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IRANIAN EFL TEACHERS' JOB SATISFACTION AND ITS IMPACT ON THEIR PROFESSIONAL DEVELOPMENT

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ABSTRACT

Job satisfaction and teacher profession are two significant concepts which must be taken into consideration by all expert especially teachers in an academic context in Shiraz. The main objective of the present study is to reveal the relationship between job satisfaction and professional development among EFL teachers. Job satisfaction comprises of external and internal factors. External factors include qualifications of the job, organization and government, salary, working conditions, workmates, professional development and supervision, cooperation mates and internal factors contain individuals' expectations of the work and their requests. To do so, 68 English teachers are selected on the convenience sampling procedure. Then in order to collect data, two questionnaires one job satisfaction and the other one professional development are given to them. In order to answer the research questions Mann Whitney, correlation, independent samples t-tests and chi square are run. It can be concluded that EFL teachers' job satisfaction has an impact on professional development. There is a significant relationship between EFL teachers' job satisfaction and professional development.

KEYWORDS: Job Satisfaction, External factors, Internal factors, Professional Development, EFL Teachers.

INTRODUCTION

In today's developed world, with new technology, philosophy, different concepts, and knowledge, teaching is a complicated profession. In such a technologically developing world, the teacher should promote his/her knowledge and education not to fall behind the fast process of technological and scientific developments. This promotion requires facilities, education and motivation. Motivation can help teachers to do their job with high quality. When the teacher feels satisfied and has a good feeling, he/she can transfer his/her knowledge to the students perfectly. For this reason, teachers should enhance their abilities. For example, they should use the internet,

attend international conferences, collaborate with other professors and professionals in the field, and read new books, journals, newspapers, and so on. Demirel (2014) said that job satisfaction means feeling happy about working with other teachers and satisfaction about their environment. Feeling satisfied at work helps the teacher to develop positive attitudes towards his/her job. The lack of teachers' satisfaction has a negative impact on teaching. The teachers must be satisfied about their job and thus to produce high quality education. Job satisfaction depends on external factors such as government, salary, working conditions, professional development and supervision as well as workmates. Rastegar and Moradi (2016) stated that teachers' efficacy is related to their satisfaction and motivation, in their choice of profession and their competence. Recently there have been such studies indicating that the teachers' efficacy will directly affect their performance. There is relationship between emotional intelligence (EI) and self-efficacy among Iranian EFL teachers. It means that if teachers develop their EI, their levels of self-efficacy will increase and vice versa.

LITERATURE REVIEW

Demirel (2014) said that teachers should be satisfied with their job since satisfaction helps them develop high quality education. If teachers are not satisfied with their job, it causes negative effects on teaching. To attain this aim, teachers should be given sufficient opportunity to advance their skills.

Babita and Gurmit (2014) recommended that teachers who are not satisfied with their job cannot do their work. When teachers are not satisfied with their job, they feel tired. Hence, the government and school should create a new environment in which teachers feel happy and satisfied. Teachers' efficacy refers to teachers' belief in their ability. When teachers have high efficacy beliefs, they can help students achieve more academically.

Dindar (2013) stated that job satisfaction depends on several elements such as job environment condition, competitors and co-workers, some rewards and encouragement. Thus, job satisfaction is commonly used for human behavior at work. It is a positive feeling about their works and jobs. If teachers are interested in their job, they can experience high job satisfaction; if not, they will experience job dissatisfaction.

Bademcioglu (2016) stated that teachers should be up-to-date, knowledgeable and be satisfied with their job. The educational system should provide teacher with good situations.

Kinman and Wray (2014) said that when teachers are not satisfied with their job, they feel tired. Hence, the government and school should create a new environment in which teachers feel happy and satisfied. Teachers' efficacy refers to teachers' belief in their ability. When teachers have high efficacy beliefs, they can help students achieve more academically.

Karabiyik and Korumaz (2014) showed that satisfaction was teachers' feeling happy and positive emotions from their job. Job satisfaction has two parts. First, individual variables and

experiences, second organizational variables. Individual variables; age, gender, years of experience, intelligence, socio-cultural effect, personality. Organizational variables; salary, promotion, supervision and colleagues. Karabiyek and Korumaz (2014) believed that job satisfaction is based on the creativity of teachers about how to enjoy their job. Job satisfaction is a set of positive feeling which has strong effects on teachers.

Malinen and savolainen (2016) believed that job satisfaction is a good feeling and positive emotional state of one's job. Teachers' job satisfaction causes them to decide whether to leave or accept the teaching profession. Job satisfaction is related to negative and positive effects; the negative effects include job stress, low confidence and being unable to transfer knowledge. The positive effects include enjoying one's job, relation with other teachers, having a good feeling, and being able to transfer knowledge.

Tessema (2012) said that teachers' professional development was important for the aim of professional education. Professional development refers to teachers' activities in their educational system. Many institutes and educational training systems have provided an environment for teachers to gain skills and new knowledge. Some researchers have shown that professional development is not successful, there are many factors to this lack of success.

Previous Studies on Job Satisfaction and Professional Development Khalf Ibnian (2016) stated that job satisfaction depends on intrinsic and extrinsic factors. Intrinsic factors include personal growth, inner feeling, sense of performance, sense of responsibility and extrinsic factors such as Extrinsic factors such as environment, school safety, job security, salary and co-workers' job satisfaction help create friendship environment between teachers and students. He concluded that job satisfaction is a positive feeling and pleasurable emotion of job experience. It is important for teachers to have job satisfaction and good feeling about their job and themselves.

In another study, Chamundeswari (2013) suggested that job satisfaction is the general feeling about one's job and depends on some situations such as mentally challenging work, supportive working conditions and supportive colleagues. Job satisfaction influences general functioning like teachers' behavior, emotion, and class activity. So there is significant relationship between job satisfaction and performance of teachers.

Furthermore, Smith (2015) believed that teachers' professional development means the process of learning activity or classroom activity, which helps the teacher to improve the educational system. One of the keys to successful education system is professional development. Teachers should use their experience, be up-to-date and change their way to improve themselves. When teachers has high professional development it can be effect on job satisfaction. So there is significant relationship between job satisfaction and performance of teachers.

Finally, Tan, Chang and Teng (2014) showed that teaching is a complicated job because it is linked to other aspects such as psychology, philosophy, knowledge and different concepts. Teacher's professional development is an important aspect of his/her life. When the teacher has a

high confidence and quality and is knowledgeable, he /she can transfer his/her experience to students and so we can witness a powerful educational system in our country.

RESEARCH QUESTION

1. What are English language teachers' conceptions of job satisfaction?
2. Does Iranian EFL teachers' job satisfaction impact their perceptions of professional development?

METHODOLOGY

Participants

The selected participants for this study included seventy-five Iranian EFL teachers working in schools and institutes in Shiraz. Thirty-seven of them have been teaching in public and private schools and the rest have been teaching in Language Institutes. From the seventy-five participants, sixty-eight were chosen as the sample of the study. Forty-four of the participants were females and twenty-four were males. The age range of teachers was 25 to 50 and their years of experience ranged from 10 to 30 years.

Instruments

In the present study, the researcher used two questionnaires. The first one was a job satisfaction questionnaire, designed and validated by Karavas (2010) and the second one was a professional development questionnaire by Karaaslan (2003).

Data collection procedure

The participants of this study who were seventy-five English teachers who were selected by nonprobability convenience sampling procedure. Then, sixty-eight were chosen as the sample of the present study. To collect data, the researcher used the teachers who have worked in different Language Institutes and Public Schools. The participants were allotted some time about two weeks to fill out the questionnaires by the researcher. Both questionnaires which were administered by the researcher, were designed on 5-point Likert Scale, from highly- agree to highly- disagree.

Data Analysis procedures

For data analysis, the researcher used three Mann Whitney U tests, two independent t-tests, and one chi-square, for answering the first question, and three Pearson correlations for answering the second question. The researcher used Mann Whitney U Test to know whether there was a meaningful relationship between the two variables or not, and chi square to know whether there was any significant difference between the number of satisfied and dissatisfied teachers in schools and institutes. Moreover, the researcher employed Pearson correlation to know whether there were any relationships between the two variables or not. The rationale behind using Mann Whitney U Test instead of t-test was that the participants had not been homogenized. Independent samples t-test was used to determine the mean differences. The first correlation was between professional development and job satisfaction of all teachers.

The second correlation was between professional development and job satisfaction of institute teachers. The third correlation was between professional development and job satisfaction of schools teachers. Mann Whitney U Test was used on job satisfaction of school and institute teachers. This test was used on professional development of low and high satisfied of all teachers. It was used on professional development of low and high satisfied of institute teachers. Mann Whitney U Test was used on professional development of low and high satisfied of school teachers, and also it was used on professional development of school and institute teachers. In order to analyze the data, the researcher used SPSS, version 22.

RESULTS AND DISCUSSION

Table 1: Mann Whitney U test on job satisfaction of school and institute Teachers

Hypothesis Test Summary			
Null hypothesis Decision	Test	Sig.	
The distribution of school Institutes job satisfaction is The same across categories of Code.	Independent Samples Mann Whitney U Test	.085	Retain the null hypothesis

As Table 1. shows, the significance is (.085), which is greater than (.05). Therefore, the result of Mann Whitney shows that there is no significant difference between job satisfaction of school and institute teachers.

Table 2: T-test on job satisfaction of school and institute teachers
Independent Samples Test

	Levene's Test for Equality of Variances	t-test for Equality of Means								
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
School Institute Job Satisfaction	Equal variances assumed	.213	.646	-1.843	66	.070	-3.38235	1.83503	-7.04611	.28140
	Equal variances not assumed			-1.843	65.512	.070	-3.38235	1.83503	-7.04662	.28191

As Table 2. shows, the significant index is .070, which is greater than .05 and which means there is relationship between job satisfaction of school and institutes. The mean difference is (-3.38235).

Table 3: Mann Whitney U test on the scores of low-satisfied and high-satisfied English language teachers

Null hypothesis	Test	Sig.	Decision
The distribution of High Satisfied Low satisfied is The same across categories of Code.	Independent Samples Mann Whitney U Test	.000	Reject the null hypothesis

Asymptotic significances are displayed. The significance level is .05.

As shown in Table 3. the significance level is 0, which is less than 0.05. As a result, there is a significant difference between the low and high job satisfaction scores.

Table 4. Chi square results for finding out the significance of difference between high satisfied and low satisfied

Teacher Type * Opinion Cross tabulation Count

		Opinion			Total
		1.00	2.00	3.00	
Teacher Type	1.00	22	11	1	34
	2.00	23	8	3	34
Total		45	19	4	68

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.496 ^a	2	.473
Likelihood Ratio	1.544	2	.462
Linear-by-Linear Association	.041	1	.840
N of Valid Cases	68		

According to Table 4. the significant level of .473 is larger than .05, there is no significant difference between the number of satisfied and dissatisfied teachers in schools and institutes.

Table 5: Pearson Correlation between professional development and job satisfaction of all teachers

Correlations		All Teachers Job Satisfaction	All Teachers Professional Development
All Teachers Job Satisfaction	Pearson Correlation	1	.414**
	Sig. (2-tailed)		.000
	N	68	68
All Teachers Professional Development	Pearson Correlation	.414**	1
	Sig. (2-tailed)	.000	
	N	68	68

** . Correlation is significant at the 0.01 level (2-tailed).

According to Table 5 Pearson correlation index is (.414), and the p-value is less than (0.05). (.000). Therefore, there is a positive significant relationship between all teachers' job satisfaction and all teachers' professional development.

Table 6: Pearson Correlation between professional development and job satisfaction of institute teachers

		Correlations	
		Institute Job Satisfaction	Institute Professional Development
Institute Job Satisfaction	Pearson Correlation	1	.500**
	Sig. (2-tailed)		.003
	N	34	34
Institute Professional Development	Pearson Correlation	.500**	1
	Sig. (2-tailed)	.003	
	N	34	34

** . Correlation is significant at the 0.01 level (2-tailed).

As shown in Table 6. the significant is (.003), which is less than p value (0.05). Therefore, there is a significant relationship between institute teachers job satisfaction and their professional development.

Table 7: Pearson Correlation between professional development and job satisfaction of school teachers

		Correlations	
		School Job Satisfaction	School Professional Development
School Job Satisfaction	Pearson Correlation	1	.200
	Sig. (2-tailed)		.256
	N	34	34
School Professional Development	Pearson Correlation	.200	1
	Sig. (2-tailed)	.256	
	N	34	34

As shown in Table7. there is no significant correlation between job satisfaction and professional development of school teachers since the p-value has been reported to be (.256) which is more than (0.05).

Table 8: Mann Whitney U Test on professional development of low and high satisfied English language teachers

Hypothesis Test Summary			
Null hypothesis	Test	Sig.	Decision
The distribution of professional Development of all teachers Low High satisfied is The same across categories of Code of professional development Of all teachers Low high.	Independent Samples Mann Whitney U Test	.045	Reject the null hypothesis

As shown in Table 8. shows, that the p-value is (.045), which is lower than (.05). Therefore, result of this table shows that there is a significant relationship between professional development of low and high satisfied teachers.

Table 9: T-test on professional Development of low and high satisfied of all teachers

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Professional Development Of All Teachers	Equal variances assumed	.685	.411	2.268	57	.027	18.87534	8.32104	2.21275	35.53793
Low High Satisfied	Equal variances not assumed			2.134	28.451	.042	18.87534	8.84652	.76699	36.98368

According to table 9, the result of t-test shows that the mean difference of professional development of low and high satisfied of all teachers is (18.875) and the p-value is (.027) which is lower than .05; therefore, there is a significant difference between professional development of low satisfied and high satisfied of all teachers. There is a significant difference between professional development satisfied teachers and dissatisfied teachers.

Discussion

A study done by Chamundeswari (2013), job satisfaction and performance of school teachers with a total of 196 teachers from state board schools, after correlation results showed that there was a positive significant difference between job satisfaction and performance of the teacher. When teachers have high job satisfaction, she /he has a good performance. On the other hand, in our study it was shown that there is a positive relation between these two variables.

Another study done by Hutabarat (2017) recommended that the total number was 143 teachers and indirect effect of work motivation on job-performance through job-performance. The result showed that there was a positive significant between organizational culture affecting work motivation, job-satisfaction and job-performance. In our study, the total number of teachers was 75 and there was a positive relationship between satisfaction and professional development. When a teacher has high satisfaction, she /he can be successful in their job and do their work.

CONCLUSION

This study aimed to examine the impact of teachers' job satisfaction on professional development. The findings of this study showed that job satisfaction could be effective on teachers' professional development. There was a direct relationship between job satisfaction and professional development of Iranian English language teachers. No clear response was found to the second research question that was regarding the impact of job satisfaction on their perceptions of professional development. However, according to the Pearson correlation there was more satisfaction rather than dissatisfaction in teachers. Teachers' job satisfaction could be influential in many ways such as increasing individuals productivity, guarantee to an organizational commitment to physical and mental health of the individuals, increasing morale people and so on. On the other hand, teachers who are satisfied with their jobs are able to learn skills that are more new.

According to many studies carried out, some more factors that should not be ignored as interfering factors are salaries and benefits, facilities, cooperation and friendship between teachers, adequate social status, recognition of the value of work, work stability, matching specific objectives of employees with organizational goals, working conditions, opportunities to promotion, policy of the organization, discipline at work, job security, and success in work.

The results of this study indicated that there was a positive significant difference between teachers' job satisfaction and professional development. Therefore, teachers should enhance their abilities, high motivation to teach and update their knowledge. When teachers have high motivation and cooperation with other teachers and update their knowledge, they will be able to help the students and that causes the educational system to have high quality. Accordingly, teachers' job satisfaction causes improvement of the society.

Pedagogical implications

The results of the study may provide a perspective on the area of teacher development in Iran by understanding English language teachers' perceptions of their own professional development. It may help developers and teacher trainers to understand teachers' needs, communicate with them more effectively, and improve teacher development opportunities for better performance in classes. In addition, it may help teachers become aware of their conceptions and the importance of their own professional development. On the other hand, if teachers have enough satisfaction and peace of mind, they can make a friendly relationship with their students, and they can update their knowledge, cooperate with other teachers and use their experiences.

Limitatoin of the study

As all pieces of research are faced with limitations, this research was no exception. The first and the most important problem was that some teachers did not cooperate with the researcher. Some of them did not have enough time to fill out the questionnaires, and some declared that the questionnaire items were so private and they could not answer them. Although they had been informed that the results would remain confidential, they refused to fill the questionnaires. The second problem was that the process of data collection was quite time-consuming due to the long distance between schools.

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THE COMPARATIVE EFFECT OF TEACHING CRITICAL THINKING STRATEGIES ON RIGHT HEMISPHERE-DOMINANT AND LEFT HEMISPHERE-DOMINANT EFL LEARNERS' READING COMPREHENSION

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ABSTRACT

Reading comprehension can be affected by variety of factors including learner variables, instruction variables, instruction content, etc. The current study focused on learners' brain hemispheric dominance and critical thinking instruction. It aimed at investigating the effect of teaching critical thinking strategies on the reading comprehension of Iranian left and right hemisphere dominant language learners. In addition to that, it was attempted to find out how left and right hemisphere-dominant language learners perform differently in reading comprehension after critical thinking strategy instruction. Totally, 60 English as a Foreign Language (EFL) learners participated in the study 37 of whom were left brain-dominant and 23 were right brain-dominant learners. Data were collected by administering the brain-dominance questionnaire and PET. Data were analyzed by the help of SPSS version 21 and employing the statistical tests of paired and independent samples t-tests. Results showed that both left and right brain-dominant language learners significantly made progress in terms of reading comprehension performance after being treated with critical thinking strategy instruction. In addition, it was found that there was a significant difference between left and right brain-dominant language learners after the critical thinking strategy instruction. Based on the findings of the current study, teachers and teacher trainers are encouraged to keep themselves updated regarding the use of critical strategy instruction in relation to cognitive styles and teaching different language skills in general and reading comprehension in particular.

KEYWORDS: Right-brain dominance, Left-brain dominance, Critical Thinking Strategies, Reading Comprehension

INTRODUCTION

In today's education, reading comprehension is considered one of most essential dimensions when it comes to the process of language learning. Accordingly, researchers (e.g., Cho & Rhodes, 2010; Conrad & Donaldson, 2004; Dreyer & Nel, 2003) note that multiple ways have

been proposed to help teachers instruct reading comprehension with the aim of helping students to be better language learners. The thorough comprehension of the L2 texts can make contribution to a better learning of the L2 as learners will be provided with more chances to be exposed to more inputs when they read and comprehend the texts in second language. Furthermore, being equipped with an effective reading comprehension skill, students can enjoy and study at university, as well as keep themselves updated by reading the daily press and news (Jacobs, DuFon, & Hong, 1994). However, the process of reading comprehension may be influenced by various factors such as individuals' cognitive styles. (Baynes and Long, 2007). One of these cognitive styles is being left or right brain dominant. This means that, right brain dominance has to do with the contribution of the right hemisphere in dealing with tasks. Left brain dominance is concerned with the engagement of the left hemisphere in dealing with a specific task (Feldman, 1996). Researchers (e.g., Baynes & Long, 2007; Chater Reali, & Christansen, 2009; Khaksar & Weisi, 2015; Saleh, 2001) have examined theories of the two hemispheres of the brain along with how they are different in terms of function and control of the body.

Based on the results of recent research (e.g., Baynes & Long, 2007; Saleh, 2001), right brain dominant individuals process the information and respond differently from those who are left brain dominant. According to Baynes and Long (2007), majority of theories state that right-brain dominant individuals are directed by the more emotional, intuitive right hemisphere whereas left-brain individuals react in sequential, logical ways, and under the control of the left hemisphere. One of the cognitive domains which make possible contribution to the reading comprehension performance is to assist learners to think critically while engaged in the reading process (Saleh, 2001).

Critical Thinking (CT) involves the dominant tendency of the mind, in particular, both cognitive and affective domains of reasoning, highly influencing people's abilities to challenge the assumptions. As one of the cognitive strategies, critical thinking allows the learners to minimize the dependency of teachers, making them more effective in reading comprehension process (Aloqaili, 2012).

Critical thinking strategies describe those strategies through which a critical thinker enhances the efficacy of his or her thinking by applying intellectual standards to it (Mayfield, 2001). Having critical thinking, L2 learners can talk about a passage, expressing their own emotions about it and relating it to their own routine life (Aloqaili, 2012). However, L2 teachers and researchers have not taken it seriously. Most researchers have probed the impact of critical thinking on other skills particularly writing. Because of the close relationship between reading and writing skills (Chaffee, McMahon & Stout, 2000; Winterowed, 2000), this study sought to explore the impact of instructing critical thinking strategies on reading comprehension skill among right and left brain dominant Iranian EFL learners.

RESEARCH QUESTIONS

To do so, the following research questions were formulated:

Q1: Does teaching critical thinking strategies have any significant effect on right hemisphere–dominant EFL learners’ reading comprehension?

Q2: Does teaching critical thinking strategies have any significant effect on left hemisphere–dominant EFL learners’ reading comprehension?

Q3: Is there any significant difference between left and right hemisphere-dominant EFL learners in terms of reading comprehension after critical thinking strategy instruction?

METHODOLOGY

Participants

The participants in this study were 60 Iranian female young adult EFL learners at the intermediate level of English proficiency studying at Farhang Sarye Khavaran Institute. The participants were selected from among 90 students on the basis of their performance on a preliminary English Test (PET) administered to them before conducting the study. The participants were aging between 14 and 19. The selection was based on convenient non-random sampling. Following the administration of the PET to the 90 students, 60 of the participants whose scores fell between one standard deviation above and below mean were selected and given the Brain Dominance Questionnaire and based on the results they were divided into two groups i.e. left-brain and right-brain dominant. Moreover, a group of 30 intermediate students with similar characteristics and the same language proficiency level as the target sample participated in the piloting of the PET.

Instruments and materials

Preliminary English Test (PET)

In order to fulfill the purpose of the study, the researcher used instructional materials and a test as described below. A sample of preliminary English Test (PET) from Preliminary English Test 5 of Cambridge University Press (2008) was used to select a homogenized sample of participants.

The Reading Comprehension Pretest and Posttest

The dependent variable of the study was reading comprehension that needed to be measured before and after (reading pretest and posttest) treatment.

Brain Dominance Questionnaire

The brain dominance questionnaire used in the current study was developed by Davis (1994). This instrument has 39 items and each item has three alternatives (a, b, c). It will take 20 minutes for the participants to fill out. The score for each learner was calculated by counting the numbers of selected a, b, and c alternatives, using the following formula in line with Deng Dafei, (2007, as cited in Heidari, 2010):

$$\{[(\text{“a”} \times 1) + (\text{“b”} \times 3) + (\text{“c”} \times 2)] / 3\} - 13\}$$

The participants who got a score below 13 were considered left brain dominant and those learners obtaining a score more than 13 were right brain dominant learners according to procedure proposed by Davis (1994). The Cronbach's Alpha reliability and validity of this inventory has been reported by K ok (2005, cited in K ok, 2010 & 2014) as 0.87. Moreover, since reliability is sample dependent, the reliability of the questionnaire was estimated through piloting this questionnaire on 30 learners having similar characteristics of the main participants and Cronbach's Alpha was run on the obtained scores.

RESULTS AND DISCUSSION

Reliability of the Scales

The purpose of the pilot study was to establish the reliability of the instruments of the study; PET and Brain Dominance Questionnaire. In order to estimate the reliability of the PET, two types of analyses were employed: inter-rater reliability and Cronbach's alpha. Cronbach's alpha was used for reading and listening sections of PET and inter-rater reliability for speaking and writing sections of PET. Table 1 shows the descriptive analysis of PET subtests and Cronbach's alpha report of reading and listening sections of PET in the pilot study.

Table 1: Reliability analysis of the reading and listening subtests of PET

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis	Alpha	
Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Std. Error	
Reading Pilot	30	13.00	25.00	18.9333	2.99348	.061	.427	.833	.882
Listening Pilot	30	5.00	16.00	10.7000	2.61494	-.045	.427	.833	.754
Speaking Pilot	30	3.00	12.00	7.6667	2.53708	-.141	.427	.833	
Valid (listwise)	N 30								

As it was mentioned earlier, inter-rater reliability procedure was adopted for estimating the reliability of the speaking section. Therefore, two raters scored the speaking performances of the learners in the pilot study and the degree of correlation between raters indicated the inter-rater reliability of the speaking section. Table 2 shows the results of correlation coefficient.

Table 2: Inter-rater Reliability of the Speaking Section of PET

	Speaking2
Speaking1	Pearson Correlation .778**
	Sig. (2-tailed) .000
	N 30

As for the reliability of the Brain Dominance Questionnaire, again Cronbach's Alpha procedure was adopted. Table 3 shows the descriptive statistics and Cronbach's Alpha report of Brain Dominance Questionnaire in the pilot study.

Table 3: Descriptive Statistics and Cronbach's Alpha Report of Brain Dominance Questionnaire

	N	Minimum	Maximum	Mean	Std. Deviation	Alpha
Brain Dominance	30	5.00	19.00	11.6333	3.33718	.855
Valid N (listwise)	30					

Table 4 shows the descriptive statistics of the 90 language learners. According to this Table, 90 students had a mean score of 42.01 (SD=7.68) with minimum score of 25 and maximum score of 60. From these 90 students 60 of them whose scores fell within ± 1 SD of the mean were chosen as the legitimate participants of the study. Table 4 shows the descriptive statistics of the 90 language learners.

Table 4: Descriptive Statistics of Initial Pool of 90 Students on PET Scores

	N	Minimum	Maximum	Mean	Std. Deviation
PET 90	90	25	60	42.01	7.683
Valid N (listwise)	90				

As shown in the Table 5, the mean score of the 60 students is 41.58 (SD=3.75) with maximum score of 49 and minimum of 35. In the next step, the 60 language learners were divided into two groups of Left and Right brain dominant students based on the result of brain dominance questionnaire.

Table 5: Descriptive Statistics of Actual Participants of the Study on PET Scores

	N	Minimum	Maximum	Mean	Std. Deviation
PET60	60	35.00	49.00	41.5833	3.75654
Valid N (listwise)	60				

Table 6 shows the reading comprehension of the left brain dominant students and the right brain dominant students in PET reading.

Table 6: Descriptive Statistics of Left and Right Dominant Learners on PET Reading Scores

	Statistic	Statistic						Std. Error		Normality Test		
		Mean	Std. Deviation	Minimum	Maximum	Skewness	Kurtosis	Skewness	Kurtosis	Statistic	df	Sig.
Pretest	Left	17.8	2.49	12.00	23.00	-.273	-.149	.388	.759	.116	37	.200 [*]
	Right	18.4	2.19	14.00	23.00	.032	-.075	.481	.935	.109	23	.200 [*]

In PET reading section, left brain dominant learners had a mean score of 17.81 (SD=2.49) and the right brain dominant learners had a mean score of 18.47 (SD=2.19). Apparently, the two groups had similar reading proficiency. However, to make sure that the two groups had equal reading proficiency, the reading scores of the two groups of learners were compared using independent samples t-test. It should be noted that according to the Kolmogorov Smirnov test of normality, both sets of reading scores were normally distributed ($p > 0.05$) which made the use of parametric tests legitimate. Table 7 shows the result of independent samples t-test on reading scores of the left brain dominant learners and right brain dominant learners before treatment.

Table 7: Results of Independent Samples t-test on Reading Scores of the Left Brain Dominant Learners and Right Brain Dominant Learners Before Treatment

		Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Reading Pretest	Equal variances assumed	.575	.451	1.0	58	.296	-.66745	.63280	-1.934	.5992
	Equal variances not assumed			1.0	51.314	.282	-.66745	.61392	-1.899	.5648

Based on the results of Levene's test of equality of variances, left brain dominant learners and right brain dominant learners had equal variances in their reading scores ($F=0.57$, $P=0.45$). Therefore, independent samples t-test with the assumption of equal variances were considered for analysis. According to the result of independent samples t-test, there was no significant difference between the left brain dominant learners and right brain dominant learners in terms of reading proficiency before treatment ($T=1.05$, $P=0.29$). Therefore, any changes in reading comprehension scores of the learners after treatment could be easily tracked and any possible difference between the left brain dominant learners and right brain dominant learners could be attributed to the effect of critical thinking strategies.

Addressing the First Research Question

The first research question was concerned with the effect of critical thinking strategies on right hemisphere-dominant EFL learners' reading comprehension. To find the answer to the first research question, reading comprehension scores of the right brain dominant learners were compared concerning the reading pretest and posttest. The descriptive statistics of the right brain dominant learners in reading pretest and posttest is displayed in Table 8.

Table 8: Descriptive Statistics of the Right Brain Dominant Learners in Reading Pretest and Posttest

		Statistic				Std. Error		Test of normality		
		Mean	Std. Deviation	Skewness	Kurtosis	Skewness	Kurtosis	Kolmogorov-Smirnov		
Groups								Statistic	df	Sig.
Reading Pretest	Right	18.4783	2.19233	.032	-.075	.481	.935	.109	23	.200*
Reading Posttest	Right	21.5217	2.42842	-.029	-.695	.481	.935	.100	23	.200*

Based on descriptive statistics, right brain dominant learners had a mean score of 18.47 ($SD=2.19$) in reading pretest and a mean score of 21.52 ($SD=2.42$) in posttest. As it can be seen, there is improvement in the reading scores of right brain dominant learners after critical strategy instruction. To make sure that this improvement is significant, the pretest and posttest scores were compared using the paired samples t-test. The use of paired samples t-test was legitimate, because the reading scores were normally distributed according to the result of Kolmogorov Smirnov test ($P>0.05$) and skewness/kurtosis analysis. Table 9 shows the results of paired samples t-test.

Table 9: Result of Paired Samples t-test in Right Brain Dominant Learners

		Paired Differences							
		Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Pair 1	Reading Right Pretest – Reading Right Posttest	-3.04	1.49174	.31105	-3.68856	-2.39840	-9.785	22	.000

According to the results of paired samples t-test, there was a significant difference between the reading pretest and posttest scores of the right brain dominant learners ($T=9.75$, $P=0.00$). Therefore, it can be stated that critical thinking strategies significantly improved the reading comprehension of right brain dominant learners. Hence, the first research hypothesis stating that “Teaching critical thinking strategies does not have significant effect on right hemisphere – dominant EFL learners’ reading comprehension” was rejected. This means that teaching critical thinking strategies has significant effect on right hemisphere–dominant EFL learners’ reading comprehension.

Addressing the Second Research Question

The second research question was about the effect of critical thinking strategies on left hemisphere–dominant EFL learners’ reading comprehension. To find the answer to the second research question, the same procedure in the first research question was repeated. Therefore, reading comprehension scores of the left brain dominant learners were compared regarding the reading pretest and posttest. The descriptive statistics of the left brain dominant learners in reading pretest and posttest is displayed in Table 10.

Table 10: Descriptive Statistics of the Left Brain Dominant Learners in Reading Pretest and Posttest

		Statistic				Std. Error		Test of normality		
		Mean	Std. Deviation	Skewness	Kurtosis	Skewness	Kurtosis	Kolmogorov-Smirnov		
Groups								Statistic	df	Sig.
Reading Pretest	Left	17.8108	2.49263	-.273	-.149	.388	.759	.116	37	.200*
Reading Posttest	Left	22.9730	2.46629	-.320	.040	.388	.759	.126	37	.146

Based on descriptive statistics, left brain dominant learners scored 17.81 (SD=2.49) in reading pretest and scored 22.97 (SD=2.46) in posttest. To make sure that this difference in reading scores is significant, the pretest and posttest scores were compared using the paired samples t-test. It should be noted that the reading scores were normally distributed according to the result of Kolmogorov Smirnov test ($P>0.05$) and skewness/kurtosis analysis (skewness/kurtosis divided by corresponding Std in range of ± 1.96). Table 11 shows the result of paired samples t-test in left brain dominant learners.

Table 11: Result of Paired Samples t-test in Left Brain Dominant Learners

		Paired Differences		Std. Error	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
		Mean	Std. Deviation		Lower	Upper			
Pair 1	Reading Left Pretest – Reading Left Posttest	-5.162	1.50025	.24664	-5.66237	-4.66195	-20.90	36	.000

According to the results of paired samples t-test, there was a significant difference between the reading pretest and posttest scores of the left brain dominant learners ($T=20.93$, $P=0.00$). Therefore, it can be stated that critical thinking strategies significantly improved the reading comprehension of left brain dominant learners. Hence, the second research hypothesis stating that “Teaching critical thinking strategies does not have significant effect on left hemisphere – dominant EFL learners’ reading comprehension” was also rejected. This means that, teaching critical thinking strategies has significant effect on left hemisphere–dominant EFL learners’ reading comprehension.

Addressing the Third Research Question

The third research question was about any significant difference between the right and left brain dominant learners in terms of the effect of critical strategies on their reading comprehension. Since the two groups of learner were equal at the outset of the study in terms of reading comprehension, any effect of critical strategies on reading comprehension could be compared between the right and left brain dominant groups in reading posttest. Table 12 shows the reading comprehension of the right and left brain dominant groups in reading posttest.

Table 12: Descriptive Statistics of Left and Right Dominant Learners on Reading Posttest

	Statistic	Std. Error				Normality Test				
		Mean	Std. Deviation	Skewness	Kurtosis	Skewness	Kurtosis	Statistic	df	Sig.
Reading Posttest	Left	22.9730	2.46629	-.320	.040	.388	.759	.126	37	.146
	Right	21.5217	2.42842	-.029	-.695	.481	.935	.100	23	.200*

In reading posttest, left brain dominant learners had mean score of 22.97 (SD=2.46) and the right brain dominant learners had mean score of 21.52 (SD=2.42). Apparently, the two groups had some difference in reading proficiency. However, to make sure that such difference was significant or non-significant, the two groups of the learners’ reading scores were compared using independent samples t-test. The reading scores were normally distributed according to the result of Kolmogorov Smirnov test ($P>0.05$) and skewness/kurtosis analysis (skewness/kurtosis divided by corresponding Std in range of ± 1.96) which made the use of parametric tests legitimate. Table 13 shows the result of independent samples t-test on reading posttest scores of the left brain dominant learners and right brain dominant learners.

Table 13: Result of Independent Samples t-test on Reading Posttest Scores of the Left Brain Dominant Learners and Right Brain Dominant Learners

		Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Reading Posttest	Equal variances assumed	.071	.790	2.229	58	.030	1.45123	.65107	.14797	2.75450
	Equal variances not assumed			2.237	47.358	.030	1.45123	.64869	.14650	2.75596

Based on the results of Levene's test of equality of variances, left brain dominant learners and right brain dominant learners had equal variances in their reading posttest scores ($F=0.07$, $P=0.79$). Therefore, independent samples t-test with the assumption of equal variances was considered for analysis. According to the result of independent samples t-test, there was a significant difference between the left brain dominant learners and right brain dominant learners in terms of reading proficiency after treatment ($T=2.22$, $P=0.03$). Therefore, critical strategies had significantly better effect on learners with left brain dominance. Hence, the third research hypothesis stating that "Teaching critical thinking strategies makes no significant difference between right vs left hemisphere-dominant EFL learners' reading comprehension" was rejected.

Discussion

The purpose of the present study was to explore the effect of instructing critical thinking strategies on the reading comprehension of left and right hemisphere dominant language learners among Iranian EFL learners. In addition, it was attempted to find out how left and right hemisphere dominant language learners perform differently on reading comprehension after critical thinking strategy instruction. Totally, 37 left brain and 23 right brain dominant language learners participated in the study. Through comparing the reading comprehension scores of the participants before and after critical thinking strategy instruction, it was found out that both left and right hemisphere dominant language learners significantly made progress in terms of reading comprehension performance. However, when the left and right hemisphere dominant language learners' reading comprehension was compared after instruction period (treatment), it was revealed that left brain dominant learners had significantly better performance than right brain dominant learners. That is, while the two groups had similar reading performance before instructional period, there was a significant difference between the two groups regarding their reading comprehension after the treatment. This last finding suggests that left brain dominant learners benefited more from critical thinking strategy instruction.

Based on the results, critical thinking strategies promoted the reading comprehension of both right and left hemisphere dominant language learners which means that regardless of the brain dominance of the language learners, critical thinking strategies can be beneficial for boosting the reading comprehension of language learners. This argument is in line with literature commenting on the values of the critical thinking. Several studies have corroborated the contribution of critical thinking to the improvement of ESL writing ability; L2 proficiency and oral communication ability (Liaw, 2007). There is a very close relationship between language development and thinking and educators have put emphasis on the significance of the

improvement of higher-order thinking skills in L2 classrooms (Chamot, 1995; Tarvin & Al-Arishi, 1991). Empirical evidence lends support to the effectiveness of the instruction of critical thinking skills in the improvement of the foreign language (Chapple & Curtis, 2000; Davidson, 1994, 1995).

The contribution of critical thinking to reading comprehension can be viewed from another angle: analyzing the components of reading comprehension. Aside from the low level processes involved in reading comprehension, there are higher order processes like schemata activation and use of general and topical knowledge. Stott (2001) believes that the reading process entails identification of formal structure, genre and topic, all of which activate schemata and let readers understand the text. The top-down models of reading (e.g., Campbell & Malicky, 2002; Coady 1979; Goodman, 1988; Smith, 1973) stress the movement of information from higher levels, such as anticipation of semantic cues, prediction, and hypothesis formation, to lower level perceptual analyzing systems, such as decoding at the grapheme-phoneme level to word recognition and pattern recognition routines. On the other hand, critical thinking involves the stimulation of higher order thinking skills. Onosko and Newmann (1994, as cited in Paran, 2003) classify critical thinking as a kind of higher order skill as human should expand his or her mind to cope with new challenges. It can be easily understood that critical thinking can help the learner to have better use of metacognition when making general reading comprehension, inferences, and tracing the references. Logically, the instruction of critical strategy instruction can directly affect the reading comprehension by preparing the learners to use of higher level thinking while reading and making meaning from texts. In this regard, Bagheri and Ghanizadeh (2016) reported the contribution of critical thinking to participants' inference-making, deduction, and self-monitoring. Maibodi (2014) carried out an investigation to probe the effects of critical thinking skills on L2 learners' reading of English novels as well its impact on their reading proficiency. The results of this investigation revealed a significant improvement in L2 learners' perception, confidence, and interest, particularly, in their novel-reading skill.

Another finding of the present study was that left brain dominant learners took more benefit from critical thinking strategies. In other words, learners with left brain dominance scored significantly better than right brain dominant learners after being treated with critical thinking instruction. This finding was quite expected when considering the skills associated with left and right brain dominance. Left brain has been connected with logic, language and critical thinking while right brain with emotions, music, color etc. (Wolfe, 2010). Therefore, it can be seen that right brain learners were already prone to critical thinking which might have been further boosted by the critical strategy instruction. It can also be argued that since the left brain dominant learners were in a better status to understand and use the critical thinking strategies, they could better use them in their reading performance and achieve higher scores. An empirical study that further support this finding of the current study was the one by Bakker (1992) who concluded that children can read the words mainly through the activation of right hemisphere. Moreover, the study indicated that a large shift to the left brain activation later happened and that the children read words through the activation of left hemisphere. Grimes (2003) commented on this finding of Bakker (1992) that reading starts as a primarily visual, right hemisphere function but proceeds to a more language dominated function mediated by the left hemisphere. Therefore, it can be argued that a left brain dominated learner can make use of his linguistic function of his

brain, his critical thinking ability and also further critical thinking strategy instruction and perform better than a right brain dominant learner in reading comprehension.

CONCLUSION

The purpose of the present study was to explore the effect of instructing critical thinking strategies on the reading comprehension of left and right hemisphere dominant language learners among Iranian EFL learners. In addition, it was attempted to find out how left and right hemisphere dominant language learners perform differently on reading comprehension after critical thinking strategy instruction. The results of statistical analysis indicated that both left and right brain-dominant language learners significantly made progress in terms of reading comprehension performance after being treated with critical thinking strategy instruction. In addition, it was found that there was a significant difference between left and right brain-dominant language learners after the critical thinking strategy instruction with the left-brain dominant learners outperforming the right-brain ones.

Every study is limited to its scope and methodological limitations. In addition, the results of the studies may not be satisfactory or are in sharp contrast with literature and expectations. The current study is not an exception and accordingly further research needs to be done on the topics of reading comprehension, brain hemispheric dominance, and critical thinking. Some suggestions are made here for further research on the aforementioned topics.

In the first place, it is suggested that the same study be replicated in various contexts to reach more conclusive results. The more is known on this topic, the firmer generalizations can be made in this respect. Second, it is suggested that effect of critical thinking instruction on other language skills like listening and speaking be further studied. The more integrated is the findings about the effect of critical thinking on language learning the more integrated curriculum can be devised. Third, it is suggested that it is further studied how being left or right brain dominated affect a person's performance in various aspects of second language acquisition. The current study was just limited to reading comprehension while it needs to be researched how being left or right brain dominated affects speaking, writing and listening. Fourth, it is suggested that more moderator variables are considered when the effect of critical thinking instruction on various aspects of language acquisition is examined. For instance, it needs to be further illuminated how the effect of critical thinking instruction changes when language learners have different personality types, have different levels of anxiety and motivation, etc.

The findings of the current study can have implications for the language teaching and learning including reading comprehension instruction. Critical thinking strategies need to be further highlighted in language classroom including reading classes. This emphasis means the deliberate inclusion of critical thinking instruction in reading comprehension courses. Parallel to this point, it should be noted that language teachers need to be prepared for critical thinking strategy instruction. Various forms of instructions for language teachers like workshops, conferences etc., may give preliminary instruction on critical thinking strategy instruction. Inclusion of critical thinking strategy instruction should be in harmony with the content materials. It would be less fruitful when the teaching materials have not been adequately adapted to accompany critical

thinking strategy instruction. Encouragement of language teachers and trainers to keep themselves updated regarding the latest developments in critical thinking and pedagogy can be a good way to keep them alert regarding the use of critical strategy instruction in classroom context.

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