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Research Paper

Effect of Explicit Strategy Training on EFL Learners' Attitudes about Critical Thinking and Factors Affecting Its Successful Implementation

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Abstract

This study investigates the effect of strategy training on EFL learners' attitudes regarding the concept and applicability of critical thinking in an educational context. To achieve this goal, 80 EFL learners were selected using convenience sampling and homogenized based on the Oxford Placement Test. They completed a questionnaire adapted from Stupple et al. (2017) to assess their attitudes toward critical thinking, which served as the pre-test. Subsequently, the participants were divided into experimental and control groups. The experimental group underwent strategy training over ten sessions, during which various strategies were explained, and participants practiced using them to solve problems and exchange feedback. Additionally, they discussed the applicability and challenges associated with critical thinking in an educational context. The control group received mainstream instruction. After the treatment, both groups completed the same critical thinking questionnaire as the posttest. Furthermore, qualitative interviews were conducted with participants from the experimental group to gain an in-depth understanding. The data analysis revealed significant changes in the attitudes of the experimental group. Overall, this study follows a quasi-experimental explanatory sequential mixed-method design "In nature, the data analysis showed that, in general, the attitudes of the experimental group had changed significantly in the post-test compared to the control group. However, there was no significant difference in the attitude of the experimental and control groups regarding the applicability of strategy training for improving critical thinking and their ability to deploy critical thinking effectively. The results of the interviews and the comment section of the questionnaire showed that teachers' theoretical knowledge and willingness, EFL learners' preparedness, and educational factors play important roles in the successful implementation of strategy training for developing critical thinking among EFL learners."

***Keywords**: Critical Thinking, EFL learners' attitudes, Strategy training*

این مطالعه به بررسی تأثیر آموزش استراتژی بر نگرش زبان آموزان زبان انگلیسی در مورد مفهوم و کاربرد تفکر انتقادی در زمینه آموزشی می پردازد. برای دستیابی به این هدف، ۸۰ زبان آموز زبان انگلیسی با استفاده از نمونه گیری در دسترس انتخاب و بر اساس آزمون تعیین سطح آکسفورد همگن شدند. آنها یک پرسشنامه اقتباس شده از استاپل و همکاران را تکمیل کردند. برای ارزیابی نگرش آنها نسبت به تفکر انتقادی، که به عنوان پیش آزمون عمل کرد. در ادامه شرکت کنندگان به دو گروه آزمایش و کنترل تقسیم شدند. گروه آزمایش طی ده جلسه تحت آموزش استراتژی قرار گرفتند که طی آن استراتژی های مختلف توضیح داده شد و شرکت کنندگان به تمرین استفاده از آنها برای حل مسائل و تبادل بازخورد پرداختند. علاوه بر این، آنها در مورد کاربرد و چالش های مرتبط با تفکر انتقادی در زمینه آموزشی بحث کردند. گروه کنترل دستورات اصلي را دریافت کردند. پس از بررسی، هر دو گروه پرسشنامه تفکر انتقادی مشابه پس آزمون را تکمیل کردند. علاوه بر این، مصاحبه های کیفی با شرکت کنندگان از گروه آزمایشی برای به دست آوردن درک عمیق انجام شد. تجزیه و تحلیل داده ها تغییرات معنی داری را در نگرش گروه آزمایش نشان داد. در مجموع، این پژوهش از یک طرح نیمه تجربی به روش ترکیبی متوالی توضیحی پیروی می کند «در ماهیت، تجزیه و تحلیل داده ها نشان داد که به طور کلی، نگرش های گروه آزمایش در پس آزمون نسبت به گروه کنترل تغییر معنی داری داشته است. با این حال، تفاوت معناداری در نگرش گروه های آزمایش و کنترل در مورد کاربرد آموزش راهبردی برای بهبود تفکر انتقادی و توانایی آنها در به کارگیری موثر تفکر انتقادی وجود نداشت. نتایج مصاحبه ها و بخش نظرات پرسشنامه نشان داد که دانش نظری و تمایل معلمان، آمادگی زبان آموزان زبان انگلیسی و عوامل آموزشی نقش مهمی در اجرای موفقیت آمیز آموزش راهبردی برای توسعه تفکر انتقادی در زبان آموزان دارد.

Introduction

Critical thinking, as defined by Facione (2011), involves self-regulatory purposeful judgment that includes analysis, interpretation, inference, evaluation, and explanation based on evidence, concepts, methodology, criteria, or context. It constitutes an important variable in modern EFL learning. Critical thinking is a foundational skill that enables individuals to analyze complex situations, evaluate evidence, make informed decisions, and solve problems effectively (de Villa, 2017; Floyd, 2011; Fathy Mohamed Kener, 2021; Hemming, 2000; Lailiyah & Wediyantoro, 2021; Liang & Fung, 2021; Mohseni et al., 2020; Mroz, 2015). Critical thinking has come to be recognized as a crucial tool in education and in one's personal life, as it serves as a liberating force and a powerful resource (Moon, 2007; Yancey, 2015). The EFL field has been influenced by critical thinking, and a lot of effort has been made to incorporate this concept into this field (Hashemi & Zabihi, 2012; Zhao et al., 2016).

Due to the importance of critical thinking, different approaches can be tried to teach it to EFL learners. One approach, which is practical and viable especially in the EFL context, can be strategy training. Strategy training equips individuals with a toolkit of problem-solving methods that nurture critical thinking. By teaching logical reasoning, conceptualization, and problem analysis techniques, this type of training empowers individuals to tackle complex issues (Lou, 2018). By encouraging individuals to approach problems from various angles and to consider multiple viewpoints, strategy training fosters open-mindedness and challenges individuals to think critically about different factors involved (Mohseni et al., 2020). Deeper understanding and exploration of problems ultimately can lead to improved decision-making skills.

Strategy training often involves teaching individuals how to break down complex situations into smaller, more manageable components are techniques that can be applied to problems across different domains (e.g., Ai-hua, 2010; Koyama, 2015). By utilizing these methods, individuals can systematically examine problems, seeking to identify patterns, relationships, and underlying causes. This structured analytical framework promotes critical thinking by encouraging individuals to consider interactions between different elements and approach problems systematically, rather than relying solely on intuition. It fosters a more methodical and well-grounded approach to understanding and addressing complex issues (Lou, 2018)."

"One of the significant advantages of strategy training in critical thinking is the transferability of skills across domains. The skills acquired through strategy training can be applied to various academic, professional, and personal contexts (Zarifsanaiey et al., 2016), making the effort and the acquired skill worthwhile investments for both EFL teachers and learners. Whether it involves solving complex equations, analyzing financial data, or resolving conflicts in personal relationships, critical thinking skills obtained through strategy training offer a valuable framework for approaching diverse situations (Bağ & Gürsoy, 2021; Bagheri, 2015). By teaching individuals how to think critically, strategy training equips them with tools they can utilize throughout their lives, enhancing their problem-solving abilities beyond the immediate learning environment. It is essential to remember that due to the inherent features of English as a foreign language, explicit strategy training—rather than implicit acquisition of critical thinking components along with other aspects of language—can be a crucial factor in learning English as a foreign language (Huang, 2001; Gavriilidou & Papanis, 2009; Rabab'ah, 2016).

Similar to any other notions or concepts in learning or implementing EFL strategies, the successful implementation of strategy training for critical thinking should be expected to be affected by EFL learners' attitudes regarding the practical significance of this notion and the factors influencing its optimal or successful implementation in an EFL context (Mahmoodi-Shahrebabaki & Yaghoubi-Notash, 2015; Stupple et al., 2017). In other words, learners should believe that critical thinking can live up to the claims it makes regarding improving the quality of EFL education and life. If it cannot do this, the entire endeavor might yield less than ideal

outcomes If not, it might result in total failure. Therefore, it is worth hypothesizing that initially, the effect of strategy training on critical thinking should be directed toward EFL learners' attitudes about this concept. Another speculation is that if strategy training on how to use critical thinking can have a positive impact on their attitudes, their positive outlook will naturally extend to deploying it in various aspects of their lives. This includes education and crucial decision-making moments across different contexts.

As mentioned in the previous section, EFL learners' attitudes regarding the practical importance of critical thinking may be influenced by various factors that affect their willingness or reluctance to adopt it. In other words, even if they possess the ability to think critically, unless the educational environment or everyday context encourages its application, they cannot be expected to utilize it effectively. This situation is particularly evident in totalitarian social or educational systems where critical thinking is not favored by the authorities (Giroux, 2020). Therefore, when embarking on teaching strategies to enhance critical thinking, educators should consider not only the concept of critical thinking itself but also the factors that influence its successful implementation. The current study aims to explore the impact of strategy training on critical thinking and to identify the factors that EFL learners perceive as playing a role in its effective use. It is essential to recognize that, like any other concept, expecting radical changes in attitude due to a limited amount of treatment or exposure is idealistic. Both attitude and critical thinking take time to develop and cannot emerge overnight solely from experimental interventions.

The significance of conducting this study can be both theoretical and practical. On the theoretical side, concepts such as attitudes, critical thinking, affective factors, and situational variables have been widely recognized and acknowledged in the field of TEFL (Asgharheidari & Tahriri, 2015; Stapleton, 2011; Stupple et al., 2017). In fact, their importance is such that it is rare to find an issue related to learning or teaching English as a foreign language that has not taken one or a combination of these variables into account.

On the practical side, it can be argued that a considerable number of problems can be at least partially resolved if EFL learners hold positive attitudes regarding the significance and practicality of critical thinking (Arfae, 2020; Fahim & Sa'eepour, 2011). This includes the various challenges they encounter during their studies, which can span affective, cognitive, and situational factors.

Based on the aforementioned considerations, the current study aims to address the following research questions:

RQ1. *Does strategy training in critical thinking significantly impact EFL learners' attitudes toward critical thinking and their ability to apply it?*

RQ2. *What are EFL learners' attitudes regarding the factors influencing the successful implementation of strategy training for critical thinking?*

Method

Participants

Before commencing the study, the researcher obtained consent forms from both the participants and their instructors, signifying their agreement to participate in the research. The selection of participants was based on a convenience sample due to practical considerations associated with random sampling in studies involving human participants (Emanuel et al., 2004; Evans & Combs, 2008). Five intact classes, comprising 114 EFL learners aged 19 to 24 years, were chosen. These learners had different first languages or mother tongues, representing various ethnic groups such as Lors, Arabas, Kurds, and Azari. However, they all shared the same official language, Persian, for daily communication. They studied two credits of prerequisite English and three credits of general English as the required foreign language at the university, while also attending English

classes outside the university. All participants had attended language institutes for five terms before participating in the current study.

For homogeneity, participants whose scores on the Oxford English Test (OPT) were one standard deviation above and below the mean score were selected as the final participants for the study, ensuring an intermediate proficiency level. This proficiency level was chosen because learners at this stage were more likely to engage effectively with the concept of critical thinking. Consequently, out of the initial 114 Iranian male and female EFL learners, 80 were selected as the primary participants. These participants were then randomly divided into two experimental groups (20 males and 20 females) and two control groups (20 males and 20 females).

Instruments

The first instrument used in the current study was a questionnaire developed by Stupple et al. (2017) to assess EFL learners' attitudes toward critical thinking. The questionnaire consisted of 27 questions, and respondents were required to indicate their attitudes on a Likert scale ranging from strongly agree to strongly disagree. The questions covered various aspects, including:

Having a well-defined goal in mind when being critical.
Ability to identify the structure of arguments without being distracted by their content.
Recognizing the significance of critical thinking, particularly in psychology.
Understanding the essential role of critical thinking in higher education.
Observing gradual development of critical thinking during one's education.
Expressing critical thinking effectively in written work.
Acknowledging the importance of good critical thinking for achieving a high degree.
Cultivating a focused and systematic way of thinking.
Demonstrating proficiency in critical thinking overall.
Expecting higher scores when applying critical thinking in assignments.
Evaluating the value of new information or evidence presented.
Engaging in critical thinking while reading different theories.
Balancing both sides of arguments effectively.
Identifying analogies.

Additionally, a column was included with the heading "Explain Your Choice" to collect respondents' in-depth explanations regarding their preferences and choices. The next instrument employed was an interview with those participants who agreed to participate, ensuring that their responses would be kept confidential. This approach allowed them to freely express their opinions on issues related to the variable of interest.

Design of the Study

For this particular study, a mixed-method pre-test-posttest design was employed. The research consisted of both a quantitative and a qualitative phase, with the latter conducted through interviews and text analysis. This approach facilitated a comprehensive exploration of the research questions at hand. According to Dornyei (2007, p. 163), a mixed-method study involves gathering and analyzing both quantitative and qualitative data within a single study, with an attempt to integrate the two approaches at different stages of the research process. In our study, we utilized an explanatory sequential mixed-method design. Here's how it worked:

Quantitative Phase: We started with the quantitative phase, where we collected data using pre-tests and post-tests. This phase allowed us to measure the impact of strategy training on critical thinking.

Qualitative Phase: Following the quantitative phase, we conducted interviews and analyzed text. This qualitative phase added depth and further understanding to the issues of interest. By elucidating and interpreting the results of the quantitative study, we gained insights into learners' attitudes and experiences related to critical thinking.

Both phases were equally important, with no prioritization of either. In this sequential mixed-methods approach, we analyzed the qualitative and quantitative data separately, with each dataset contributing to its own set of inferences (Ary et al., 2006). The study was quasi-experimental, meaning that participant selection could not be done randomly due to practical constraints in social studies. However, the allocation of participants to experimental and control groups was done randomly. As with all studies, many extraneous variables were beyond the researchers' control. Therefore, we interpreted the data analysis with caution, considering the inherent limitations and delimitations.

Procedures

The current study followed the following steps:

Participant Homogeneity: In the initial phase, participants took the Oxford Placement Test, a well-known assessment for placement purposes. This step ensured the homogeneity of the participant group.

Pre-Test Questionnaire: Next, all participants responded to the EFL learners' attitudes toward critical thinking questionnaire, adapted from Stupple et al. (2017). This pre-test served as a benchmark to compare their attitudes about critical thinking before and after the treatment.

Group Division: Participants were then divided into an experimental group and a control group.

Experimental Group Treatment: The experimental group underwent strategy training on different components or levels of critical thinking, including memory, translation, interpretation, analysis, synthesis, and evaluation. This training consisted of 10 sessions, each lasting one and a half hours. The activities and procedures were adapted from research tools that utilized critical thinking and instructional methods (Facione, 1991; Fahim et al., 2012; Hannel & Hannel, 1998; Waters, 2006). The procedure involved explaining different levels of critical thinking, followed by related exercises performed individually and in pairs. Finally, the issue was discussed as a whole group in the class. At the end of each session, participants were encouraged to discuss the practicality of implementing the same critical thinking procedure in mainstream classes and education, considering diverse perspectives.

Control Group: The control group followed the usual educational program.

Results

In this section, I will present the results of the data analysis. First, I will discuss the homogeneity of the participants. Next, I will present the findings from the independent samples t-test conducted before and after the treatment for both the experimental and control groups. Finally, I will delve into the results obtained from interviews and the comment section of the questionnaire. Table 1 displays the homogeneity of the participants in the current study.

Table 1

Descriptive Statics on the homogeneity of the participants

	N	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Err	Statistic	Std. Err

								or		or
OPT	114	56.00	90.00	68.79	6.550	42.90	.99	.22	1.38	.44
Valid N (listwise)	114									

Based on the data analysis presented in Table 1, the mean score of the participants in the Oxford Placement test was 68.79, with a standard deviation of 6.55. The skewness value of 0.99 falls within the range of -2 to +2, indicating a normal distribution of scores. To ensure homogeneity, participants whose scores fell within one standard deviation below and above the mean were selected for the current study. Before delving into inferential statistics, it's essential to note that the reliability of the questionnaire adopted from Stupple et al. (2017) was calculated to be 0.71, indicating an acceptable level of reliability for the instrument used in this study.

To compare the attitudes of participants in the control and experimental groups, we initially compared their responses to three items in the questionnaire related to their attitudes. This comparison was conducted before the treatment of the experimental group, serving as a pre-test or benchmark. By comparing their responses in the post-test, we aimed to attribute any significant differences to the effect of the independent variable—the strategy training on components of critical thinking. The first item addressed the belief that 'Critical thinking is particularly important in learning English as a foreign language.' The results of this data analysis are presented in Tables 2 and 3.

Table 2

Descriptive Statistics between the Experimental and the Control Group in the Pre-test regarding the Importance of Critical Thinking in Learning EFL

	Group	N	Mean	Std. Deviation	Std. Error Mean
No4	Experimental	40	4.25	.898	.142
	Control	40	4.10	1.428	.225

Certainly! Let's take a look at the results presented in Table 2:

The number of participants in each group was 40.

The mean score for the experimental group was 4.25, while for the control group, it was 4.10.

The standard deviation for the experimental group was 0.89, and for the control group, it was 1.42.

Now, let's move on to the independent samples t-test results, which are presented in Table 3.

Table 3

Independent Sample T-test between the Experimental and the Control Group in the Pre-test regarding the Importance of Critical Thinking in Learning EFL

	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
No4	Equal variances assumed	7.261	.009	.562	78	.576	.150	.266	-.381	.681
	Equal variances not assumed			.562	65.68	.576	.150	.266	-.382	.682

The first section of the Independent Samples Test that should be checked before interpreting the result is the value of Levene's test for equality of variances. This test determines whether the variance (variation) of scores for the two groups (males and females) is the same. The outcome of this test determines which of the t-values provided by SPSS is the correct one for the test conducted. If the Sig. value is larger than 0.05 (e.g., 0.07, 0.10), the first line should be used in the table, which refers to 'Equal variances assumed.' However, if the significance level of Levene's test is $p \leq 0.05$ (e.g., 0.01, 0.001), this indicates that the variances for the two groups (males/females) are not the same. Consequently, the data violate the assumption of equal variance, and an alternative t-value compensating for the unequal variances should be used. In this case, the information in the second line of the t-test table should be utilized, which refers to 'Equal variances not assumed.' For the data in Table 2, the second line should be used. The value for the independent sample t-test is 0.56 (65.68), with a significance level (sig.) of 0.57. This indicates that there is no significant difference in the mean scores of the two groups before the treatment.

Now, the attitudes of the two groups after the treatment for the experimental group can be compared to determine if it has caused any effect on their attitudes regarding the significance of critical thinking in their field of study. The results are presented in Tables 4 and 5.

Table 4

Descriptive Statistics between the Experimental and the Control Group in the Post-test regarding the Importance of Critical Thinking in Learning EFL

	Group	N	Mean	Std. Deviation	Std. Error Mean
No4post	Experimental	40	6.25	.776	.122
	Control	40	4.55	1.259	.199

According to the analysis of the data in Table 4, the mean score for the experimental and the control group after the treatment was 6.25 and 4.55, and the standard deviation was 0.77 and 1.25, respectively. The result of the independent samples t-test is presented in Table 5.

Table 5

Independent Sample T-test between the Experimental and the Control Group in the Post-test regarding the Importance of Critical Thinking in Learning EFL

	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
No4post	Equal variances assumed	8.829	.004	7.266	78	.000	1.700	.233	1.234	2.165
	Equal variances not assumed			7.266	64.882	.000	1.700	.233	1.232	2.167

Due to the inequality of the variances indicated by Levene's test, the second line is used. The value for the t-test, as presented in 7.26 (64.88), p = .00, indicates that there is a significant difference between the experimental and the control group after the experimental group underwent ten sessions of strategy training in critical thinking and engaged in discussions about the theoretical and practical advantages, as well as challenges associated with the practical application of this concept. An important finding is, in fact, about their attitudes regarding the practical application or effect of critical thinking in their education. More specifically, the next point aimed to explore the participants' attitude about whether this theoretically important concept was of practical value for them in their educational environment. The issue was, 'You cannot get a good degree without good critical thinking skills.' The result is presented in Tables 6 and 7.

Table 6

Descriptive Statistics between the Experimental and the Control Group in the Pre-test Regarding the Practical Implication of Critical Thinking on their Achievements

	Group	N	Mean	Std. Deviation	Std. Error Mean
No9	Experimental	40	3.12	1.04	.164
	Control	40	3.10	1.12	.178

Table 6 shows that the mean and standard deviation for the experimental group in the pretest for this point were 3.12 and 1.04, respectively. For the control group, they were 3.10 and 1.12, respectively. The result of the independent samples t-test is presented in Table 7 for the pretest.

Table 7

Independent Samples T-test between the Experimental and the Control Group in the Pre-test Regarding the Practical Implication of Critical Thinking on their Achievements

	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

No9	Equal variances assumed	.301	.585	.103	78	.918	.025	.24	-.458	.508
	Equal variances not assumed			.103	77.522	.918	.025	.24	-.458	.508

Since the assumption of equality of variance has been met in this case (Levene test = .30, p = .58), the first line is used for test interpretation. The value for the independent samples t-test is .10 (78), p = .91, indicating that there is no difference between the two groups prior to the treatment. The next part is to see if the treatment had any significant difference between the two groups. The result is presented in Tables 8 and 9.

Table 8

Descriptive Statistics between the Experimental and the Control Group in the Post-test Regarding the Practical Implication of Critical Thinking on their Achievements

	Group	N	Mean	Std. Deviation	Std. Error Mean
No9post	Experimental	40	3.62	.978	.154
	Control	40	3.45	1.084	.171

As presented in Table 8, the mean and standard deviation for the experimental group in the post-test were 3.62 and 0.97, respectively. For the control group, they were 3.45 and 1.08, respectively. The result of the independent samples t-test in Table 9 shows if they differ significantly.

Table 9

Independent Samples T-test between the Experimental and the Control Group in the Post-test Regarding the Practical Implication of Critical Thinking on their Achievements

		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
No9post	Equal variances assumed	3.332	.072	.797	78	.428	.175	.219	-.26	.612
	Equal variances not assumed			.797	74.41	.428	.175	.219	-.26	.612

Since the assumption of equality of variance has been observed, the first line is used to interpret the data (Levene's test = 3.33, p = .072). The value for the t-test is .79 (78), p = .42, indicating that there is no significant difference between the experimental and the control group in the posttest regarding their attitude about the possibility of improving their scores using critical thinking. This suggests that the treatment, which consisted of strategy training in critical thinking levels and strategies, was ineffective in changing the attitudes of the experimental group. Despite their efforts to use critical thinking to improve their scores, there was no discernible impact on the perceived quality of their education (assuming that equating their scores with the quality of education holds true). The reasons for this will be discussed in the qualitative part of the data analysis. The last variable for which their attitudes were assessed was a practical one: 'I know how to approach complex issues in a variety of ways when dealing with challenges and problems.' This variable serves as an indicator of their use of critical thinking. The results of the data analysis are presented in Tables 10 and 11.

Table 10

Descriptive Statistics between the Experimental and the Control Group in the Pre-test Regarding the their ability to Approach complex Issues in Variety of Ways

	Group	N	Mean	Std. Deviation	Std. Error Mean
No17	Experimental	40	3.72	.986	.156
	Control	40	3.57	1.009	.159

According to Table 10, the mean score and the standard deviation for the experimental group in the pre-test were 3.72 and 0.98, respectively. For the control group, they were 3.57 and 1.00, respectively. The result of the t-test is presented in Table 11.

Table 11

Independent Samples T-test between the Experimental and the Control Group in the Pre-test Regarding the their ability to Approach complex Issues in Variety of Ways

		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
No17	Equal variances assumed	.005	.941	.672	78	.504	.150	.22	-.29	.59
	Equal variances not assumed			.672	77.958	.504	.150	.22	-.29	.59

Since the assumption of equality of variances has been observed (Levene's test = .005, p = .94), the first line is used. The value for the t-test is .67 (78), p = .50, showing that there was no significant difference between the two groups in the retest. The next part is comparing these two groups in the posttest, the result of which is presented in Tables 12 and 13.

Table 12

Descriptive Statistics between the Experimental and the Control Group in the Post-test Regarding the their ability to Approach complex Issues in Variety of Ways

	Group	N	Mean	Std. Deviation	Std. Error Mean
No17post	Experimental	40	4.97	.94	.14
	Control	40	3.77	.94	.14

The mean score and the standard deviation for the experimental group in the post-test for this item were 4.97 and 0.94, respectively. For the control group, they were 3.77 and 0.94, respectively, as shown in Table 12. The result of the independent samples t-test is presented in Table 13.

Table 13

Independent Samples T-test between the Experimental and the Control Group in the Post-test Regarding the their ability to Approach complex Issues in Variety of Ways

		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
No17post	Equal variances assumed	.785	.378	5.66	78	.000	1.20	.21	.77	1.62
	Equal variances not assumed			5.66	78.00	.000	1.20	.21	.77	1.62

Since the assumption of equality of variance has been met (Levene's test = .78, p = .37), the first line is used for interpreting the data analysis. The value for the independent samples t-test shows that there is a significant difference between the experimental and the control group in their attitude about their ability to approach problems from several ways as a sign of deploying critical thinking (t (78) = 5.66, p = .00). This indicates that strategy training in levels and strategies for critical thinking can impact EFL learners' attitude about their ability to be resourceful and use different ways to tackle a problem as a sign of critical thinking.

The next part presents in-depth information collected via interviews and the comment section of the questionnaire from the experimental group. It focuses on the issues and problems of

implementing critical thinking in learning English in a foreign language context like Iran, with its unique educational, social, cultural, and, most importantly, ideological and political mindset of the policymakers. The results of the qualitative data analysis, drawn from interviews and comments in the questionnaire, shed light on several key factors influencing the successful implementation or potential barriers to incorporating critical thinking strategy training in the Iranian context.

EFL Teachers' Professional Training:

EFL teachers' professional training emerged as a pivotal factor in promoting the implementation of strategy training. These teachers need to be well-qualified both theoretically and practically to effectively engage in critical thinking strategy training.

Participants emphasized that professional training equipped teachers with a comprehensive understanding of the theoretical foundations of critical thinking. Familiarity with various concepts and theories fosters an open mindset, recognizing that no single theory dominates the field. Considering the merits and drawbacks of different perspectives is crucial.

EFL Students' Readiness:

The readiness of EFL students plays a significant role in successful implementation.

Students who are receptive to critical thinking training are more likely to benefit from it.

Creating an environment that encourages students to actively participate and apply critical thinking skills is essential.

Educational System Considerations:

The overall educational system impacts critical thinking implementation.

If critical thinking is not integrated into the educational program, teachers face challenges in promoting it. Advocacy for critical thinking within the system can foster a supportive environment for its adoption.

EFL Teachers' Willingness

The mindset and inclination of EFL teachers to engage in critical thinking strategy training directly affect its implementation.

Teachers who are enthusiastic about adopting innovative teaching methodologies contribute significantly to successful implementation. The adoption of innovative teaching methodologies significantly relies on the willingness exhibited by EFL teachers to invest their utmost effort and assume the potential risks involved in the activity. The presence or absence of willingness can result from the interaction of various factors, including social, cultural, educational, professional, affective, or cognitive aspects. Therefore, a teacher's willingness should not be considered or evaluated as a separate entity unaffected by other variables. It can also be influenced by teachers' motivation for professional development and their aspirations.

In addition to the factors attributed to teachers, the role of students is also crucial for the successful deployment of critical thinking strategy training. Qualitative data analysis revealed that students considered critical thinking not only essential for language learning but also applicable to all aspects of life. However, they expressed concerns about incorporating this variable into the EFL program.

Their apprehension stems from the clash with general education policies influenced by Iranian ideological principles. According to these policies, a good citizen is defined as someone who adheres to political principles and religious creeds issued by religious authorities. Any form of

questioning or reasoning about these principles is discouraged, even in the mildest form. Unfortunately, critical thinking often faces suppression within the political system.

For most students, applying critical thinking principles would be akin to inviting trouble for both teachers and students. Even if it were formally instructed, they believe it would remain a theoretical construct with minimal practical application to avoid potential repercussions. If practical use were necessary, it would likely be limited to reading assignments or exams, devoid of broader social, cultural, or political implications—contrary to the fundamental principles of critical thinking.

In continuation of the previous discussion, the next factor extracted from the interviews pertains to the role and support of the educational system. The findings underscore the significant impact this factor can have. However, practical concerns arise.

According to most interviewees, when policy makers intervene in the implementation of critical thinking in Iran, the entire process encounters obstacles. The educational system as a whole, and specifically TEFL (Teaching English as a Foreign Language), grapples with deficiencies at the policy-making level due to ideological orientations. Consequently, attempting to impose these ideological precepts across different educational layers results in an educational catastrophe. Teaching critical thinking and nurturing citizens equipped to discern through the slogans propagated by politicians and question their claims is a clear example. Unfortunately, policy makers view this as an unspeakable and untenable act within education. As long as this mindset persists, substantial progress remains unlikely on the educational horizon.

Discussion and Conclusion

The current study employed a quasi-experimental design with a pre-test/post-test structure, utilizing both an experimental group and a control group. It followed a mixed methods approach, beginning with a quantitative phase and subsequently complemented by qualitative analysis (making it an explanatory sequential design). The data revealed a statistically significant and positive impact of strategy training on EFL learners' attitudes regarding the importance of critical thinking in their education. However, it did not detect a significant effect of strategy training on EFL learners' attitudes regarding the practical applicability of this technique within the mainstream educational context or their ability to tangibly apply critical thinking throughout their education.

In addition to the quantitative component, the qualitative data analysis explored the effects of explicit strategy training in critical thinking principles. Themes emerged related to teacher professional training, teacher willingness, student receptiveness, and support from the educational system. However, participants expressed concerns about explicitly teaching critical thinking principles in the Iranian context due to the influence of ideological and political perspectives on educational matters. Teacher willingness and professional training emerge as crucial themes for the successful implementation of explicit instruction in critical thinking, as supported by previous studies. For instance, Suryanti et al. (2020) and Molavi et al. (2018) explored the impact of teachers' willingness on speech act instruction. Additionally, Novozhenina and López Pinzón (2018) investigated teacher preparedness for acceptable performance.

The undeniable reality is that not only EFL teachers' professional training and preparedness matter but also their willingness significantly influences the effective teaching of these essential factors. Willingness is critical because, even if teachers are fully prepared, lacking motivation can hinder their engagement, especially in contexts where no official requirement mandates their efforts. In such cases, teachers must feel a personal need and sense of accountability to voluntarily embrace critical thinking instruction. Unfortunately, these features are rare, particularly in challenging situations like Iran, where teacher burnout due to economic and other factors is a harsh reality (Mousavi et al., 2022; Rostami et al., 2015).

Beyond willingness, other affective factors—such as patience and perseverance—are essential for both students and teachers. Achieving a viable and acceptable outcome requires persistence, especially since critical thinking is not an issue that can flourish overnight (Nepal, 2022; Saadé et al., 2012). Introducing any new teaching approach or challenging concept, such as critical thinking, can provoke anxiety in some learners. To facilitate their transition from familiar ground to uncharted territory, creating a stress-free context where learners feel a sense of belonging within a close-knit community is essential. This perspective aligns with studies conducted in various contexts (Dong, 2015; Lin et al., 2018).

Saleh (2019) also expressed a similar view, highlighting that implementing critical thinking faces social, cultural, and administrative barriers. These limitations hinder the effective incorporation of this theoretically important and necessary notion in education. Consequently, justifying the relevance and necessity of developing critical thinking becomes paramount. Without this justification, strategies or methods aimed at fostering critical thinking among EFL learners will encounter challenges.

Moreover, students' perceptions matter. If they perceive a discrepancy between what they are taught about the advantages of adopting a critical view and what they observe in their environment, their commitment to becoming critical thinkers may waver. When the cost of being a critical thinker—whether through payment or punishment—outweighs the perceived benefits, full investment in critical thinking becomes unlikely.

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