



Impact of Conceptualization and Analysis Effectiveness Strategies on Reading Comprehension of Iranian EFL Learners Across Gender: Elder and Paul's Critical Thinking Model

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ABSTRACT

The role of different critical thinking strategies in reading English texts has ignited remarkable research. In the very vein, the present mix-methods study aimed to explore the effects of analysis and conceptualization strategies of critical thinking proposed by Elder and Paul (2009), on reading comprehension skills, and to probe the perception of Iranian upper-intermediate EFL learners across gender. To this end, 60 male and female learners within the age range of 25 to 38 were selected from a total number of 120 learners via the Cambridge C2 Proficiency (CPE) test at the Pouyandegan Institute of higher education in Chalous, Iran. Then, they were randomly assigned to two experimental groups for utilizing the conceptualization strategy, and two experimental groups for performing the analysis strategy. Next, Scholastic Aptitude Test (SAT) was administered as the pre-test before an eight-week instruction. After utilizing the treatments, the post-test was administered alongside a semi-structured interview for 12 selected learners. The obtained data were analyzed through one-way ANOVA and paired samples t-test. The results revealed that the treatments had significant effects on the improvement of reading comprehension. The qualitative results too revealed that the learners adopted positive views toward the critical thinking (CT) strategies instruction. However, gender did not play any significant role in using CT strategies in reading comprehension. The implications of the study were discussed at the end of the paper.

Keywords: Analysis and Conceptualization Strategies; Critical Thinking; Reading Comprehension Skills

INTRODUCTION

Using an effective reading strategy for EFL learners is one of the most vital aspects of foreign language (FL) strategy studies. Currently, considerable research has been conducted on the significance of various strategies to improve reading comprehension in foreign language learning. According to Nagy and Habók (2018), "adequate strategies assist EFL learners in

accomplishing certain language tasks more successfully, and learners with a large repertoire of FL learning strategies perform better" (p. 114). Paul and Elder (2014) noted that one of the effective strategies for teaching English reading is teaching through critical thinking (CT). Based on these strategies, learners should be trained to make questions, analyze, organize, and interpret the text quickly. Those learners who are not critical readers cannot extend their

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ability of comprehension in the cognitive process while critical readers can achieve some important abilities, such as conceptualization, analysis, synthesis, and evaluation of the text easily (McLaughlin, 2004). According to Waters (2006), employing CT skills could help readers to improve their level of thinking and organize some abilities to find out the main concept of the text quickly. Moreover, these skills can help learners to achieve some specific knowledge that is beyond the superficial information of a text.

Through the incorporation of CT skills, EFL/ESL teachers could aid learners to develop their abilities and strategies, which may lead to effective language education. In superficial uncritical reading, learners often forget and/ or distort what they read, which could create an illusion of knowledge, and open the door to misunderstandings (Elder & Paul, 2009). Therefore, it is necessary to teach CT strategies in reading comprehension classes to boost EFL learners' CT skills and knowledge to tackle these reading challenges. The results of the ELT studies highlight the CT compatibility in reading comprehension instruction and associate EFL/ESL students' issues in reading comprehension with an exclusive attempt to develop learners' reading achievement via improving semantic and syntactic knowledge with no parallel effort to motivate the improvement of higher-order CT and reasoning skills (Van Gelder, 2005).

The novelty of the present study lies in comparing two CT strategies, namely conceptualization and analysis based on Elder and Paul's (2009) model. As a result, this study is an attempt to overcome the issues the Iranian EFL learners encounter while reading English passages, which reflect strategies on their weaknesses in reading comprehension skills. The present study attempted to provide answers to the following research questions:

RQ1: *Does text analysis CT strategy have any effect on the EFL learners' reading comprehension ability across gender?*

RQ2: *Does conceptualization CT strategy have any effect on the EFL learners' reading comprehension ability across gender?*

RQ3: *What are the EFL learners' perceptions and attitudes towards implementing analysis and conceptualization strategies in reading class?*

For the above quantitative research questions one and two, the following null hypotheses were formulated:

H01: Text analysis CT strategies have not any effect on the EFL learners' reading comprehension ability across gender.

H02: conceptualization CT strategies have not any effect on the EFL learners' reading comprehension ability across gender.

REVIEW OF LITERATURE

Critical Thinking

It is believed that CT is difficult to define. Facione (2011) defines CT as "reflective decision making and thoughtful problem-solving about what to believe and do" (p. 44). According to Paul and Elder (2009), CT can help learners not only to figure out the purpose of thinking and some questions in their minds but also to make some assumptions about the new information. Hence, it is a kind of mental activity that helps readers to evaluate their statements and make decisions for expanding different beliefs. Menkes (2005) asserts that CT is a kind of cognitive skill, which helps learners to learn how to collect new information, analyze it in their minds, and make correct inferences. Moreover, Nosich (2012) emphasized that CT skills consist of a number of factors, such as thinking reflectively, learning completely, and making decisions reasonably. He divided CT skills into different levels: asking the right questions, answering them by reasoning, and accepting the results of findings. As the focus of the study was on two of the CT strategies, conceptualization, and analysis, providing backgrounds of these strategies was demanded.

Conceptualization is the basic part of reading text and an active process that helps readers to find the meaning of the text. He claimed that conceptualization relates to the readers' previous knowledge about that text and their ability to process language text such as encoding, decoding, vocabulary, knowledge of the structure, and general comprehension of text. Therefore, conceptualization is an active

process that needs the effective use of some important strategies such as metacognition and monitoring of general comprehension (Butler, 2017). Analyzing as an important CT strategy is a process of breaking reading text into different constituents and recognizing how these sections relate to each other and to the general part of the text by differentiating some pronouns, vocabularies, and structures. Sasmita (2012) stated that analyzing and interpreting the text depends on some important factors such as vocabulary, grammar, and knowledge of pronouns and their references that readers should be familiar with them.

Empirical Studies

Vaseghi et al. (2012) reviewed the various pedagogical approaches and theories in CT, reading comprehension, and critical reading. Their study highlights the significance of CT in teaching reading skills by depicting the main dimensions of CT that can be most effective in learners' reading comprehension performance. The findings revealed many strategies have been developed to aid in instructing students to think critically and read critically, and based on the literature review, there is a strong relationship between CT and reading comprehension. In a similar line, Fahim et al. (2012) investigated the impact of CT strategies instruction on reading using Facione's taxonomy. The findings showed CT skills significantly affected EFL learners' reading comprehension performance. However, the effect of CT strategy training didn't differ across different language proficiency levels. Along similar lines of studies, Turuk (2010) investigated the effect of strategies of reasoning and CT training on the reading and writing skills of Sudanese EFL students. The findings indicated that students' CT, reasoning, and argumentative writing proficiency developed significantly after the treatment. Furthermore, there were developments in their views and perceptions of thinking abilities as well as in their recognition of the cognitive relationship between reading and writing. Additionally, a considerable enhancement in their English oral proficiency was observed, and also they improved positive views towards English language learning. In the same vein, Yousefi

and Mohammadi (2016) explored the role of critical thinking skills in EFL learners' reading comprehension. The results revealed that there was a significant relationship between CT and reading comprehension. In addition, the findings indicated that gender and proficiency level could not make a statistically significant difference in this regard. Moreover, Mohseni et al. (2020) explored the differential impact of metacognitive strategy instruction and CT awareness-raising on EFL students' reading comprehension of general reading, cause and effect, and argumentative texts. The findings showed that both metacognitive and CT strategies had significant developments in general reading comprehension. In addition, Mohseni et al. (2020) examined the different effects of metacognitive strategy instruction and CT awareness-raising on EFL learners' reading comprehension of general reading, cause and effect, and argumentative texts. The results of their study indicated significant improvements in general reading comprehension.

The previous findings regarding the effects of strategies of CT on EFL/ESL reading achievement lead to inspiration for mixing CT and reading comprehension. Considering the related literature, some research explored the relationship between CT and L2 students' reading comprehension (e.g., Wale & Bishaw, 2020; Zare et al., 2021), and the effects of CT on L2 students' reading achievements (e.g., Bensley, 2010; Halpern, 2014; Heidari, 2020). As far as the researchers of the present study reviewed the related literature, there was no mix-methods study to explore the effects of strategies of the two CT strategies, namely analysis and conceptualization proposed by Elder and Paul (2009), on the reading comprehension of Iranian EFL learners.

Theoretical Framework

Although CT skills and situations can be assessed using test-based assessment, Paul and Elder (2009) provided another model for assessing CT quality. Paul and Elder (2009) introduced five comprehensive characteristics for well-developed critical thinkers. They stated that a critical thinker (1) presents important issues and problems clearly and accurately, (2)

collects and evaluates relevant information and interprets it precisely, (3) reaches well-thought-out conclusions and solutions, tests and comparisons with appropriate procedures and standards, (4) thinks about the opening of mind between other programs for thoughts, seeing and evaluating the need, their guess, impacts, and visible results, and (5) communicates effectively with others in solving difficult problems.

The underlying structure of these characteristics is a conceptual framework in which the fundamental elements of thinking can be assessed concerning different levels of intelligence. These levels, in turn, are required for sound decision-making and sound comprehension. Basically, all natural languages form these levels to supply their users with a number of various words to recognize when and how these words can be used correctly. Elder and Paul (2019) refer to this element as sound guides to assess the thinking process. They claim that words such as clarity, accuracy, relevance, importance, meaning, etc. are determined as intellectual common words (Paul & Elder, 2014), although depending on their accessibility they may have different nuances.

METHOD

Participants

The initial population of the study was 120 (including 66 females and 54 males) students who were selected from the Pouyandegan institute of higher education in Chalous, Mazandaran via convenience sampling. The participants enrolled in a general English course. In order to make sure of their language homogeneity, participants were selected based on their results in Cambridge C2 Proficiency (CPE) test. After administration of CPE, 60 students, 30 males, and 30 females with scores of one standard deviation above or below the mean were chosen as the participants in the study at the upper-intermediate level.

The selected participants, according to the CPE scores, were randomly divided into two male and two female experimental groups, and two control groups, one male and one female (N=10 in each group). Their age ranged from 18 to 28, and their native language was Persian.

Instruments and Materials

Cambridge C2 Proficiency (CPE) test was applied in this study because of being easily administered and viable for grading the learners into different proficiency levels. It consists of four parts evaluating four English language skills. The reliability of the test was equal to .82. To measure learners' reading comprehension regarding critical thinking ability, the Scholastic Aptitude Test (SAT) with calculated reliability of 0.80 was used. Eight reading comprehension passages selected from TOEFL reading tests (2019) were the materials for instruction in terms of the topics and difficulty level. Furthermore, semi-structured individual interviews were used for exploring the learners' views on implementing the CT strategies in a reading comprehension class consisting of 10 open-ended interview questions made by the researchers (See qualitative phase). To ensure the content validity of questions, five experts in the field reviewed and confirmed them.

Procedures

Quantitative Phase

First of all, CPE was administered to 120 EFL students, and 60 students, 30 males, and 30 females, with scores of one standard deviation above or below the mean, were chosen as participants in the study at the upper-intermediate level. They were randomly divided into two male experimental groups, two female experimental groups, and two control groups (one male, one female). Each group consisted of 10 learners. Next, the reading comprehension part of SAT was administered to all of the participants as a pre-test before holding eight sessions of 1.5-hour for each group as treatment.

One male and one female group received analysis CT strategy instruction for learning reading comprehension following Elder and Paul's model (2009) considering: the aim of a text, its most significant question, problem, issue, information or data, implications, main conclusion, assumptions, and viewpoint.

At first, the instructor introduced and defined these elements and their roles in a text to the learners. She specified these elements in a reading passage as a sample to raise the awareness of the learners throughout the text.

In the beginning, being unfamiliar with some concepts, the learners were involved in some challenges. These challenges were gradually removed during the treatment sessions as they were exposed to different texts and teachers' explanations. Then, they were required to read the passages to find these elements and explain them one by one. Every session, one reading of a passage from TOEFL reading tests (2019) was practiced based on the analysis CT strategy in the class. The learners should recognize and explain these elements as interrelated and non-linear in essence. Consequently, they were asked to talk about them in their preferred order, and the instructor provided them with the required feedback.

On the other hand, the second male and second female groups were taught reading comprehension through conceptualization CT strategy (Elder & Paul, 2009) as treatment accordingly. The teacher introduced the notion of conceptualization strategy and its role as well as its aim in reading comprehension to the learners. Then, she introduced paraphrasing principles as the main skill of conceptualization strategy, that is, their paraphrasing could be acceptable only to the extent that their selected words and structures capture the essential meaning of the original reading passage, and, it is also regarded as a successful paraphrase only if the text's reformulation opens up the original meaning. Afterward, she asked the learners to paraphrase the sentences of the text in their own words to be sure about their learning. She carefully checked their paraphrased paragraphs. If they deviated from the main meaning of the text, she noted their errors and provided them with the required feedback. In addition, they were allowed to use their dictionaries to find synonyms. Mean-

while, the teacher asked the learners to state, elaborate, exemplify, and illustrate the main idea of every paragraph and the whole text to improve their metacognition regarding the structure of the text and also the method of organizing the ideas by the author of the reading passage. Therefore, they could critically read the passage and mention their opinions with regard to the viewpoints and ideas of the text under study.

Whereas, the control groups received the instruction based on the conventional syllabus of the class by receiving explanations of the topic and the new vocabularies in the text, then answering the reading comprehension questions. After utilizing the treatments, the post-test was administered to find the effects of the strategies on the learners' reading comprehension abilities. To analyze the quantitative data, descriptive and inferential statistics were implemented, using one-way ANOVA and Paired samples T-test.

Qualitative Phase

The qualitative data of the study was collected through the researcher-made semi-structured individual interviews consisting 10 of questions. 12 learners, 6 males, and 6 females, were selected from among the participants of the four experimental groups. Before conducting the interview sessions, the researcher explained the aim of the interview and arranged its duration with the participants. Every session took 10 to 15 minutes and was recorded, and transcribed. To eliminate the participants' emotional barriers, they were assured that the results of the interviews would not have any impact on their course marks.

To analyze the qualitative data, the qualitative content analysis technique (Creswell, 2012) was applied.

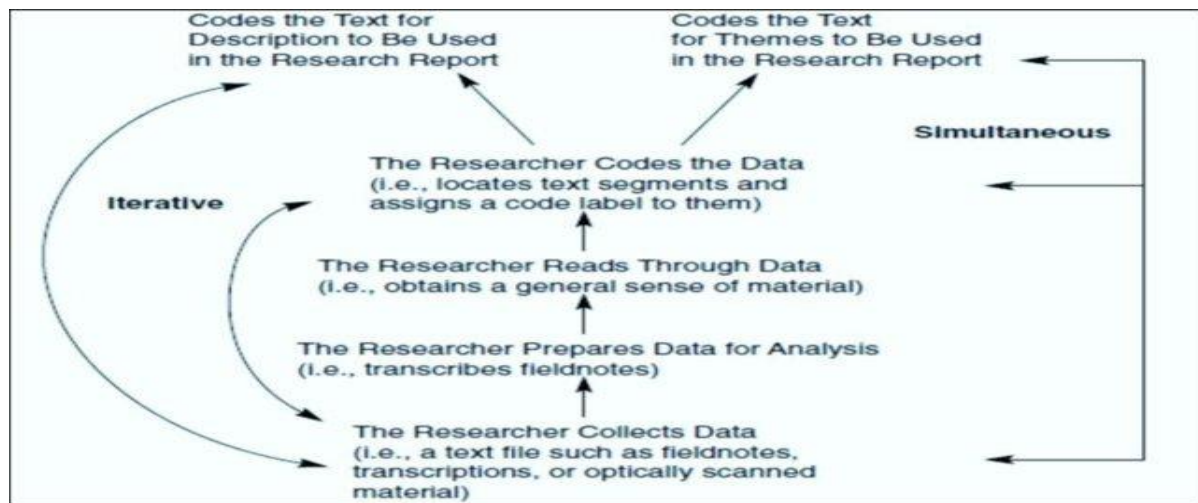


Figure 1

The qualitative content analysis scheme (Creswell, 2012, p.237)

Semi-structured interview questions:

1. Talk about your experiences in the reading classes following CT strategies.
2. What were the most valuable learning experiences in the CT strategies?
3. How can you define your feeling about CT strategies?
4. What hardships have you been experiencing in CT strategies?
5. How did you deal with assessments in CT strategies?
6. How did you find out about CT strategies?
7. How do you monitor the motivation of learners in CT strategies?
8. What qualities did you see in CT strategies?
9. How do CT strategies assist your learning process?
10. What does facilitate you in using CT strategies?

What does facilitate you in using CT strategies?

RESULTS

To analyze the collected data and to address the research questions, at first descriptive statistics for the groups of the study were used.

Table 1

Results of Descriptive Statistics for the Groups of the Study

			N	Mean	Std. Deviation
Pre-test	Conceptualization Strategy	Male Experimental Group	10	9.20	1.75
		Female Experimental Group	10	9.80	1.75
	Text Analysis Strategy	Male Experimental Group	10	9.80	1.39
		Female Experimental Group	10	9.00	2.00
Post-test	Conventional Approach	Male Control Group	10	9.10	1.79
		Female Control Group	10	8.80	2.04
	Conceptualization Strategy	Male Experimental Group	10	12.90	1.52
		Female Experimental Group	10	13.20	1.61
Post-test	Text Analysis Strategy	Male Experimental Group	10	14.80	1.93
		Female Experimental Group	10	15.40	1.26
	Conventional Approach	Male Control Group	10	9.70	1.88
		Female Control Group	10	9.00	1.76

According to Table 1, the female experimental group practicing the conceptualization strategy ($M = 9.80$, $SD = 1.75$) and the

male experimental group practicing the text analysis strategy ($M = 9.80$, $SD = 1.39$) have the highest mean scores on the pre-test. As

for the post-test, the female group practicing the text analysis strategy ($M = 15.40$, $SD = 1.26$) had the highest mean score, and the female control group ($M = 9.00$, $SD = 1.76$) has the lowest mean score.

Addressing the first Research Question

To investigate whether text analysis had a significant impact on male and female participants' reading comprehension, first, a one-way ANOVA was performed on the post-test scores of the four groups.

Table 2

Results of One-Way ANOVA for the Groups practicing Text Analysis

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	334.875	3	111.625	37.174	.000
Within Groups	108.100	36	3.003		
Total	442.975	39			

According to table 2, there is a statistically significant difference among the four groups' reading comprehension mean scores, $F = (3, 36) =$

37.174 , $p = .000$. In order to understand which two mean scores differed significantly, post-hoc comparison using Scheffe's test was performed.

Table 3

Results of Scheffe's Post-hoc Test

(I) id	(J) id	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Male Experimental Group	Female Experimental Group	-.60000	.77496	.896	-2.8725	1.6725
	Male Control Group	5.10000*	.77496	.000	2.8275	7.3725
	Female Control Group	5.80000*	.77496	.000	3.5275	8.0725
Female Experimental Group	Male Experimental Group	.60000	.77496	.896	-1.6725	2.8725
	Male Control Group	5.70000*	.77496	.000	3.4275	7.9725
	Female Control Group	6.40000*	.77496	.000	4.1275	8.6725
Male Control Group	Male Experimental Group	-5.10000*	.77496	.000	-7.3725	-2.8275
	Female Experimental Group	-5.70000*	.77496	.000	-7.9725	-3.4275
	Female Control Group	.70000	.77496	.845	-1.5725	2.9725
Female Control Group	Male Experimental Group	-5.80000*	.77496	.000	-8.0725	-3.5275
	Female Experimental Group	-6.40000*	.77496	.000	-8.6725	-4.1275
	Male Control Group	-.70000	.77496	.845	-2.9725	1.5725

*. The mean difference is significant at the 0.05 level.

Table 3 indicates the mean score for male experimental group ($M = 14.80$, $SD = 1.93$) is significantly different from the mean scores of the male control group ($M = 9.70$, $SD = 1.88$) and also from the mean score of the female control group ($M = 9.00$, $SD = 1.76$). Additionally, the results demonstrate that the mean difference between the female experimental group ($M =$

15.40 , $SD = 1.26$) and the male control group ($M = 9.70$, $SD = 1.88$) is statistically significant. As the results show, the mean score for the female experimental group ($M = 15.40$, $SD = 1.26$) and the female control group ($M = 9.00$, $SD = 1.76$).

Paired-samples t-tests were also performed to track changes in each group's performance from pre-test to post-test

Table 4
Results of Paired-Samples T-Test

		t	df	sig
Male Experimental Group	Pre-test-Post-test	-5.514	9	.000
Female Experimental Group	Pre-test-Post-test	-12.292	9	.000
Male Control Group	Pre-test-Post-test	-.651	9	.531
Female Control Group	Pre-test-Post-test	-.361	9	.726

According to table 4.4, there is a statistically significant increase in reading comprehension scores of the male experimental group from pre-test (M = 9.80, SD = 1.39) to post-test (M = 14.80, SD = 1.93), $t(9) = -5.514$, $p = .000$. As for the female experimental group, the result also reveals a significant improvement in the mean score from pre-test (M = 9.00, SD = 2.00) to post-test (M = 15.40, SD = 1.26), $t(9) = -12.292$, $p = .000$. On the contrary, the result for the male control group shows no significant increase in mean score from pre-test (M = 9.10, SD = 1.79) to post-test (M = 9.70, SD = 1.88), $t(9) = -.651$, $p = .531$. The

mean score of the female control group also does not improve significantly from pre-test (M = 8.80, SD = 2.04) to post-test (M = 9.00, SD = 1.76), $t(9) = -.361$, $p = .726$. The results suggest that practicing text analysis contributed to better performance of the participants in reading comprehension test.

Addressing the Second Research Question

To answer the second research question regarding the impact of conceptualization strategy on participants' reading comprehension ability, the post-test scores of the four groups were compared using one-way ANOVA.

Table 5
Results of One-Way ANOVA for the Groups Practicing conceptualization Strategy

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	139.800	3	46.600	16.038	.000
Within Groups	104.600	36	2.906		
Total	244.400	39			

According to the results, there is a statistically significant mean difference among the four groups' reading comprehension mean scores, $F =$

$(3, 36) = 16.038$, $p = .000$. To detect which two mean scores differed significantly, Scheffe's test was used for post-hoc comparison

Table 6
Results of Scheffe's Post-Hoc test

(I) id	(J) id	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Male Experimental Group	Female Experimental Group	-.30000	.76231	.984	-2.5354	1.9354
	Male Control Group	3.20000*	.76231	.002	.9646	5.4354
	Female Control Group	3.90000*	.76231	.000	1.6646	6.1354
Female Experimental Group	Male Experimental Group	.30000	.76231	.984	-1.9354	2.5354
	Male Control Group	3.50000*	.76231	.001	1.2646	5.7354
	Female Control Group	4.20000*	.76231	.000	1.9646	6.4354
Male Control Group	Male Experimental Group	-3.20000*	.76231	.002	-5.4354	-.9646
	Female Experimental Group	-3.50000*	.76231	.001	-5.7354	-1.2646
	Female Control Group	.70000	.76231	.839	-1.5354	2.9354
Female Control Group	Male Experimental Group	-3.90000*	.76231	.000	-6.1354	-1.6646
	Female Experimental Group	-4.20000*	.76231	.000	-6.4354	-1.9646
	Male Control Group	-.70000	.76231	.839	-2.9354	1.5354

*. The mean difference is significant at the 0.05 level.

Table 6 which demonstrates the mean score for male experimental group ($M = 12.90$, $SD = 1.52$) is significantly different from the mean scores of the male control group ($M = 9.70$, $SD = 1.88$). Additionally, the mean score for the male experimental group ($M = 12.90$, $SD = 1.52$) is significantly different from the female control group ($M = 9.00$, $SD = 1.76$). The re-

sult also reveals that the mean difference between the female experimental group ($M = 13.20$, $SD = 1.61$) and the male control group ($M = 9.70$, $SD = 1.88$) is statistically significant. This significant mean difference is also observed between the female experimental group ($M = 13.20$, $SD = 1.61$) and the female control group ($M = 9.00$, $SD = 1$

Table 7
Results of Paired-Samples T-Test

		t	df	Sig
Male Experimental Group	Pre-test-Post-test	-4.254	9	.002
Female Experimental Group	Pre-test-Post-test	-4.636	9	.001
Male Control Group	Pre-test-Post-test	-.651	9	.531
Female Control Group	Pre-test-Post-test	-.361	9	.726

The results in table 7 show that there is a statistically significant improvement in reading comprehension scores of the male experimental group from pre-test ($M = 9.20$, $SD = 1.75$) to post-test ($M = 12.90$, $SD = 1.52$), $t(9) = -4.254$, $p = .002$. The female experimental group also performed in post-test ($M = 13.20$, $SD = 1.61$), $t(9) = -4.636$, $p = .001$ better than pre-test ($M = 9.80$, $SD = 1.75$). However, the result for the male control group (pre-test: $M = 9.10$, $SD = 1.79$, post-test: $M = 9.70$, $SD = 1.88$, $t(9) = -.651$, $p = .531$) indicates no significant increase in mean scores. The mean score of the female control group also does not improve significantly from pre-test ($M = 8.80$, $SD = 2.04$) to post-test ($M = 9.00$, $SD = 1.76$), $t(9) = -.361$, $p = .726$. Consequently, the results highlight that practicing conceptualization strategy led to better performance of the participants in reading comprehension test.

Addressing the Third Research Question

The third research question addressed "the EFL learners' perceptions and attitudes towards implementing analysis and conceptualization CT strategies in reading skill class", and to answer it, the qualitative content analysis technique (Creswell, 2012) was used. To collect the qualitative data, 12 participants, three participants from every male and female experimental group, were purposefully selected to be interviewed regarding their views and perceptions towards implementing analysis and conceptualization CT strategies. The in-

terviews' transcripts were reviewed several times and then coded to explore the categories and themes.

Based on the obtained results, most participants stated that before treatment they read the text just to answer the comprehension questions; however, after CT strategies instructions, they could read the text critically to understand the ideas implied in the text without considering the comprehension questions. Ali, one of the participants, claimed, "Fortunately, I could learn how to tackle the different parts of the text properly. Now, I can recognize the main idea of the text easily and analyze different parts of the text. In addition, I learned how to express my point regarding the text's main idea. Generally, CT strategies could be very beneficial for my reading comprehension skill." In addition, some participants believed that these strategies helped them to remove their comprehension concerns and improve comprehension self-confidence. Due to this element, Parisa (another participant) pointed out, "When I read the text, I was afraid of misunderstanding the main ideas of the text. Sometimes, I was sure that I could comprehend the text, but I did not have the required comprehension self-confidence." After the CT strategies instruction, I could improve my comprehension self-confidence to tackle my comprehension doubts. Some of them also claimed that they would be able to develop a personal voice toward the text's ideas and express their points of view. It was revealed that

after receiving CT strategies instructions, they could understand the necessity of CT practices to develop their critical reading and having their voice toward the text. In this respect, Maryam (one of the participants) noted, "Expressing my points of view is one of the skills that I have learned through this course. I think talking about my perspectives could increase my comprehension of the text and also develop my critical reading. Before this course, I just encountered CT practices of reading comprehension passages and did not have any idea about CT practices. However, after receiving CT strategies instructions, I could understand the necessity of CT practices to develop our critical reading and having our voice towards the text." As a result, it could be concluded that CT strategies instruction enhances the personal voice of the learners towards assumptions and ideas stated in the text.

DISCUSSION

The findings of the study indicated that teaching analysis effectiveness strategies and CT strategies had significant effects on improving the participants' reading comprehension. The results of the present study are in line with the findings of Barjasteh and Vaseghi (2012) who explored that CT skills significantly impacted the reading comprehension performance of EFL learners, while the findings indicated that gender and proficiency level could not make a statistically significant difference in this regard. Based on Cottrell (2005), CT skills could develop the capability to recognize the essential points within the reading text or main ideas than distracting by less significant points. That is to say, CT skills could bring precision to the method learners think and perform. Fahim et al (2012) and Yousefi and Mohammadi (2016) also found the same results but reflected the effect of CT strategies training didn't differ across different language proficiency levels. The results were also confirmed by Karimi and Veisi' (2016) findings in which they explored that teaching CT strategies positively impacts the reading comprehension of upper-intermediate EFL learners, but the interaction of gender and teaching CT skills was not significant. Mustopa and Sugirin (2020) also support the findings of this study

in terms of revealing reading comprehension skills can be attained by improving critical thinking in the teaching reading process. In line with the present study, Kamali and Fahim (2011) found that there was a significant relationship between CT skill, resilience, and reading comprehension recommending that good internal resources, like strong CT skills and resilience, could impact learners' performance and their reading competence. However, the results do not lend credence to Jie et al.'s (2015) study in which they found that there are some differences in CT ability between the two genders, and the CT ability of the female learners is generally superior to that of the male ones.

According to Wood (2002), CT should be instructed, and it is not an inborn ability; therefore, educators need to possess the capability to think critically and teach CT skills. Although having the capability is not enough, they should be able to pass them on to students. In addition, they should be capable of practicing the CT skills to transfer them to other settings to trigger and inspire the CT skill in students via repeated practice in order to be an automatized ability (Fahim & Eslamdoost, 2014).

The qualitative results reflected that the students adopted positive views towards CT strategies instruction in developing their reading comprehension. The findings of qualitative results complemented the quantitative findings of the present study. The students believed that CT strategies instruction could enhance their CT abilities and critical reading performance. These findings lend credence to the results of Turk Kuek (2010) who found that learners had positive views towards CT strategies instruction in developing their reading and writing skills, and also there were developments in the learners' views and perceptions of CT abilities after receiving CT strategies instruction. In the same vein, Cottrell (2005) noted that CT skills would aid the learners to be more focused on the passage they read. The participants of the present study also maintained that they could incorporate their ideas regarding the text after CT strategies instruction. In this regard, Mustopa and Sugirin (2020) found that upon receiving CT strategies, "the students could

express their opinion related to the text they discussed both in written and orally” (p. 59). Moreover, the participants believed that they could comprehend the implied meanings of texts using CT strategies. Based on Heidari (2020), some readers could read beyond the lines of a text, that is, they have the skill to associate the information stated in the text with their prior knowledge to get the comprehension and interpretation of the author’s intended meaning. So CT strategies instruction could enhance reading beyond the lines of the text and reach the implied meaning of the text. However, Arifin (2020) found that “students that do not have good language mastery and lacked background knowledge found it difficult to establish their critical thinking and comprehension” (p. 323). So, the efficiency of the CT strategies and skills in reading comprehension could be affected by language proficiency. Furthermore, some of the participants noted that they could develop their comprehension self-confidence after receiving CT strategies instructions, and consequently, they could reduce their comprehension concerns. Therefore, they could develop their metacognition to assess their reading comprehension performance through implementing CT skills. Metacognition as a type of higher-order thinking, which involves an awareness of readers’ abilities, helps them control their cognitive process. In this respect, the relationship between critical thinking and metacognitive skills is undeniable, so the expanding of metacognitive skills will have a positive effect on the development of critical thinking skills. Learners also should implement their CT abilities to monitor their comprehension of the text, while associating their schemata with what they read (Kurland, 2000).

CONCLUSION

The aim of this mix-methods study was to explore the effects of analysis and conceptualization of CT strategies on the reading comprehension of Iranian EFL learners and to probe the perceptions of the EFL learners toward implementing CT strategies in developing reading comprehension. The findings of the study revealed that analysis and conceptualiza-

tion of CT strategy instructions had significant effects on the improvement of the learners’ reading comprehension ability. In addition, the findings indicated that both male and female experimental groups significantly outperformed the control groups in the post-test, that is to say, gender was not an effective variable in reading comprehension performance. Regarding the findings of the study, CT strategies have a superior status in comparison with other reading strategies because it helps readers to focus on their beliefs and actions. Moreover, it helps readers evaluate their progress during the reading process. Furthermore, during the CT process, the readers relate the writer’s main purpose to their own ideas and point of view, hence different strategies of CT, such as analysis and conceptualization are very helpful for developing the learners’ reading comprehension.

The findings in terms of the learners’ gender reflected that gender could not be an influential factor regarding the effectiveness of implementing CT strategies in reading comprehension performance. As a result, gender should not be considered as a criterion to instruct and implement CT strategies and skills in language learning and teaching in general and in reading comprehension instruction in particular. Another important implication of the present study is the teachability of CT strategies in EFL classes. Therefore, EFL instructors need to incorporate CT strategies into their syllabus to implement them in their classes. Consequently, syllabus designers and material developers, as the main authorities in developing educational facilities, could include CT strategies in EFL syllabi, materials, and coursebooks to require learners and teachers to apply CT strategies and skills in EFL classes. In addition, policy-maker could incorporate CT instruction in academic curricula to enhance the implementation of CT strategies and skills in academic contexts, like universities. Another implication of the present study is teaching metacognitive strategies in relation to CT instruction in EFL classes since there is a significant relationship between metacognitive strategies and CT. If the learners could get familiar with metacognitive strategies along with CT instruction, they could fully imple-

ment CT strategies and skills in their learning and performance.

This study suffered from some limitations, which could be addressed in future studies. Regarding the participants' number and their level, this study was conducted by applying 60 learners who were at the upper-intermediate level. In order to improve the generalizability of the results, future studies could replicate the present study with more participants from different proficiency levels. In addition, the participants of the present study were in the age range of 18-28. Hence, researchers are recommended to replicate this study with other age groups. Moreover, this study applied analysis and conceptualization of CT strategies instructions in reading comprehension class. Therefore, researchers are encouraged to investigate the effect of CT strategies, such as synthesis and creation on writing or speaking skills in their future research. In addition, this study investigated the role of gender in applying CT strategies in developing reading comprehension; therefore, further studies could explore the role of learners' personal characteristics, such as introversion and extroversion in implementing CT strategies and skills in language education.

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