information, pleasure, their career, and studying purposes.

Celce-Murcia (2001, p.154) stipulates that various models and theories explain what is involved when we read. She also postulates that current researches generally view reading as an interactive and sociocognative process. A synthesis of current research in reading suggest that reading is a process of constructing meaning through the dynamic interaction of the reader, text, and the context of reading situation that results in the acquisition of knowledge, experience or information (Anderson and Pearson, 1984; Paris, 1987; Wixson and Peters, 1984). Reading comprehension is thought to depend upon the reader's ability to interrelate appropriately acquired knowledge with the information suggested in the text (Mason, 1984).

Researchers have reported that college students with lower verbal ability were able to identify individual words and facts but were unable to combine the information in the text with the previously acquired information (Baker, 1985).

This inability to integrate ideas was accompanied by an inability to draw logical inferences and the inability to check ideas while reading to see if the ideas contradicted on another (Baker, 1985). Brown and Day (1983) reported that Junior college students and college students were unable to summarize, select the topic sentence, and invent a topic sentence if it was implied, or write a synopsis of a paragraph in the absence of explicitly stared topic sentence. Aron (1979) also found college students to be lacking in deductive and inductive reasoning, the ability to infer, to recognize assumptions and evaluate conclusions. Thus, reading comprehension was directly linked with a variety of critical thinking abilities (Friedman and Rowls, 1980).

Recent trends within the domain of reading comprehension have led to an increasing emphasis on the role of problem - solving technique that supposedly enables the student to identify, clarify, evaluate and solve perplexities that arise in reading (Waters, 2000). Indeed researchers agree that problem-solving, creativity, and imagination of one's comprehension processes are critically important aspects of skilled reading. Such creativity and imagination are what often referred to in the literature as critical thinking, which can be thought as a process of thinking without a single solution to a problem, determining the value of an idea, and making judgments about the truthfulness of the statement or answers to a problem (Stancato, 2000; Kataoka-Yahiro and Saylor, 1994; Fitzpatrick, 1993). Walter (1990) and Gallo (1989) also have stressed the importance of creativity and imagination in critical thinking to enrich the capacity of students to imagine alternative perspectives and/or situation to problems. In general, it can be said that critical thinking plays a central role in academic instruction because it is what students need to succeed both in an academic environment and real-life situations. Hence, it seems necessary to provide explicit training in the specific critical thinking skills which students are expected to demonstrate proficiency in. Following Walter and Gallo's suggestions, the present study was conducted to determine whether or not critical thinking strategy has any impact on reading comprehension of male and female Iranian students. In order to comply the objective of this study the following research questions were formulated:

Q1- Does critical thinking strategies training affect EFL learners' reading comprehension performance?

Q2-Does the effect of critical thinking strategies training vary across different language proficiency level?

Q3- Does the effect of critical thinking strategies training change for male and female students?

2. Methodology

2.1 Participants

A total of 240 male and female college students of English language and literature took part in this study. The subjects were sophomore students enrolled for reading comprehension II. They were all native speakers of Persian who had 6 years of English instruction prior to their admission to the university. Their ages ranged from 17 to 23, the majority were 19. The study was carried out for 24 sessions in one and a half hours by the researcher (each group had 12 sessions)**.**The subjects were screened into two proficiency levels based on their performance on TOEFL test. Grouping was done based on the dispersion of the TOEFL scores around the mean.

2.2 Instrumentation

To accomplish the task, two sets of reading comprehension test were constructed and utilized as pre-test and post-test. The test included 30 multiple choice items on five passages. It was piloted before using as the assessment tools in the pretest and posttest phase of the study. Moreover, a language proficiency test, TOEFL reading proficiency test (2005 version), was utilized to find out the homogeneity of the groups and to screen the subjects into two language proficiency levels of low and high. In addition, in the task of helping students become critical thinkers, the experimental groups were given training in critical thinking. The activities and procedure were taken from or adapted from procedures whose works utilized critical thinking skills (Facione 1990; Hannel and Hannel, 1998; Waters, 2006). They organized a consensus of expert opinions to come up with the six broad categories of interpretation, analysis, evaluation, inference, explanation, and self-regulation. Each category is further broken down into sub skills (see Table1).

2.3 Procedures

In order to investigate the probable effects of critical thinking strategies training on reading comprehension performance of Iranian EFL learners, at first, the subjects were screened into two proficiency levels based on the TOEFL test. Grouping was done based on the dispersion of the TOEFL scores around the mean. Subjects were divided into two low and high proficiency groups. Each proficiency group was divided into critical and non-critical group. Each of the critical and non-critical group was divided into two male and female groups.

The study was run into three phases. In the first phase, all subjects in all eight groups were given a piloted multiple choice test of reading comprehension as the pre-test in order to recognize the subjects' reading comprehension ability before the treatment. To construct the reading comprehension test which was developed by the researchers and used as pretest and posttest, the researchers found the readability of the text to be included in the test through Flesch readability formula. It was done with the word 2007software and the mean score was calculated. The readability of the text was between 51.5 and 71.5. In order to pilot the test the researchers administered it to a parallel group. The results were then correlated with the TOEFL scores using Pearson Product Moment Correlation coefficient. The reliability of the test calculated through the alpha coefficient was .80. The correlation between the students' scores on the reading comprehension test and that of TOEFL was .98 indicating a high correlation related type of validity. In the second phase, the students in the experimental group were given training in CT cognitive skills consisting of eight sessions lasting one and half hours each. The activities and procedures were taken from or adapted from procedures whose works utilized critical thinking (as a research tool) and also the use of critical thinking as an instructional tool (Facione 1990; Hannel and Hannel, 1998; Waters, 2006). The students in the control groups followed the conventional method for reading comprehension. The passages were taken from the reading comprehension book "Mosaic 1" 4th edition. In the experimental group the students were taught CT cognitive skills and sub skills based on Facione (1990) taxonomy. The CT Cognitive Skills include the ability to select a topic sentence, invent a topic sentence if it was implied, find the main idea and overall themes/relationship, summarize and paraphrase a text, justify a procedure and present argument, identify or draw a conclusion, identify the irrelevance sentences, formulate a question, keep the situation in mind, recall the information and make judgment, infer an idea in the passage, interpret and generalize facts, ask and answer questions of clarification and/or challenge the meaning. In the third phase of the study, the subjects were given the post-test in order to recognize the subjects' reading comprehension ability after treatment. After collecting data, the scores for each participant were tabulated and subjected to statistical analyses in order to provide answers to the research questions.

3. Findings and Discussions

In order to fulfill the purpose of the study, three tests were administered: The first one was TOEFL, the results of which were used to screen the subjects into two high and low groups on the basis of the dispersion of scores around the mean. The next two tests were reading comprehension tests validated against the reading comprehension test in the pilot study. Initially, descriptive statistics were carried out for reading comprehension tests involved in this study. The results are reported in Table 2.

Based on the research questions and null hypotheses in this study, several statistical analyses were conducted, the results of which are presented below. At first participants were grouped into two levels (high & low) according to their TOEFL scores. Each proficiency group was further divided two critical and non-critical group. In addition, we had equal number of male and female in each group. In other words, we had eight groups (high/low) (male/female) (critical/non-critical).

As it was mentioned before, the study was run into three phases. In the first phase all subject in all eight groups were given the pre-test in order to recognize the subjects reading comprehension ability and also the possible differences among all eight groups before the treatment. After scoring the pre-test, the scores were tabulated and subjected to statistical analyses of two-way ANOVA (Table 3).

Note the sig. (i.e. p-value) for each F ratio. There is a significant main effect for "proficiency", but the main effect for "Gender" is not significant. In other words, there is a significant and meaningful difference between high/low groups, but there is no difference between male/female groups. In addition there is not a significant interaction between "proficiency" and "Gender" meaning that the proficiency factor has the same effects upon male and female groups.

Then, subjects in critical groups had critical thinking training. Subjects in non-critical groups used a more traditional approach for reading comprehension. In the third phase of the study, the subjects were given the post-test in order to recognize the subjects' reading comprehension ability and also the possible differences among all eight groups after the treatment. After scoring the post-test, the scores were tabulated and subjected to statistical analyses of three ways ANOVA (Table 4).

Note the sig.(i.e. p-value) for each F ratio. There are significant main effect for "critical", "proficiency", and "gender" factors. All three factors are significant beyond .01 level. Despite the main effects of the factors, there are no significant interactions. Clearly, the "critical" factor has the same effects upon high/low and male/female groups. As table 4 illustrates there is a significant difference between critical and non-critical groups. These results reject the first null hypothesis and confirm the effect of critical thinking training on the EFL learners' reading comprehension performance. This finding harmonized with Facione (1998) states that there is a "significant correlation between

critical thinking and reading comprehension. Improvements in one are paralleled by improvements in the other." This finding also supported by (Kurland, 2006) stated, In order for students to read critically they need to think critically, as well. There is also a significant difference between high and low proficiency groups. However, the interaction between "critical" factor and "proficiency" factor was not significant. So the second null hypothesis is supported, i.e. the effect of critical thinking training does not vary across different language proficiency levels. There was a significant difference between male and female groups, but the interaction between "critical" factor and "gender" factor was not significant. So the third null hypothesis is also supported i.e., the effect of critical thinking training does not vary for male and female students. This finding supported by (Thompson 2001) was researcher who found that gender had no predictive value of critical thinking or learning style. (Pienaar 2000) conducted a South African study of adolescents' critical thinking in the context of political issues, and found that gender, had no significant relationship with critical thinking ability.

4. Conclusion and Pedagogical Implications

The prominent pedagogical implications in this research correspond with what the following scholar believes in. Waters (2006) persuaded that applying and using critical thinking activities that different levels of language proficiency in English language classrooms can increase learners' level of thinking and simultaneously they help language learners to grasp the main meaning of the text. Critical thinking activities, as Waters believe, can equip learners with instruments which help them "stay with" or "go beyond" the information presented in a text. That is why they can have a practical application of learning in a closely integrated manner.

The researchers tried to provide learners with particular activities which are not only linguistically manageable but also cognitively challenging. This is because such learners may feel reduce to a state of psychological infancy by the way their means of self-expression (cf. Stevick1996). That is why the researchers provide the learners with a lot of opportunities to use their normal critical thinking abilities as much as possible in the course of their language learning experiences, in order to foster a healthier, more adult psychological frame of mind; as the philosopher Descartes famously said, "I think therefore I am". By virtue of the acquired results in this study and researchers' observations, educational authorities are required to train language instructors so that they might be able to avail themselves of critical thinking strategies in reading comprehension class and do not resort to traditional strategies of teaching passages for reading comprehension.

References

Anderson, R. C., & Pearson, P.D. (1984). A Schema-theoretic view of basic Process in Reading. In P. D. Pearson (Ed.), *Handbook of reading research*. New York: Longman. pp. 255-293

Arons, A. B. (1979). Some thought on reasoning capacities implicitly expected of college students. In J. Lockhead & J. Clement (Eds), *Cognitive process Instruction: Research on teaching thinking skills*. Philadelphia: The Franklin Institute Press. pp. 209-215

Baker, L. (1985). Differences in the standards used by college students to evaluate their comprehension of expository prose. *Reading Research Quarterly*, 20, 297-313. http://dx.doi.org/10.2307/748020

Brown, A. L. & Day, J. J. (1983). *Macrorules for summarizing texts*: *The development of expertise* (Tech. Rep. No.270). Urbana: University of Illinois, Center for the study of reading.

Celce-Murcia, M. (2001). *Teaching English as a Second or Foreign Language*. Boston: Heinle & Heinle, Thomson Learning, Inc.

Duffy, L. R. Rochler, & J. Mason (Eds), *Comprehension instruction*. New York: Longman. pp. 26-38

Facione, P. (1990). *Critical Thinking: A statement of expert consensus - The Delphi Report*. California: California Academic Press.

Facione, P. A. (1991). *Using the California Critical Thinking Skills Test in Research, Evaluation, and Assessment*. Millbrae, CA, California Academic Press.

Fitzpatrick, K. (1993). Improving reading comprehension using critical thinking strategies. *Reading Improvement*, 31, 142-144

Friedman, M. I., & Rowls, M. D. (1980). *Teaching reading and thinking skills*. New York: Longman.

Gallo, D. (1989). Educating for empathy, reason, and imagination. *The Journal of creative behavior*, 23(2), 98-115

Hannel, G. I., & Hannel L. (1998). The seven steps to critical thinking: A practical application of critical thinking skills. [Online] Available: http://bul.Sagepub.com/cgi/content/abstract/87/592/82

Kataoka-Yahiro, M., & Saylor, C. (1994). A critical thinking model for nursing judgment. *Journal of nursing*

Education, 33(8), 351-356

Mason, J. M. (1984). *A schema-theoretic view of reading process as a basis for Comprehension instruction*. G. G.

Parsis, S. (1987). Introduction to current issues in reading comprehension. *Educational psychologist*, 22, 209-231

Renandya, W. A. (2002). *Methodology in language teaching*. Cambridge: Cambridge University Press.

Stancato, F. A. (2000). Tenure, academic freedom and teaching of critical thinking. *College student journal*, 34(3), 377

Stevick, E. W. (1996). *Memory, meaning and method* (second edition). Boston, MA: Heinle and Heinle.

Walters, K. S. (1990). Critical thinking and Spock fallacy. *Innovative Higher Education*, 15(1), 17-28. http://dx.doi.org/10.1007/BF00889734

Waters, A. (2006). Thinking and language learning. *ELT Journal*, 60(4), 237-319. http://dx.doi.org/10.1093/elt/ccl022

Wixson, K. K. & Peters, C.W. (1984). Reading redefined: A Michigan Reading Association position paper. *Michigan Reading Journal*, 17, 4-7

Table 1. "Consensus List of CT Cognitive Skills and Sub-Skills" (Facione 1990, p. 6)

Skill	**Sub-Skills**
1. Interpretation	categorization, decoding significance, clarifying meaning
2. Analysis	examining ideas, identifying arguments, analyzing arguments
3. Evaluation	assessing claims, assessing arguments
4. Inference	querying evidence, conjecturing alternatives, drawing conclusions
5. Explanation	stating results, justifying procedures, presenting arguments
6. Self-Regulation	self-examination, self-correction

Table 2. Descriptive statistics for reading comprehension tests

Descriptive Statistics								
	N	Range	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
PRETEST	240	60	30	90	62.41	1.26	19.538	381.715
POSTTEST	240	79	21	100	61.38	1.49	23.104	533.777
Valid N (list wise)	240							

Table 3. Tests of Between-Subjects Effects for pretest

Tests of Between-Subjects Effects Dependent Variable: PRETEST					
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	83697.017a	3	27899.006	874.047	.000
Intercept	934752.017	1	934752.017	29284.807	.000
PROFICIE	83477.400	1	83477.400	2615.260	.000
GENDER	198.017	1	198.017	6.204	.513
PROFICIE * GENDER	21.600	1	21.600	.677	.412
Error	7532.967	236	31.919		
Total	1025982.000	240			
Corrected Total	91229.983	239			
a R Squared = .917(Adjusted R Squared = .916)					

Table 4. Tests of Between-Subjects Effects for posttest

Tests of Between-Subjects Effects Dependent Variable: POSTTEST					
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Corrected Model	125667.533	7	17952.505	2186.112	.000
Intercept	904299.267	1	904299.267	110118.32	.000
PROFICIE	**24888.067**	**1**	**24888.067**	**3030.669**	**.000**
GENDER	6406.667	1	6406.667	780.153	.000
CRITICAL	94327.350	1	94327.350	11486.429	.000
PROFICIE * GENDER	.600	1	.600	.073	.787
PROFICIE * CRITICAL	12.150	1	12.150	1.480	.225
GENDER * CRITICAL	25.350	1	25.350	3.087	.080
PROFICIE * GENDER * CRITICAL	7.350	1	7.350	.895	.345
Error	1905.200	232	8.212		
Total	1031872.000	240			
Corrected Total	127572.733	239			
a R Squared = .985 (Adjusted R Squared = .985)					