



## Research Article

# The Effect of Immersing Critical Thinking in University Classrooms: English Language Learners' Critical Thinking, Writing Skill, and Classroom Climate

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### ABSTRACT

*In the context of globalization and multiculturalism, education systems are responsible for creating a supportive environment that fosters learners' growth in life skills and academic competencies. Accordingly, the current study integrated a critical thinking program (3Es) into a BA English language writing course, intending to improve learners' critical thinking, writing skill, and classroom climate in the English language context of Iran. Accordingly, two intact writing classrooms were assigned to the control and experimental groups, each containing thirty intermediate participants aged 23 to 34. Two classes were held equally in terms of the instructor and the instructional material (Longman Academic Writing Series 3). The only difference between the two groups was exposing the experimental group's participants to the critical thinking program (based on Bakhtiari Moghadam et al.'s framework, 2021), following 3 stages of exposure, exploration, and evaluation. In this quasi-experimental study, the data were collected by employing Honey's critical thinking questionnaire (2004), Fraser et al.'s (1996) classroom climate questionnaire, and the Longman writing tests. After implementing the critical thinking program for over four months, the data were analyzed, and the results demonstrated statistically significant improvements in critical thinking, writing skill, and classroom climate level of participants in the experimental group. The study showed that English language learning is not the only aim of English language classrooms. Learning the language can become a means by which English learners develop academically and critically.*



## Introduction

The world has experienced significant changes, resulting in a deep evolution of scopes, definitions, and objectives of a socially responsible educational framework. These changes have introduced different cognitive, emotional, and psychological challenges that require immediate attention and effective solutions. To equip pupils to be positively impactful in their academic and non-academic lives, educational systems must shift their emphasis from academic content to encompass social life skills (Oliveri & Markle, 2017).

Moreover, any fundamental long-term changes occur within academic years. Throughout the globe, education is regarded as an efficient platform for personal and academic development to make learners capable of handling and coping with present and future challenges (Heidari, 2020). In parallel with this welcoming shift, the realm of second/foreign language education has undergone fundamental changes (Aliakbari & Amiri, 2018; Chen & Kent, 2020). According to the World Health Organization (WHO), individual development, which has been conceptualized as "life skills", is defined as "the abilities for adaptive and positive behavior that enable humans to deal effectively with the demands and challenges of life". This development assists individuals to be productive, respectful, and responsible for their thoughts, emotions, and performances in diverse settings (WHO, 1997, p.1). WHO (1997) has identified ten life skills, among which critical thinking (CT) is one of the most desirable and demanding skills to be nurtured.

A vast array of research on CT and its incorporation into the pedagogical environment has been conducted, which documented its beneficial impact not only on individuals' academic and occupational promotion but also on their personal development (Din, 2020; Fong et al., 2017; McCormick et al., 2015). Living in a

multicultural world necessitates the educational system to incorporate intervention programs into the curriculum to prepare and empower students with the world's demanded skills and knowledge (Li & Liu, 2021).

Equipped with critical thinking, learners change into more reflexive ones when faced with everyday risks and difficulties (McPeck, 2016). Furthermore, they gain the essential ability to make informed decisions, allowing them to differentiate between facts and opinions (Ennis, 1985), thereby taking responsibility for their own learning. These transformations enable them to become more autonomous and engaged in their educational journey and in achieving their objectives (D'alessio et al., 2019). Consequently, significant efforts have been made to intentionally integrate critical thinking into the educational landscape, particularly in language instruction and the teaching of English as a foreign or second language (EFL/ESL) (Heidari, 2020; Romero & Bobkina, 2021). Numerous studies have been conducted to demonstrate the important connection between critical thinking and the enhancement of language skills and sub-skills (Din, 2020; Liang & Fung, 2021; Soufi & See, 2019).

In contemporary society, even in individuals' daily lives, people frequently encounter complex public and political matters, make decisions, and resolve problems (Zarrinabadi et al., 2021). To accomplish these tasks efficiently and effectively, citizens must engage in critical evaluation of the information they encounter through various media. Despite the abundance of printed material available in the era of "information explosion," it is common to feel overwhelmed. The vast amount of information that accumulates on people's desks and in their minds becomes useless due to its sheer volume. Therefore, individuals must engage in what they write or read and discern the bits and pieces that are interesting and useful to them. This

necessitates the possession of strong critical reading, writing, and thinking skills.

Several scholars argue that writing is a skill that necessitates both learning and practice (Fathi et al., 2019; Wale & Bogale, 2021). Additionally, El-Freihat and Al-Shbeil (2021) emphasized that writing is a craft that can be taught and acquired. To facilitate effective writing in EFL classrooms, ELT practitioners (Rahayu, 2021) propose three distinct approaches: product, process, and genre. The process approach, as highlighted by Zamel (1983), Liu and Hansen (2002), and Indah (2017), concentrates on the act of composing, where writers articulate their ideas as they strive to convey meaning. On the other hand, the product approach, as described by Gabrielatos (2002) and Hall (2017), is a more traditional method that encourages students to imitate a model text. Lastly, the genre approach is a relatively new development stemming from the communicative language teaching approach, with its focus on the writers who must effectively engage with the written work. In the present research, writing is defined as the process of composing text.

Writing refers to the expression of thoughts, ideas, and language through written text (Namaziandost et al., 2021). Writing is considered an essential skill in first and second language acquisition and is interconnected with other language skills. For example, Taghinezhad et al. (2018) and Yan (2018) argued that all language skills are interdependent, and effective communication requires not only writing but also listening, reading, and speaking. Writing and thinking are closely related, as writing is a manifestation of one's thoughts. Clear thinking is a prerequisite for clear writing. Engaging in writing enhances thinking skills and contributes to the development of higher-order thinking abilities. When individuals express their ideas and present arguments in writing, they are required to think

critically and organize their thoughts effectively. In the context of second language (L2) writing, linguistic proficiency plays a crucial role, as highlighted by Errihani (2012). The ability to think critically is reflected in L2 writers' linguistic skills, which are demonstrated through their writing. Additionally, their writing also reflects their background knowledge and understanding of the subject matter.

Moreover, the establishment of a positive atmosphere in an L2 classroom requires the collaborative efforts of both the teacher and the learners. In the present-day language learning environment, teachers can utilize technology, multimedia resources, and the accessibility of learners to foster a supportive and effective climate. Within this conducive environment, the teacher and learners can engage in various forms of social interaction, thereby enhancing the communicative skills of language learners. Consequently, not only can the teacher anticipate improved learning outcomes, but they can also ensure the wholehearted attendance, attention, and active participation of students in class activities. Moreover, a positive class climate and the resulting enhanced social interactions can contribute to the emotional well-being of learners. For instance, increased self-esteem can lead to reduced levels of anxiety and improved emotional health (Qiu, 2022). Educational research has indicated that fostering a conducive learning environment is crucial for student engagement and participation. Students are encouraged to take ownership of their learning, collaborate with their peers, and share their ideas and emotions willingly (Alonso-Tapia & Nieto, 2018). Accordingly, the current study integrated a critical thinking-based program into a BA English writing course, intending to improve language learners' critical thinking, writing performance, and classroom climate in the English language context of Iran.

## Research Questions

The following questions were answered in the current study:

1. Does implementing 3 E's CT program have a significant effect on university English language learners' writing at the intermediate level?
2. Does implementing 3 E's CT program have a significant effect on university English language learners' critical thinking at the intermediate level?
3. Does implementing 3 E's CT program have a significant effect on university English language learners' classroom climate at the intermediate level?

## Review of Literature

### The Connection between Writing Skill and Critical Thinking

Writing is a multifaceted skill that presents considerable cognitive challenges, as highlighted by MacArthur and Graham (2017). This complexity arises from the fact that writing is not merely a mechanical process of putting words on a page; rather, it is an intricate interplay of various cognitive functions and problem-solving strategies. According to Myhill et al. (2020), effective writing demands the engagement of sophisticated cognitive processes, including planning, organizing, revising, and evaluating one's work. Each of these processes requires a different set of skills and mental resources, making writing a uniquely demanding task.

A key element in crafting a coherent text is the ability to articulate one's thoughts clearly for the reader, as emphasized by Peskin et al. (2014). This clarity is essential not only for effective communication but also for ensuring that the reader can follow the writer's line of reasoning. The challenge lies in translating complex ideas into accessible language while maintaining the intended meaning and nuance. This endeavor involves

substantial decision-making, which must consider a variety of factors, including the specific requirements of the writing task, the intended objectives of the piece, the conventions of the genre being employed, and the needs and expectations of the audience (Bazerman et al., 2017). Each of these elements plays a crucial role in shaping the final product and requires the writer to be both reflective and strategic in their approach.

Given the organized nature of effective writing, structured instruction is necessary to facilitate optimal growth in this area (Graham et al., 2017). Writing is not an innate skill but rather one that can be developed through targeted teaching and practice. Instruction that is systematic and well-designed can help students navigate the complexities of writing, providing them with the tools and frameworks needed to improve their skills over time. Moreover, if a strong correlation exists between training in critical thinking and writing skills, it is reasonable to assert that writing instruction should be combined with the teaching of critical thinking competencies. Critical thinking involves the ability to analyze, evaluate, and synthesize information, which are all essential skills for effective writing. By integrating critical thinking into writing instruction, educators can help students not only enhance their writing abilities but also develop a deeper understanding of the content they are engaging with. This holistic approach to teaching writing can lead to more thoughtful, persuasive, and impactful writing, ultimately benefiting both the writer and the reader. There is a notable lack of research on how critical thinking instruction affects students' writing skills, with most studies focusing on writing's role in cognitive development (e.g., Alidmat & Ayassrah, 2017; Quitadamo & Kurtz, 2007).

Kumar and Refaei (2017) emphasized that the characteristics of critical thinking are vital for composition students as they engage with a variety

of ideas, allowing them to process and reflect on these concepts. Experiences in project-based learning (PBL) that foster these metacognitive abilities can aid students in actively navigating the processes of meaning-making during their writing endeavors. The findings indicate that instruction in critical thinking may significantly enhance writing outcomes. Specifically, involvement in collaborative 'communities of inquiry,' where students engage in the exchange of reasoning—a fundamental aspect of critical thinking—has been associated with notable and lasting cognitive improvements in longitudinal research (Topping & Trickey, 2007).

Furthermore, there exist rational justifications for the association between critical thinking and writing as a form of communication. The ability to engage in clear and critical thought is fundamentally essential for producing writing that is both clear and persuasive. If this assertion holds true, it implies that allowing students to engage in collaborative reasoning and problem-solving during writing tasks could enhance the quality of their writing. Nevertheless, the question of how to effectively support the instruction and learning of writing continues to be a significant issue within the field of education (Graham et al., 2014; Graham & Perin, 2007). Evidence suggests that educators often feel inadequately prepared and face challenges in delivering effective writing instruction (Graham et al., 2014), and they are even less equipped to teach critical thinking skills (Janssen et al., 2019).

Janssen et al. (2019) argue that educators lacking confidence in teaching a skill are unlikely to fulfill two essential requirements for effective instruction: possessing the skill (Hattie, 2013) and having a positive attitude towards teaching it (Klassen & Tze, 2014). The importance of critical thinking skills is increasingly recognized in educational curricula due to the demand for 21st-century competencies (Indrasiene et al., 2021), yet these skills are often

overlooked in pre-service teacher training. Additionally, the link between critical thinking and writing improvement is underexplored (Bean, 2011). This research aims to assess the impact of critical thinking instruction on writing skill and to advocate for further investigation into this relationship and the need for critical thinking training for educators to enhance students' writing skills.

### **Empirical Studies on the Connection between Writing Skill and Critical Thinking**

The writing competence of English as a Foreign Language (EFL) learners is influenced by various factors. Barnawi (2011) argued that proficient EFL writers must develop critical thinking skills, which are essential for effective writing. Critical thinking (CT) is a socio-cognitive process that enables second language (L2) writers to engage both interpersonally with readers and intrapersonally through self-reflection.

Sham (2016) conducted a study focused on the interplay between teaching writing skills and critical thinking. The participants were categorized into two groups: a control group and an experimental group. Instruction in critical thinking skills was exclusively provided to the experimental group. The results indicated that the incorporation of critical thinking skills significantly enhanced the writing performance of the participants. Furthermore, the participants expressed a positive attitude towards the learning of critical thinking skills.

Indah (2017) explored the correlation among critical thinking, writing performance, and the formality of topics among Indonesian EFL learners. The study concluded that a strong relationship exists between the learners' critical thinking abilities and their writing performance. Additionally, a direct link was identified between



critical thinking and the formality of the topics addressed.

Akbaeva (2017) investigated how the cultivation of critical thinking skills within the classroom context influenced the writing performance of learners. The results demonstrated that fostering critical thinking skills had a significant positive impact on the participants' writing abilities.

In a further study, Saedpanah and Mahmoodi (2020) analyzed the connections between critical thinking, writing anxiety, and writing performance among Iranian EFL learners. Their findings indicated a notable relationship among the participants' critical thinking skills, levels of writing anxiety, and their overall writing performance.

Szenes and Tilakaratna (2021) identified critical reflection as a crucial graduate attribute within higher education. They emphasized the importance of assignments designed to evaluate critical reflection skills, advocating for students to concentrate on their subjective experiences, attitudes, and dispositions. Reflective writing, often perceived as less significant than objective and theoretical knowledge, is frequently regarded as unstructured and inherently 'creative,' which complicates its teaching and learning processes. Their research highlighted how high-achieving students in social work and business adeptly engage with subjective interpretations in reflective writing. Utilizing the Appraisal framework from Systemic Functional Linguistics, the study illustrated how these successful students transition from a basic understanding of complex situations to showcasing disciplinary knowledge and values pertinent to their fields. The findings illuminated effective practices of critical reflection and raised ethical considerations aimed at promoting equitable outcomes in higher education.

## Methodology

### Research Design

In the current quantitative quasi-experimental study, two intact classes were assigned to control and experimental conditions. At first, all participants completed the critical thinking and classroom climate questionnaires and answered a writing test. In the control group, the participants received instructions following the course book without any critical thinking activities inside or outside the classroom. In the experimental group, the participants received the CT program, being integrated into the content of the writing classroom. In this study, the independent variable was the application of the CT program, and the dependent variables were critical thinking, writing skill, and classroom climate.

### Participants

Sixty-nine students enrolled in a BA English writing course focused on English language translation at the foreign languages department of the Islamic Azad University of Sirjan, Iran, took part in this study during the academic year 2024-2025. Initially, the researcher administered the Longman Placement Test to ensure the participants were homogeneous before commencing the project. Based on the proficiency levels determined by the placement test results, 60 students were categorized as intermediate English language learners, 7 as upper-intermediate learners, and 2 as elementary learners. After excluding the upper-intermediate and elementary learners from the final data analysis, a sample of 60 intermediate participants remained, with each group consisting of 30 individuals (21 females and 9 males in the experimental group, and 22 females and 8 males in the control group), all of whom had not previously received any instruction in critical-based writing. The age of the participants in this study ( $n = 60$ ) varied from 23 to 34 years. The study

was explained to the students, and their participation in this study was optional, regardless of their involvement in the research. Throughout the program, participation was voluntary, and no financial compensation was provided. It was emphasized that students had the right to withdraw from the study at any point without facing any repercussions. To maintain confidentiality and anonymity, pseudonyms were assigned to participants. Additionally, data was not disclosed to any party, including university administrators. The participants from both groups (control group and experimental group) engaged in this study once a week for nearly four months, totaling 15 sessions.

### Instruments

To choose almost homogenous participants regarding the English language proficiency level, LPT, a criterion-referenced measure developed by Pearson Longman ELT (2006) was used. The test consists of 100 multiple-choice questions and has a time limit of 50 minutes.

To evaluate participants' critical thinking skills, the researcher used the critical thinking questionnaire (Honey, 2004). This 30-item instrument employs a five-point Likert scale from "never" to "always." Honey established its content and construct validity, with a reliability coefficient of 0.81 (Zare et al., 2021). Naeini (2005) first applied it in Iran, reporting a Cronbach alpha of 0.86, indicating high reliability. Subsequent studies in Iran have also validated the questionnaire (Aghajani & Gholamrezapour, 2019; Askarzadeh & Mall-Amiri, 2018; Fakharzadeh & Amini, 2021; Golpour, 2014; Sheibani & Miri, 2019; Zare & Biria, 2018; Zare et al., 2021). The current study also found a Cronbach alpha of 0.86, confirming its reliability.

Participants' writing skill was assessed by composing essays on two topics during the pre-test and two more in the post-test phase, using the

Longman writing test guides for evaluation. The assessment rubric, based on criteria from Choi (2013), Torrance (1965), and Heaton (1975), included five dimensions: content organization, linguistic accuracy, originality, fluency, and elaboration. This rubric was validated by two experienced English writing educators and has been used in previous studies, such as those by Lin et al. (2018) and Ibnian (2010). Each essay was scored out of 40 points—15 for content organization, 10 for linguistic accuracy, and 5 each for originality, fluency, and elaboration—then normalized to a scale of 20 for analysis. Inter-rater reliability was high, with a coefficient exceeding .85 for all scores, indicating strong consistency between evaluators.

The English version of the classroom climate questionnaire was used in this study. It was designed by Fraser et al. (1996). It was used to ascertain the participants' attitudes toward the English language classroom climate. The questionnaire consists of 28 statements with a five-choice format, and the participants were asked to complete it in 30 minutes. Each participant was asked to rate each statement (from 1 = strongly disagree to 5 = strongly agree) on a scale of 1-5. The items were examined by three experts (two in English language teaching and one in research studies) to evaluate the redundancy, face validity, content validity, and language clarity of the questionnaire questions. Pilot testing was also done with a population of 10 students to increase the validity and reliability of the items. Feedback indicated that the scale was valid. Cronbach's Alpha was used to check the questionnaire's reliability, and it was .89 in the present study, showing high internal consistency.

### Procedure

In both groups, the writing materials were selected from the Longman Academic Writing

Series 3, written by Oshima and Hogue (2020). The Longman Academic Writing Series facilitates the progression of student writing skills from fundamental sentence and paragraph construction to the formulation of academic essays and scholarly research papers. This book was chosen as it has been recommended and used as the main course book for writing skill at Islamic Azad University, Sirjan branch. It includes 10 chapters with various writing assignments. There are some exercises before and after writing tasks to practice writing skills. Five chapters were taught during the term in both control and experimental groups.

In the control group, the instructor implemented a structured approach encompassing three distinct phases: pre-writing, writing, and post-writing. Initially, in the pre-writing phase, the instructor introduced clear and specific prompts tailored to the writing task at hand. These prompts included techniques such as brainstorming, making concept maps, and using images. Subsequently, during the writing phase, the instructor presented exemplary writing models, including concise essays, to illustrate effective writing practices. The instructor emphasized key components of proficient writing, such as organization, sentence structure, and vocabulary selection. Following this, students were given the opportunity to engage in writing across various formats and genres. In the post-writing phase, the instructor provided constructive feedback on the students' written work and facilitated opportunities for revision and enhancement.

In the experimental group, the stages of Bloom's revised Taxonomy were incorporated into the book's content. Specifically, while presenting the writing materials, the instructor employed a variety of practical strategies designed to foster both lower-order and higher-order thinking skills. The phases of the 3 E's critical thinking intervention program, as described by Bakhtiari Moghadam et al. (2021),

are delineated below in relation to the current study:

### **Exposure (pre-writing)**

Initially, learners were introduced to a variety of texts centered on a single topic, enabling them to explore that topic from multiple viewpoints. Participants, for example, explored a variety of texts related to education, which showcased the myriad styles, levels, attitudes, beliefs, values, and behaviors present in various global educational systems. This engagement with a diverse array of texts on a singular topic enriches students' awareness by expanding their comprehension and enabling them to recognize the complex dimensions of a single issue (such as understanding that education involves more than mere traditions, customs, or objectives). Furthermore, this exposure plays a significant role in shaping their values, norms, beliefs, and attitudes, thereby affecting their perceptions and experiences of the surrounding world. Throughout this process, learners developed a more profound comprehension of their environment and gained knowledge through the exploration of various dimensions of a topic. Subsequently, the teacher encouraged learners to engage in reflective practices regarding the materials they had encountered, prompting them to articulate their perceptions. This served as an initial step in facilitating participants' ability to express their thoughts and emotions candidly. It provided them with an opportunity to observe and articulate their surroundings while also considering the perspectives of others. They were informed that listening to differing viewpoints does not necessitate agreement with those ideas; rather, it is essential to allow oneself to appreciate the variety of perspectives on a given issue. This approach emphasizes the importance of recognizing differences rather than categorizing ideas as superior or inferior. Such an exercise fostered



tolerance for diverse viewpoints and prepared them to investigate issues from various angles and dimensions. This process of raising awareness was fundamental to developing critical thinking skills. Throughout these sessions, the instructor primarily facilitated discussions, refraining from endorsing or agreeing with any particular viewpoint. In this stage, objects were examined only at a surface level, lacking any in-depth analysis. The initial phase encompasses the first two tiers of Bloom's revised taxonomy, specifically the levels of remembering and understanding.

### **Exploration (writing)**

In this stage, students were instructed to compose a passage on a specified topic. Prior to writing, they received guidance on fundamental writing principles and the appropriate format. Subsequently, participants were encouraged to talk about the passages they had written from various perspectives, aiming to deconstruct the textual information into smaller, manageable components. This approach sought to engage their observational skills, perceptual abilities, and attention to detail. As a result, they were able to consider all facets of the passage, facilitating an analytical view of the text that allowed them to identify and isolate pertinent details, recognize patterns, and critically assess the information presented. This analytical process was further enhanced by the application of WH-Questions (who, what, when, where, why) to delve into the text's issues, thereby fostering an extensive comprehension of the subject. Questions were directed towards the substance of both their own compositions and those of their classmates. For instance, What elements play a role in the importance of grades for Iranian students? What makes the educational system in Japan so strange?. The instructor played a pivotal role in guiding students to investigate the text analytically, formulate effective inquiries, and collaboratively

address both their own and their peers' questions. Through this stage, participants cultivated a sense of curiosity regarding the text, engaging in comparative analysis and reflective thinking to generate profound and analytical contributions to the discussions related to what they had written. At this juncture, learners were advised to refrain from making judgments about the issues at hand. The primary focus was to ensure thoroughness in their exploration. Students posed their inquiries (who, what, when, where, why, etc.) and endeavored to transcend their previous actions by scrutinizing the thoughts, emotions, and beliefs that contributed to their current situation. Indeed, these cognitive and emotional elements serve as the foundation for their habitual behaviors. This phase involved the application and analysis of Bloom's revised taxonomy levels, thereby encouraging students to concentrate on the finer details.

### **Evaluation (post-writing)**

In the final phase, participants engaged in an evaluative exercise, critically examining their written texts for underlying value or bias. They were encouraged to integrate knowledge from various sources before assessing their content. This phase emphasized objective and comprehensive analysis, requiring consideration of both internal and external information, while prohibiting subjective judgments based on personal preferences. Participants were asked to provide reasons for whatever they wanted to write. They also evaluated the reliability of other students' written content, determining whether drafts were facts or opinions. For instance: 1. "It took me some time to adapt to the educational system and homework approach at the school because the teaching method felt unsuitable to me." 2. "It's not accurate to say that students in Australian schools are unmotivated; rather, they simply have an alternative understanding of how time ought to be utilized."

Upon examining these two statements, students observed that the word "unsuitable" in the expression "the teaching method felt unsuitable for me" signifies a subjective perspective influenced by the author's cultural background and experiences. Conversely, the phrase "they have an alternative understanding of time" emphasizes cultural distinctions in a more impartial way. Accordingly, they learned that before accepting the assumptions, they should evaluate their value based on rational explanations and plausible reasons. It helped participants critically see and evaluate thoughts and attitudes to decide facts and opinions. This is a higher form of seeing that involves the critical interpretation and application of knowledge. It covers the last two levels of Bloom's revised taxonomy: evaluate and create.

## Results

To investigate research hypotheses, the first step was to assess the normality of the data distribution using the Skewness value. A result within ( $\pm 2.58$ ) indicates normal distribution (Tabachnik & Fidel, 2007). All variables in this study showed normal

distribution, validating the use of parametric tests. For the first research question and null hypothesis (H01), which states that the CT intervention program has no significant effect on the writing abilities of English language learners, both Levene's test and normality assessments confirmed that the necessary assumptions were met. The criteria for homogeneity of variance, a linear relationship between the dependent variable and covariate, and homogeneity of regression slopes were satisfied (see Tables 1 & 2). With a p-value exceeding 0.05, the assumption of homogeneity of variance was upheld, allowing for a one-way ANCOVA. Additionally, there was no interaction between the covariate and the dependent variable, enabling the application of the ANCOVA test for the Writing variable.

**Table 1**

*Test of Homogeneity of Variances (Writing)*

F	df1	df2	P-Value
5.881	1	58	0.12

**Table 2**

*Test of homogeneity of regression slopes (Writing)*

Source	Sum of Squares	df	Mean Square	F	P-Value
Group	0.772	1	0.772	0.071	0.791
Pretest	2.199	1	2.199	0.201	0.655
Pretest $\times$ Group	6.542	1	6.542	0.559	0.442
Error	611.132	56	10.913		

**Table 3**

*The Result of Covariance Analysis (Writing)*

Source	Sum of Squares	df	Mean Square	F	P-Value	partial $\eta^2$
Pretest	2.668	1	2.668	0.246	0.622	
Group	117.686	1	117.686	10.680	0.00	0.16
Error	617.673	57	10.386	-	-	
Corrected Total	736.546	59	-	-	-	

Table 3 shows a significant difference in the average Writing post-test scores between the Experimental and Control groups, indicating that the CT Framework positively impacted writing skills ( $p > 0.05$ ). The partial Eta Squared value of 0.16 supports rejecting the null hypothesis.

**Table 4***Estimated Marginal Means (Writing)*

Group	Estimated Marginal Mean	Std.Error
Control	12.70	0.6•
Experimental	15.51	0.6•

The estimated marginal means indicate that the experimental group had better writing skills than the control group, as shown in Table 4.

To evaluate the second research question and null hypothesis H02, which states that the CT intervention program does not significantly affect

the critical thinking skills of English language learners, Levene's test and normality assessments confirmed that the necessary assumptions were met. Specifically, homogeneity of variance, a linear relationship between the dependent variable and covariate, and homogeneity of regression slopes were satisfied (see Tables 5 and 6). With a p-value exceeding 0.05, homogeneity of variance was established, allowing for a one-way ANCOVA. Additionally, the analysis showed no interaction between the covariate and dependent variable, justifying the use of ANCOVA for the critical thinking variable.

**Table 5***Test of Homogeneity of Variances (Critical Thinking)*

F	df1	df2	P-Value
0.50	1	58	0.48

**Table 6***Test of homogeneity of regression slopes (Critical Thinking)*

Source	Sum of Squares	df	Mean Square	F	P-Value
Group	417.732	1	417.732	14.792	0.000
Pretest	10.685	1	10.685	0.378	0.110
Pretest × Group	123.869	1	123.869	4.386	0.120
Error	1581.458	56	28.240	-	-

**Table 7***The Result of Covariance Analysis (Critical Thinking)*

Source	Sum of Squares	df	Mean Square	F	P-Value	partial $\eta^2$
Pretest	66.305	1	66.305	2.216	0.81	
Group	19530.258	1	19530.258	625.792	0.00	0.92
Error	1705.328	57	29.918	-	-	
Corrected Total	21974.983	59	-	-	-	

Table 7 shows a significant difference in mean scores for critical thinking between the experimental and control groups, with a post-test p-value of  $< 0.01$  indicating enhanced critical thinking due to the framework. The partial Eta Squared

value of 0.92 suggests a large effect size, leading to the rejection of the null hypothesis.

**Table 8**  
*Estimated Marginal Means (Critical Thinking)*

Group	Estimated Marginal Mean	Std.Error
Control	60.48	1.05
Experimental	96.90	1.05

The estimated marginal means suggest that the experimental group exhibited superior performance in critical thinking compared to the control group, as illustrated in Table 8.

To evaluate the third research question and null hypothesis H03, which states that the CT intervention program does not significantly affect classroom climate for English language learners, a series of statistical tests was conducted. Levene's test and normality assessments confirmed that the

necessary assumptions were met, including homogeneity of variance and a linear relationship between the dependent variable and covariate, as shown in Tables 9 and 10. With a p-value exceeding 0.05, homogeneity of variance was validated, allowing for a one-way ANCOVA. Additionally, there was no interaction between the covariate and dependent variable, justifying the ANCOVA for the Classroom Climate variable.

**Table 9**  
*Test of Homogeneity of Variances (Classroom Climate)*

F	df1	df2	P-Value
22.45	1	58	0.08

**Table 10**  
*Test of homogeneity of regression slopes (Classroom Climate)*

Source	Sum of Squares	df	Mean Square	F	P-Value
Group	781.473	1	781.473	7.140	.010
Pretest	738.646	1	738.646	6.703	.012
Pretest × Group	226.609	1	226.609	2.072	.156
Error	6124.978	56	109.370	-	-

**Table 11**  
*The Result of Covariance Analysis (Classroom Climate)*

Source	Sum of Squares	df	Mean Square	F	P-Value	partial $\eta^2$
Pretest	846.446	1	846.446	7.096	.008	
Group	1342.0269	1	1342.0269	12.430	.000	.679
Error	6351.587	57	111.431	-	-	
Corrected Total	2109.085	59	-	-	-	

Table 11 shows a significant difference in mean scores for the Classroom Climate post-test between the Experimental and Control groups, indicating that the CT Framework notably improved Classroom Climate ( $p < 0.01$ ). The partial Eta Squared (partial  $\eta^2 = 0.68$ ) indicates a strong effect size.

**Table 12**  
*Estimated Marginal Means (Classroom Climate)*

Group	Estimated Marginal Mean	Std. Error
Control	75.06	1.93
Experimental	105.03	1.93

The estimated marginal means indicate that the experimental group outperformed the control group in classroom climate (Table 12).

## Discussion

Using a quantitative quasi-experimental study involving English language learners, the experimental group exhibited significant enhancements in critical thinking and writing skills, unlike the control group. Additionally, the findings indicated that implementing critical thinking positively influenced classroom dynamics. Considering the first question, does implementing 3 E's CT program have a significant effect on English language learners' writing skill, the findings confirmed that critical thinkers go beyond merely arranging a series of words on a page. They perceive writing as a dynamic process that necessitates deep contemplation and engagement with a text to gradually derive meaning. This way of thinking implies that to create a text, one must utilize both lower-order and higher-order thinking skills, as noted by other researchers (Normore et al., 2024). All these investigations affirm that empowering language learners with critical thinking skills enhances their writing abilities. This enhancement is achieved by making inferences, employing deductive reasoning and logical interpretation, and gathering information from diverse sources. Moreover, the outcome aligns with other research (Normore et al., 2024; Tolchinsky, 2017) that indicates a positive and strong link between EFL learners' critical thinking skills and their advancements in writing performance. By emphasizing the role of critical thinking as a facilitator in educational settings, the findings of this study confirm that critical thinking should be viewed as a fundamental and integral skill in academic growth, especially in writing. Individuals who possess critical thinking skills actively seek reliable information and logical reasoning to construct the meaning necessary for crafting a written piece. All these results advocate for and validate the integration of critical thinking into the writing process.

Referring to the second question, does implementing 3 E's CT program have a significant effect on English language learners' critical thinking? The study's results align with extensive research using Bloom's Taxonomy to develop critical thinking (CT) models (Pappas et al., 2013; Sharunova et al., 2018; Tijaro-Rojas et al., 2016; Tuma & Nassar, 2021). They also support scholars exploring the integration of CT skills in educational frameworks to help students meet learning objectives (e.g., Din, 2020; Geissler et al., 2012; Moosavi, 2020; Romero & Bobkina, 2021; Yang & Chou, 2008; Veliz & Veliz, 2018; Wilson, 2016). To enhance CT effectiveness, the study recommends using diverse techniques like questioning, debating, reflecting, providing evidence, and problem-solving to engage learners as active critical thinkers.

Moreover, the findings revealed that those unengaged learning methods, like lectures where wisdom flows solely from teachers to learners, may hinder the cultivation of critical thinking abilities; rather, students ought to be granted chances to engage in conversations and contentious debates within the learning environment. Apart from that, considering the importance of utilizing a CT-based program, this study agrees with several other studies (Cargas et al., 2017; Davies & Barnett, 2015; Emerson, 2013; Fahim & Eslamdoost, 2014; Fontenot, 2021; Heidari, 2020; Hundial, 2020; Larsson, 2017; Petek & Bedir, 2018) outranking the importance of having a comprehensible framework since it leads the practitioners to be successful in the process of teaching CT.

In regard to the third question, does implementing 3 E's CT- program have a significant effect on English language learners' classroom climate, the results demonstrated that the application of the 3Es framework had a profound effect on the classroom environment and motivated students to adopt reflective practices, allowing them



to make decisions, draw inferences, and reach conclusions based on logic instead of emotions. As a result, they cultivated the ability to devise strategic plans for the analytical resolution of challenges and obstacles that hinder their personal, interpersonal, and academic growth.

Moreover, they developed the skill to logically and respectfully embrace a variety of perspectives while engaging in active collaboration with their peers, even when their beliefs and behaviors diverged. The results of this study resonate with earlier research that supports giving students the chance to become active participants in the educational journey, to interact and work together in classroom activities, and to share their thoughts and feelings willingly and enthusiastically, thereby creating a notably more positive learning environment (Alonso-Tapia & Nieto, 2019). Therefore, the findings of the present study are significant, as it stands as one of the first investigations into the effects of critical thinking on the learning atmosphere. Indeed, it highlighted the necessity of incorporating critical thinking as a fundamental element in improving the quality of the classroom climate. This strategy was crucial in fostering a more supportive atmosphere by encouraging an environment where learners can openly express their opinions and emotions thoughtfully and safely.

This research highlights that language acquisition is not an end goal but a means to enhance academic, linguistic, and critical thinking skills. The study demonstrated that a critical thinking-oriented second language writing program positively impacted learners by promoting critical engagement and reflection. As a result, their reasoning became more logical rather than emotional. Through CT-focused activities, students learned to embrace diverse perspectives with respect and collaborate with peers, even amid differing beliefs.

## Conclusion

The study highlights the crucial role of critical thinking skills for English language learners in writing and analyzing the reliability of information. This ability not only enhances academic success but also promotes informed decision-making in daily life. Learners with strong critical thinking skills can better navigate diverse viewpoints, distinguish trustworthy sources, and deepen their understanding of various subjects, ultimately aligning their decisions with their values and improving their quality of life. Additionally, the research reveals that critical thinking positively impacts classroom dynamics. Students who engage in critical thinking express their ideas more confidently, fostering a vibrant learning environment. This focus on critical thinking supports psychosocial development, enhancing interpersonal skills and emotional intelligence. As students articulate their thoughts and challenge assumptions, they gain a sense of agency and ownership over their education.

Teaching that promotes critical thinking enhances students' academic performance and helps them form well-founded opinions on significant challenges. Reflective discussions improve their understanding of complex societal issues, preparing them to contribute meaningfully to their communities. Incorporating critical thinking into education fosters individual growth and societal advancement by creating an environment where students rely on reliable information, exercise sound judgment, and engage in respectful dialogue. This empowers them to express their thoughts and emotions, overcoming learning obstacles. Ultimately, critical thinking enables students to evaluate and reflect on information, particularly in learning a second language, highlighting the benefits of integrating critical thinking instruction in L2 education.

This research has the potential to significantly contribute to the literature, but its limitations must be considered. A key limitation is the small sample size, suggesting that future studies should use larger samples to validate results and identify broader trends. Participants were from an intermediate English as a Foreign Language (EFL) class, but their study durations varied. Additionally, the reliance on self-reported questionnaires may not accurately reflect participants' true thoughts or behaviors. The study focused solely on BA English language students with intermediate proficiency at Azad University in Sirjan, Iran, so caution is needed when generalizing findings to learners from different disciplines and proficiency levels, as age, skills, and situational factors may affect results.

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