The Relationship among EFL Teachers' Critical Thinking, Neuro-Linguistic Programming, and Their Sense of Efficacy

Nasim Shahmoradi *

MA in TEFL, Islamic Azad University, Central Tehran Branch, Iran

Mania Nosratinia

Assistant Professor in TEFL, Islamic Azad University, Central Tehran Branch, Iran

Nacim Shangarffam

Assistant Professor in TEFL, Islamic Azad University, Central Tehran Branch, Iran

Abstract

The purpose of this study was to investigate the relationship among EFL teachers' critical thinking, neuro-linguistic programming, and sense of efficacy. To this end, 160 (52 males and 108 females) EFL teachers, within the age range of 22 to 40 (M=31) and teaching experience of 5-20 years, teaching at different English language institutes and public schools in Tehran took part in the study by completing three questionnaires, namely, the Honey's Critical Thinking Questionnaire (2000), the Pishghadam's Neuro-Linguistic Programming Questionnaire (2011), and the Tschannen-Moran and Hoy's Teachers' Sense of Self-Efficacy Scale (2001). The results of Spearman Rank Order Coefficient of Correlation revealed that there was a significant and positive correlation between critical thinking and self-efficacy, neuro-linguistic programming and self-efficacy, and neuro-linguistic programming and critical thinking. Furthermore, a regression analysis and the comparison of β values revealed that neuro-linguistic programming makes the strongest statistically significant unique contribution to explaining self-efficacy. Critical thinking turned out to be the second significant predictor of self-efficacy. The results of this study can help all those who are engaged in language teaching and learning process to possess a better perspective on developing efficient instruction.

Keywords: critical thinking, neuro-linguistic programming, sense of efficacy, EFL teachers

INTRODUCTION

In order to guarantee success in any educational system, the basic elements of that educational system must work together. Since teachers and instructors are believed to be active decision-makers who have a fundamental role in determining classroom event (Hargreaves & Fullan, 1992), they become essential elements of the educational system, bringing on success and achievement (Suwandee, 1995). Among different variables related to language teachers, found to be influential on teachers' performance, is the concept of self-efficacy (Tschannen-Moran & Woolfolk Hoy, 2001). Bandura (1995)

defines self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations" (p. 2). Learner motivation, academic success, and the learners' own levels of efficacy are positively associated with the teachers' sense of self-efficacy (Ashton & Webb, 1986; Moradkhani, 2009). Teachers with high levels of sense of efficacy have demonstrated higher levels of effort, persistence and resilience (Tschannen-Moran, Hoy & Hoy, 1998). They are more willing to accept innovations, more open to novel notions and ideas, are less likely to experience stress and burnout, support students' autonomy to a larger extent, and are more helpful to low ability learners (Brrouwers & Tomic, 2003).

Moreover, another influential second language teacher related variable that determine success in L2 learning is the concept of critical thinking (Nosratinia & Zaker, 2017; Yuksel, & Alcı, 2012). Kurfiss (1988) defines critical thinking as "the ability to make sound judgments in complex, real-world situations, based on available evidence and a clearly worked out value system" (p. 6). In the same vein, Paul (1990) defines critical thinking as a "disciplined, self-directed thinking that demonstrates the perfections of thinking which is appropriate to a specific domain or mode of thought" (p. 9).

Improving higher-order thinking abilities such as critical thinking is regarded as an educational priority for both teachers and learners (Oxford, 2001). Critical thinking as the core of reflective teaching demands teachers' systematic thinking and rational, logical, and gradual analyzing of the educational milieu (Korthagen, 1993). Furthermore, Ku (2009) believes that "besides the ability to engage in cognitive skills, a critical thinker must also have a strong intention to recognize the importance of good thinking and have the initiative to seek better judgment" (p. 71). In addition to self-efficacy and critical thinking, one way for teachers to develop professionally and being successful is to use neuro-linguistic programming as an indispensable part of their practice (Hosseinzadeh & Baradaran, 2015). The term neuro-linguistic programming (NLP) was primarily developed by Bandler, a mathematician, and Grinder, a linguist, in 1970, which focuses on nurturing communication process and simplifying the learning process in the people's development.

Neuro-linguistic programming is regarded as an "approach to language teaching which is claimed to help achieve excellence in learner performance" (Millroad, 2004, p. 28). It is also considered a supplementary technique in teaching second language (Richards & Rodgers, 2001). Many teachers use different techniques of neuro-linguistic programming to attain educational goals without being attentive to it, (Tosey & Mathison, 2003). Consequently, use of neuro-linguistic programming helps educators to reflect on their own behavior and be attentive to what they are saying and doing in the classroom as a result makes the learning milieu more productive (Tosey & Mathison, 2003).

Based on the significance of critical thinking, neuro-linguistic programming, and sense of efficacy in the field of education and their potential impacts on teachers' trend to become more successful and professional, this study examined the possible relationship

among EFL teachers' critical thinking, neuro-linguistic programming, and their sense of efficacy.

LITERATURE REVIEW

Self-Efficacy

Self-efficacy was initially proposed by Bandura (1995), which refers to "beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations" (Bandura, 1995, p. 2). Moreover, efficacy can be fundamentally regarded as individuals' future-oriented decision pertaining to their ability and it is not about their genuine level of competence. As stated by Woolfolk Hoy and Burke Spero (2000), efficacy is an important characteristic due to the fact that people frequently undervalue or overvalue their actual capabilities, and these relentless estimations might have probably consequences for the developments of the actions that individuals take in order to pursue and the work they essentially applied in those pursuits.

Teacher efficacy is defined as "The teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplishing a specific teaching task in a particular context" (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998, p. 22). Teacher efficacy is regarded as the effect of belief that the instructors have pertaining to their competence to educate students professionally and fruitfully (Bandura, 1997). Furthermore, teacher self-efficacy refers to the extent to which teachers believe they can make change and influence student behavior and learning outcomes (Gibson & Dembo, 1984). Bandura (1997) believes that teachers' sense of self-efficacy belief is directed towards teaching.

As pointed out by Bandura (1997), with the intention of being efficacious, the teacher must have both high outcome expectancy and high efficacy expectations. If the teacher has the high efficacy expectations and not the high outcome expectancy, it is not expected that the instructor will be an efficacious teacher despite the fact that the instructor is knowledgeably well-competent and experienced (Bandura, 1997). Consequently, in an educational milieu, instructor efficacy is considered as the instructor's personal belief in competence to plan training and accomplish instructional objectives (Bandura, 1997).

Critical Thinking

The concept of critical thinking is not new. Maybe our early ancestors used their critical faculties to locate food sources or find a good place to live. According to the Center for Critical Thinking (1996), the intellectual roots of critical thinking are as old as its etymology which goes back to the teaching practice and vision of Socrates, 2500 years ago. In the 1980's there was an outburst of interest in critical thinking. According to Dam and Volman (2004), in various research and policy reports in USA it was stated that students lacked a higher order thinking ability and that society required students to think critically. Since then, much attention has been devoted to practical and theoretical

issues involved in critical thinking. Curricula have been developed, conferences held, journals created, and policies implemented.

A great deal has been written about critical thinking, yet definitions of it differ. Gibson (1995) cited in Dam and Volman (2004) states that from a philosophical point of view critical thinking is primarily considered as "the norm of good thinking, the rational aspect of human thought, and as the intellectual virtues needed to approach the world in a reasonable, fair-minded way" (p.361). Benesch (1993) points out critical thinking is not simply higher-order thinking. As she explains "it is a search for the social, historical, and political roots of conventional knowledge and an orientation to transform learning and society" (p.546).

Glaser (1941) cited in Fisher (2001, p.4) defined critical thinking as: " (1) an attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experience, (2) knowledge of the method of logical enquiring and reasoning; and (3) some skills in applying those methods." Critical thinking calls for a persistent effort to examine any belief or supposed from of knowledge in the light of the evidence that supports it and the further conclusions to which it tends.

According to Paul, Fisher and Nosich (1993) cited in Fisher (2001, p.5), "Critical thinking is not that mode of thinking -about any subject, content, or problem- in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them". According to McPeck (1981) cited in De Boo (1999), "Thinking critically is not easy: our cherished theories can be proved 'wrong' and this can affect our self-esteem or require readjustments in our behavior –an uncomfortable process" (p.64).

Neuro-Linguistic Programming

The term neuro-linguistic programming (NLP) was initially invented by Bandler and Grinder (1970). It was defined by Bandler (1985) as "an attitude that has to do with curiosity, with wanting to know about things, wanting to be able to influence things, and wanting to be able to influence them in a way that's worthwhile" (p. 155). Moreover, Bandler (1985) defined NLP as the study of subjective involvement that relates to the association between the ways in which we reflect (neuro), how we talk (linguistics), and our emotion and performance (programming). Additionally, Bandler (1985) argues that:

Most studies of the learning process have been objective. What neuro-linguistic programming does is to explore the subjective experience of the processes by which people learn things. Objective studies usually study people who have the problem. Neuro- linguistic programming studies the subjective experience of people who have the solution (p. 118). Likewise, O'Conner and Seymour (2002) consider neuro-linguistic programming as a combination of science and art aimed at personal superiority (p. 1) summarizing the individuality of personal style. In educational milieu Tosey, Mathison,

and Michelli (2005) maintain that it is an area that has prospects of novelty because of its inclusive range of techniques like figurative style, meta-analysis and modeling.

Tosey, Mathison, and Michelli (2005) believe that students and instructors together can apply and make use these procedures both in the formal and informal teaching situations. Similarly, Craft (2001) attempted to examine the association between neuro linguistic programming and learning. Craft (2001) stated that neuro-linguistic programming is a set of practical strategies individuals apply to attain the anticipated results in their lives and to be efficacious. In relation to her views, neuro-linguistic programming gathers and collects words, behaviors, and thoughts to attain the objectives.

Neuro-linguistic programming can be understood in three essential components known as 'subjectivity', 'consciousness', and 'learning'. As stated by Bandler and Grinder (1976), individuals experience the world subjectively; that is to say that as we generate subjective exemplifications of our experiences that are contributed in concepts of language and five different senses (auditory, visual, olfactory, tactile and gustatory). The second component of neuro-linguistic programming is Consciousness (Dilts, 1980), which is alienated into conscious and unconscious modules. Finally, the third component of neuro-linguistic programming is learning; that is to say that in NLP modeling learning is regarded as method of learning that is said is capable of codifying and replicating the individual's experience in any field of activity.

PURPOSE OF THE STUDY

To the best of the researchers' knowledge and based on the extensive review of the related literature, no studies have been conducted on the relationship among EFL teachers' critical thinking, neuro-linguistic programming, and their sense of efficacy. Therefore, to partially fill the research gap and come up with a more comprehensible picture, this study was an attempt to systematically investigate the possible relationship among the aforementioned variables, namely, EFL teachers' critical thinking, neuro-linguistic programming, and their sense of efficacy. Concerning the purpose of this study the following research questions were posed:

Q_1: Is there any significant relationship between EFL teachers' critical thinking and their sense of efficacy?
Q_2: Is there any significant relationship between EFL teachers' neuro-linguistic programming and their sense of efficacy?
Q_3: Is there any significant relationship between EFL teachers' neuro-linguistic programming and their critical thinking?
Q_4: Is there any difference between EFL teachers' critical thinking and neuro-linguistic programming in predicting their sense of efficacy?

METHOD

Participants

The participants of the present study were 160 (52 or %32 male and 108 or % 68 female) EFL teachers, within the age range of 22 to 40 (M_{age} = 31), teaching English at different accredited private English language institutes and public schools in Tehran. The participants were selected based on convenience sampling and accessibility.

Instrumentation

Critical Thinking Questionnaire

In order to measure the EFL teachers' critical thinking skill, the researchers administered the English version of Honey's Critical Thinking Questionnaire (2000). The aim of this questionnaire is assessing the skills of analysis, inference, evaluation, and reasoning. The Critical Thinking Questionnaire includes 30 items and the participants were requested to rate the frequency of each category they use on a 5-point Likert scale, ranging from Never (=1), Rarely (=2), Sometimes (=3), Often (=4), to Always (=5). The ultimate score was computed in the possible range of 30 to150, and the participants were allocated approximately 20 minutes to complete this instrument. Using the Cronbach's alpha coefficient, the reliability of this questionnaire was estimated to be 0.79 (Nosratinia, Abbasi & Zaker, 2015). Furthermore, using Cronbach's alpha coefficient, the reliability of critical thinking questionnaire was estimated to be 0.722 in this study.

Neuro-Linguistic Programming Questionnaire

In order to assess the EFL teachers' neuro-linguistic programming, the researchers administered the English version of Pishghadam's Neuro-Linguistic Programming Questionnaire.The Neuro-Linguistic Programming Questionnaire includes 38 items and the participants were asked to rate the frequency of each category they use on a 5-point Likert scale, ranging from Strongly Disagree (=1), Disagree (=2), Undecided (=3), Agree (=4), to Strongly Agree (=5). The construct validity of the questionnaire was examined through a factor analysis, and using Cronbach's alpha coefficient, its overall reliability was estimated to be 0.82 (Pishghadam, 2011). Moreover, using Cronbach's alpha coefficient, the reliability of neuro-linguistic programming questionnaire was estimated to be 0.771 in this study.

Teachers' Sense of Self-Efficacy Scale

In order to assess the EFL teachers' sense of self-efficacy, the researchers administered the English version of Teachers' Sense of Self-Efficacy Scale (TSES), which is developed and validated by Tschannen-Moran and Hoy (2001). TSES is composed of 24 items on 9 point Likert-scale, ranging from Nothing (=1) to Great Deal (9). The ultimate score was computed in the possible range of 24 to 216, and the participants were allocated approximately 15 minutes to complete this instrument. Using Cronbach's alpha

coefficient, the reliability of this questionnaire was found to be 0.68 (Nosratinia & Moradi, 2017). Also, using Cronbach's alpha coefficient, the reliability of the questionnaire was estimated to be 0.762 in this study.

Procedure

To achieve the objectives of this study and address the research questions posed, the researcher followed the following procedure. Having obtained a formal approval for conducting the research in accredited private English language institutes and public schools in Tehran, the related explanations were given to the participants and they were ensured that the data and results of this research were kept confidential and used only for research purposes. The participants of this study were informed about the aim of the study and the procedures in filling all three questionnaires were briefly explained.

Then, all the three questionnaires were distributed in one package, the Honey's Critical Thinking Questionnaire (2000), in order to assess the participants' critical thinking ability, the Pishghadam's Neuro-Linguistic Programming Questionnaire (2011), and the Tschannen-Moran and Hoy's Teachers' Sense of Self-Efficacy Scale (TSES; 2001), in order to measure the participants' neuro-linguistic programming and sense of self-efficacy, respectively. The instruments were administered in no specific order with the aim of preventing sequence effect. The allocated time for answering them was 55 minutes. The completed questionnaires were collected and scored by the researcher.

Statistical Analysis

This study attempted to answer four research questions. Since the assumptions of normality of distribution were violated for the scores of sense of efficacy and neuro-linguistic programming, in order to answer the first, second and third research questions the non-parametric test, Spearman Rank Order Coefficient of Correlation was conducted. Concerning the fourth research question of the study, a multiple regression was run.

RESULTS

In order to examine the normality of the distributions further, Kolmogorov-Smirnov test was run, results of which are presented in Table 1.

Table 1. Tests of Normality of the Scores

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Self-Efficacy	.090	160	.003	.978	160	.011
Critical Thinking	.058	160	.200	.989	160	.227
Neuro-Linguistic Programming	.074	160	.030	.983	160	.053

a. Lilliefors Significance Correction
*. This is a lower bound of the true significance.

As presented in Table 1, only the Sig. value for the scores of critical thinking was significantly higher than the critical value (.05). Therefore, the normality of distribution for self-efficacy and neuro-linguistic programming was not supported (Tabachnick & Fidell, 2007).

The First Research Question

In order to answer the first research question, Spearman rank order coefficient of correlation was run. Table 2 shows the result of this analysis.

Table 2. Spearman's Correlation between Critical Thinking and Self-Efficacy

			Critical Thinking
Spearman's rho	Self-Efficacy	Correlation Coefficient	.411**
		Sig. (2-tailed)	.000
		N	160

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

According to the results of the analysis reported in Table 2, it was concluded that there was a significant and positive correlation between critical thinking and self-efficacy, ρ = .411, n = 160, $p <$ .01, and high levels of critical thinking were associated with high levels of self-efficacy. According to Cohen (1988), this signified medium-to-large effect size (99% confidence intervals: 0.49 – 0.74).

The Second Research Question

In order to answer the second research question, Spearman rank order coefficient of correlation was run. Table 3 shows the result of this analysis.

Table 3. Spearman's Correlation between Neuro-Linguistic Programming and Self-Efficacy

			Neuro-Linguistic Programming
Spearman's rho	Self-Efficacy	Correlation Coefficient	.571**
		Sig. (2-tailed)	.000
		N	160

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

According to the results of the analysis reported in Table 3, it was concluded that there was a significant and positive correlation between neuro-linguistic programming and self-efficacy, ρ = .571, n = 160, $p <$ .01, and high levels of neuro-linguistic programming were associated with high levels of self-efficacy. According to Cohen (1988), this signified a large effect size (99% confidence intervals: 0.41 – 0.69).

The Third Research Question

In order to answer the third research question, Spearman rank order coefficient of correlation was run. Table 4 shows the result of this analysis.

Table 4. Spearman's Correlation between Neuro-Linguistic Programming and Critical Thinking

		Neuro-Linguistic Programming
Spearman's rho	Correlation Coefficient	.452**
Critical Thinking	Sig. (2-tailed)	.000
	N	160

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

According to the results of the analysis reported in Table 4, it was concluded that there was a significant and positive correlation between neuro-linguistic programming and critical thinking, ρ = .451, n = 160, p < .01, and high levels of neuro-linguistic programming were associated with high levels of critical thinking. According to Cohen (1988), this signified a medium-to-large effect size (99% confidence intervals: 0.27 – 0.59).

The Fourth Research Question

In order to answer the fourth research question, a standard multiple regression was run. Table 5 presents the regression model summary including the R and R^2.

Table 5. Model Summary – R and R Square

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.583	.340	.332	13.45381

a. Predictors: (Constant), Neuro-Linguistic Programming, Critical Thinking
b. Dependent Variable: Self-Efficacy

As reported in Table 5, R came out to be 0.58 and R^2 came out to be 0.340. This means that the model explains 34.0 percent of the variance in sense of efficacy (Cohen, Cohen, West, & Aiken, 2003). Moreover, f^2 = 0.515 indicated a large effect size for the regression. Table 6 reports the results of ANOVA (F (2, 157) = 40.487, p = 0.000), the results of which were considered significant. This means that the model can significantly predict EFL learners' sense of efficacy.

Table 6. ANOVA

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14656.658	2	7328.329	40.487	.000b
	Residual	28417.786	157	181.005		
	Total	43074.444	159			

a. Dependent Variable: Self-Efficacy
b. Predictors: (Constant), Neuro-Linguistic Programming, Critical Thinking

Table 7 demonstrates the Standardized Beta Coefficients which signify the degree to which each predictor variable contributes to the prediction of the predicted variable. The inspection of the Sig. values showed that both critical thinking and neuro-linguistic programming make a statistically significant unique contribution to the equation as their Sig. values are less than .05.

Table 7. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Significance	Part Correlation
		B	Std. Error	β			
	(Constant)	16.135	10.462		1.542	.125	
1	Critical Thinking	.302	.101	.220	2.991	.003	.232
	Neuro-Linguistic Programming	.435	.072	.447	6.088	.000	.437

The comparison of $β$ values revealed that neuro-linguistic programming has the largest absolute $β$ coefficient ($β = 0.447$, $t = 6.08$, $p = 0.000$). This means that neuro-linguistic programming makes the strongest statistically significant unique contribution to explaining sense of efficacy. Therefore, it was concluded that neuro-linguistic programming could more significantly predict sense of efficacy of the participants.

DISCUSSION

It is believed that "sense of efficacy beliefs help determine how much effort people will expand on an activity, how long they will preserve when confronting obstacles, and how resilient they will prove in the face of adverse situations" (Pajares, 1996, p. 544). Moreover, critical thinking is the rudimentary aim of learning and it is exclusively at the center of higher education (Willingham, 2008). Furthermore, Tosey, Mathison, and Michelli (2005) stated that neuro-linguistic programming is regarded as a field that has prospects of novelty because of its wide-ranging techniques including figurative style, modeling, and meta-analysis. So, the main purpose of this study was to examine the possible relationship among the EFL teachers' critical thinking, neuro-linguistic programming and their sense of efficacy. Based on the requirements, four research questions were proposed. In this section, a discussion and interpretation of obtained findings for each research question is provided.

As stated earlier, the first driving force behind conducting this study was to systematically investigate the relationship between EFL teachers' critical thinking and their sense of efficacy. The findings of the study in this respect indicated that there was a significant and positive correlation between critical thinking and sense of efficacy, ρ = .411, n = 160, p < .01, and high levels of critical thinking were associated with high levels of sense of efficacy, consequently, the higher the level of critical thinking, the higher the EFL teachers' sense of efficacy, and vice versa.

Thus, not paying adequate attention to critical thinking in foreign language milieus, in turn, might lead to EFL teachers' ineffectiveness to become self-efficacious teachers. As pointed out by Zangenehvandi, Farahian, and Gholami (2014), when teachers make use of their critical thinking skills and reflect more critically they are more dynamic and inspired in classroom; consequently, they have high levels of sense of efficacy. Moreover, based on the principles of meta-analysis, these two mental constructs, namely, critical thinking and sense of efficacy interact with each other (Nosratinia &

Moradi, 2017). Also, there is a causal association between teachers' sense of efficacy and critical thinking (Best & Kahn, 2006); consequently, it is reasonable for EFL teacher education programs to invest on developing EFL teachers' critical thinking ability as a means for developing their success and sense of efficacy.

This finding is in accordance with the findings of Dehghani, Jafari Sani, Pakmehr, and Malekzadeh (2011) who found a significant positive relationship between teachers' critical thinking and sense of efficacy. This is also in line with those of many studies (e.g., Shaabani, Maktabi, ShehniYeylagh, & Morovati, 2011; Yuksel & Alcı, 2012; Zangenehvandi, Farahian, & Gholami, 2014) that found a significant positive corrolation between the aforementioned variables.

The second intention of this study was to systematically investigate the relationship between EFL teachers' neuro-linguistic programming and their sense of efficacy. According to the results of the analysis, it was concluded that there was a significant and positive correlation between neuro-linguistic programming and sense of efficacy, ρ = .571, n = 160, p < .01, and high levels of neuro-linguistic programming were associated with high levels of sense of efficacy. It can be assumed that the knowledge and awareness of the neuro-linguistic programming is essential for having higher levels of sense of efficacy. In other words, one way to improve the sense of efficacy of EFL teachers is the enhancement of their knowledge of neuro-linguistic programming.

Therefore, EFL teachers should be mindful of the positive role of neuro-linguistic programming and do their best to improve it in order to be efficacious and successful teachers. This finding can be supported by Tosey and Mathison's (2003) argument that the use of neuro-linguistic programming helps teachers to reflect on their own behavior and be attentive to what they are saying and doing in the classroom which consecutively makes the learning milieu more productive. Moreover, Craft (2001) stated that neuro-linguistic programming is a set of practical strategies individuals apply to attain the anticipated results in their lives which leads to be self-efficacious.

The third aim of this study was to systematically explore the relationship between EFL teachers' neuro-linguistic programming and their critical thinking. According to the results of the analysis, it was concluded that there was a significant and positive correlation between neuro-linguistic programming and critical thinking, ρ = .451, *n* = 160, p < .01, and high levels of neuro-linguistic programming were associated with high levels of critical thinking. In other words, as EFL teachers use more neuro-linguistic programming; they gradually become more critical thinkers.

According to Lyall (2002), neuro-linguistic programming is typically used to offer explanations to problems come across in teaching, thus can help teachers improve their levels of critical thinking ability. The finding of the third research question would signify that a focus on the improvement of EFL teachers' neuro-linguistic programming use would be beneficial to increasing their critical thinking level and being critical thinker teachers. Accordingly, not paying sufficient attention to neuro-linguistic programming

in teacher training courses, in turn, might result in EFL teachers' incompetence of being critical thinker teachers.

Based on the findings of the three initial research questions, both critical thinking and neuro-linguistic programming were significantly and positively related to sense of efficacy among EFL teachers. So, the fourth research question of the present study investigated the significant difference between EFL teachers' critical thinking and neuro-linguistic programming in predicting their sense of efficacy. The findings revealed that neuro-linguistic programming (β = 0.447, t = 6.08, p = 0.000) made the strongest statistically significant unique contribution to explaining sense of efficacy. Therefore, it was concluded that neuro-linguistic programming could more significantly predict sense of efficacy of the participants. Furthermore, EFL teachers' critical thinking turned out to be the second significant predictor of self-efficacy (β = 0.220, t = 2.99, p = 0.003).

It seems that EFL teachers need to be informed of the significance of using neuro-linguistic programming and being critical thinker in teaching. However, more attention should be given to neuro-linguistic programming at different teaching contexts to improve EFL teachers' sense of efficacy since it had the strongest statistically significant unique contribution to explaining sense of efficacy.

CONCLUSION AND PEDAGOGICAL IMPLICATIONS

The purpose of the present study was to systematically investigate the relationship among EFL teachers' critical thinking, neuro-linguistic programming and their sense of efficacy. The results of Spearman Rank Order Coefficient of Correlation revealed that there was a significant and positive correlation between critical thinking and self-efficacy, neuro-linguistic programming and self-efficacy, and neuro-linguistic programming and critical thinking. Furthermore, a regression analysis and the comparison of β values revealed that neuro-linguistic programming makes the strongest statistically significant unique contribution to explaining self-efficacy.

It is believed that many teachers use different techniques of neuro-linguistic programming to attain educational objectives without being too attentive to it (Tosey & Mathison, 2003). This in turn somehow leads the teachers' failure to be efficacious (Sharpley, 1985; Tosey & Mathison, 2003). Thus, teacher training programs should familiarize pre-service and even in-service teachers with the components of neuro-linguistic programming if they want to have efficacious teachers, who, in turn enhance learners' achievement gains (Sharpley, 1985; Tosey & Mathison, 2003).

Furthermore, one of the key factors EFL teachers need to take into consideration is critical thinking, which is believed to be an essential factor in education (Stapleton, 2001). Critical thinking enables educators to be active agents in the process of teaching (Pennycook, 1999). As pointed out by De Bono (1976), the critical thinking abilities might not be adequately achieved through the mere use of formal logic principles and axioms. It is believed that those who are trained in critical thinking can yield a greater

number of solutions to problems than those who have not such experience (De Bono, 1976). So, it is of utmost importance that teachers be familiarized with the principles and skills of critical thinking which consequently, as aptly pointed out by Moradkhani, Akbari, Ghafar Samar and Kiany (2013), has significant positive effects on learners' performance.

Critical thinking is considered as one of the main objectives of education (Soodmand Afshar & Hamzavi, 2014). Moreover, it has a crucial important role in prompting learning (Soodmand Afshar & Hamzavi, 2014). So, EFL learners should pay due consideration to their own critical thinking abilities and try to develop them. Also, due attention should be given to neuro-linguistic programming, since neuro-linguistic programming techniques give a good opportunity to encourage students' learning and enhancing their communication skills (Helm, 1989).

Syllabus designers and materials developers are the two other groups that might profit from the results of the present study. Based on the findings of the present study, a statistically-supported justification is provided for paying a higher level of attention to teacher-related variables in general and critical thinking, neuro-linguistic programming and sense of efficacy in particular. Thus, EFL syllabus designers, and materials developers are recommended to make efforts to design syllabus, lessons, activities, practices and tasks which can enhance EFL teachers' critical thinking, neuro-linguistic programming and sense of efficacy.

REFERENCES

Ashton, P. T., & Webb, R. B. (1986). *Teachers' sense of efficacy and student achievement.* New York: Longman.

Bandler, R. (1985). *Using your Brain for a Change*. Moab, Utah: Real People Press.

Bandler, R. & Grinder, J. (1976). *The structure of magic (Vol. 2)*. Palo Alto, CA: Science and Behaviour Books.

Bandura, A. (1995). *Self-efficacy in changing societies*. Cambridge university press.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: W. H. Freeman and company.

Benesch, S. (1993). Critical thinking: A learning process for democracy. *TESOL quarterly*, *27*(3), 545-548.

Best, J. W. & Kahn J. V. (2006). *Research in education (3rd Ed.).* USA: Pearson Education Inc.

Cohen, J. W. (1988). *Statistical power analysis for the behavioral sciences* (2nd Ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). A*pplied multiple correlation/regression analysis for the behavioral sciences.* UK: Taylor & Francis.

Craft, A. (2001). Neuro-linguistic Programming and learning theory. *The Curriculum Journal, 12*(1), 125-136.

Dam, G., & Volman, M. (2004). Critical thinking as a citizenship competence: Teaching strategies. *Learning and instruction*, *14*(4), 359-379.

De Bono, E. (1976). *Practical thinking*. Penguin.

Dehghani, M. Jafari Sani, H., Pakmehr, H., & Malekzadeh, A. (2011). Relationship between students' critical thinking and self-efficacy beliefs in Ferdowsi University of Mashhad, Iran. *Procedia Social and Behavioral Sciences*, *15*, 2952-2955.

Dilts, R. (1980). *Neuro-Linguistic Programming: The study of the structure of subjective experience.* Cupertino, CA: Meta Publications

Fisher, A. (2001). *Critical thinking.* Cambridge, UK, Cambridge University.

Gibson, S., & Dembo, M. H. (1984). Teacher efficacy: A construct validation. *Journal of educational psychology*, *76*(4), 569-580.

Hargreaves, A., & Fullan, M. G. (1992). *Understanding teacher development*. New York: Teachers College Press.

Helm, D. J. (1989). Neuro-linguistic programming: Equality as to distribution of learning modalities. *Journal of Instructional Psychology*, *17*(3), 159-160.

Honey, P. (2000). *Critical Thinking questionnaire*. Retrieved May 22, 2016, from http://www.PeterHoneyPublications.com

Hosseinzadeh, E., & Baradaran, A. (2015). Investigating the relationship between Iranian EFL teachers' Autonomy and their Neuro-linguistic Programming. *English Language Teaching*, *8*(7), 68-82.

Korthagen, F. A. (1993). Two modes of reflection. *Teaching and Teacher Education*, *9*(3), 317-326.

Ku, K. Y. (2009). Assessing students' critical thinking performance: Urging for measurements using multi-response format. *Thinking skills and creativity*, *4*(1), 70-76.

Kurfiss, J. G. (1988). *Critical Thinking: Theory, Research, Practice, and Possibilities. ASHE-ERIC Higher Education Report No. 2, 1988*. ASHE-ERIC Higher Education Reports, The George Washington University, One Dupont Circle, Suite 630, Dept. RC, Washington, DC 20036-1183.

Lyall, D. (2002). NLP in Training: The power to facilitate. *Training Journal, 5*(1), 12 - 19.

McPeck, J. (1981). *Critical thinking and education*. New York: St. Martin's Press.

Millrood, R. (2004). The role of NLP in teachers: Classroom discourse. *ELT Journal, 58*(1), 28-37.

Moradkhani, S. (2009). *The effect of novice English teachers' self-efficacy and academic degree on students' achievement.* Unpublished master's thesis. Tarbiat Modares University, Tehran, Iran.

Moradkhani, S., Akbari, R., Ghafar Samar, R., & Kiany, G. R. (2013). English language teacher educators' pedagogical knowledge base: The macro and micro categories. *Australian Journal of Teacher Education*, *38*(10), 8-24.

Nosratinia, M., Abbasi, M., & Zaker, A. (2015). Promoting second language learners' vocabulary learning strategies: Can autonomy and critical thinking make a contribution? *International Journal of Applied Linguistics & English Literature, 4*(3), 21-30.

Nosratinia, M., & Moradi, Z. (2017). EFL teachers' reflective teaching, use of motivational strategies, and their sense of efficacy. *Journal of Language Teaching and Research*, *8*(2), 431-439.

Nosratinia, M., & Zaker, A. (2017). Scrutinizing the impact of teachers' critical thinking and teaching autonomy on their teaching success and learners' use of language learning strategies. *Journal of Language Teaching and Research, 8*(1), 122-132.

O'Connor, J., & Seymour, J. (2002). *Introducing Neuro-Linguistic Programming*. Hammersmith, London: Element.

Oxford, R. L. (2001). *Language Learning Strategies.* In D. Nunan, & R. Carter, *Teaching English to* speakers of other languages (pp.166-172), UK: Cambridge University Press.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of educational research*, *66*(4), 543-578.

Paul, R. W. (1990). *What every person needs to survive in a rapidly changing world*. Center for Critical Thinking and Moral Critique, Sonoma State University, Rohnert Park, CA.

Pennycook, A. (1999). Introduction: Critical approaches to TESOL. *TESOL Quarterly*, *33*(3), 329-348.

Pishghadam, R. (2011). Validation of an NLP scale and its relationship with teacher success in high schools. Journal of Language Teaching and Research, *2*(4), 909-917

Richards, J. C., & Rodgers, T. S. (2001). *Approaches and methods in language teaching.* New York: Cambridge University Press.

Shaabani, F, Maktabi, G. H, Yeylagh, M. S., & Morovati, Z. (2011).The relationship between academic self-efficacy and creativity with critical thinking in university students. *Journal of Educational and Management Studies*, *1*(1), 32-37.

Sharpley, C. F. (1985). Research findings on neurolinguistic programming: Nonsupportive data or an untestable theory? *Journal of Consoling Psychology*, *4*(1), 103-107.

Soodmand Afshar, H., & Hamzavi, R. (2014). The relationship among reflective thinking, listening anxiety and listening comprehension of Iranian EFL learners: Does proficiency make a difference? *Issues in Language Teaching*, *3*(2), 261-237.

Stapleton, P. (2001). Assessing critical thinking in the writing of Japanese university students' insights about assumptions and content familiarity. *Written Communication*, *18*(4), 506-548.

Suwandee, A. (1995). Students' perceptions of university instructors' effective teaching characteristics. *Second Language Learning and Teaching (SLLT), An Electronic Journal for Postgraduate Students*, *5*, 6-22.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*. Boston, MA: Pearson Education, Inc.

Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of educational research*, *68*(2), 202-248.

Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and teacher education*, *17*(7), 783-805.

Tschannen-Moran, M., & Johnson, D. (2011). Exploring literacy teachers' self-efficacy beliefs: Potential sources at play. *Teaching and Teacher Education*, *27*(4), 751-761.

Tosey, P., & Mathison, J. (2003). Neuro-linguistic programming and learning theory: A response. *The Curriculum Journal*, *14*(3), 371-388.

Tosey, P., Mathison, J., & Michelli, D. (2005). Mapping transformative learning: The potential of neuro-linguistic programming. *Journal of Transformative Education*, *3*(2), 140-167.

Willingham, D. T. (2008). Critical thinking: Why is it so hard to teach? *Arts Education Policy Review*, *109*(4), 21-32.

Woolfolk Hoy, A. W., & Burke Spero, R. (2000). Changes in teacher efficacy during the early years of teaching: An exploratory study. Retrieved May 2017, from http://des.emory.edu/mfp/efftalk.html.

Yuksel, G., & Alcı, B. (2012). Self-efficacy and critical thinking dispositions as predictors of success in school practicum. *International Online Journal of Educational Sciences*, *4*(1), 81-90.

Zangenehvandi, M., Farahian, M., & Gholami, H. (2014). On the relationship between EFL teachers' critical thinking and self-efficacy. *Modern Journal of Language Teaching Methods*, *4*(2), 286-298.