

The Effect of Critical Thinking on Developing EFL Female Learners' Cognitive Writing Skills at an International Technical College in the KSA

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ABSTRACT

The present study aimed to examine the relationship between critical thinking (CT) and cognitive writing performance among tertiary-level EFL female learners, exploring how CT skills can be effectively integrated into the process writing approach and identifying the extent to which CT instruction influences learners' ability to engage in various stages of the writing process. One pretest and one posttest were administered to the same experimental group of 20 tertiary female students at a technical college. The results showed that CT in EFL pedagogy had a favorable impact on Saudi EFL tertiary students' greatest levels of thinking capacity following the treatment sessions of the CT techniques for writing. Also, the process for the writing approach enhanced the creation of CT abilities for students in an EFL setting. Furthermore, the selected instructional technique for teaching writing skills, which incorporated gradual assessment, was deemed appropriate.

Keywords: Critical Thinking, Cognitive Writing, Female EFL Learners

INTRODUCTION

The integration of critical thinking (CT) into English as a Foreign Language (EFL) pedagogy has garnered increasing attention in recent years due to its potential to significantly enhance learners' linguistic and cognitive skills, particularly in non-Western educational contexts (Marin & Halpern, 2011). As EFL instruction evolves to meet the demands of 21st-century competencies, fostering critical thinking has become an essential educational objective. However, despite growing recognition of its importance, the incorporation of critical thinking into EFL teaching remains broadly underexplored and inconsistently applied, particularly in developing learners' writing skills.

Although critical thinking has been widely acknowledged as an effective pedagogical strategy in various disciplines such as science and mathematics (Adey & Shayer, 1994), its integration into language teaching methodologies has not yet been established as a core approach within mainstream literature (Richards & Rodgers, 2001). Existing frameworks in language education, such as the communicative approach, have primarily emphasized oral and written interaction through teacher-learner and learner-learner exchanges (Ellis, 2003), often without explicit incorporation of higher-order cognitive processes like critical thinking.

There is, therefore, a clear and pressing need to expand the scope of research exploring the relationship between critical thinking and specific language competencies, particularly writing. Gieve (1998) underscores this by arguing for more targeted investigations into how critical thinking may contribute to performance across various language tasks. While previous studies have acknowledged the potential of critical thinking to influence learners' cognitive engagement and outcomes, the precise mechanisms through which it affects writing remain insufficiently examined, especially in process-oriented writing instruction (Chen, 2010).

The present study seeks to address this gap by investigating the impact of CT on the development of cognitive writing skills among female EFL learners at the International Technical College in the Kingdom of Saudi Arabia (KSA). Specifically, it focuses on how CT skills can enhance students' engagement with the stages of process writing, including idea generation, drafting, revising, and reflecting. The process writing approach shifts the instructional emphasis from the final written product to the stages involved in composition, thereby aligning well with the principles of CT, such as analysis, evaluation, and synthesis.

A. Objectives of the Study

The main objectives of this study are to first, examine the relationship between critical thinking (CT) and cognitive writing performance among tertiary-level female English as a Foreign Language (EFL) learners; second, explore how CT skills can be effectively integrated into the process writing approach; and finally, identify the extent to which CT instruction influences learners' ability to engage in various stages of the writing process.

B. Significance of the Study

This study is significant in that it contributes to the growing body of literature advocating for interdisciplinary approaches in language education by embedding CT into EFL writing instruction. By concentrating on female learners within the Saudi Arabian technical education context, this study also addresses a demographic and educational setting that has been largely underrepresented in EFL research. Moreover, this study also provides vivid and relevant insights, and its findings may inform curriculum designers, educators, and policymakers aiming to enhance EFL writing instruction through cognitive and metacognitive pedagogies.

LITERATURE REVIEW

Critical thinking (CT) in English Language Teaching (ELT) is defined as learning how to ask and answer questions of analysis, synthesis, and evaluation (Paul, 1985, p. 37). Cognitive skills refer to the mental processes involved in gaining knowledge and comprehension through thinking, experience, and the senses. It encompasses processes such as knowledge, attention, memory, working memory, judgment and evaluation, reasoning and computation, problem solving and decision making, and comprehension and production of language, to name a few.

Human cognition includes both conscious and unconscious processes. It can be concrete or abstract and ranges from intuitive understanding (such as knowing a language) to conceptual knowledge (such as understanding the structure of a language). Furthermore, cognitive processes use existing knowledge and generate new knowledge (Ennis, 1996).

According to Facione and Facione (1996), cognitive processes are examined from multiple perspectives across various disciplines, particularly within linguistics, psychiatry, psychology, education, philosophy, and logic. These diverse approaches contribute to the interdisciplinary field of cognitive science, which is emerging as an increasingly independent academic domain. In both psychology and philosophy, cognition is intricately connected to the comprehension of intellectual analysis—the capacity to break down complex intellectual constructs into their basic components. It also encompasses intellectual evaluation, or the ability to assess the quality of each element of thought. This reflective process aims at intellectual refinement by addressing weaknesses and enhancing strengths revealed through analysis and critique. Additionally, it involves cultivating intellectual traits—mental habits essential for the development and application of critical thinking—which must be consciously developed through critical engagement. Such traits are vital in resisting deceptive or manipulative reasoning and in understanding the inherent challenges of human thought, including tendencies like egocentrism and sociocentrism that often lead to profound and persistent issues in human affairs.

Moreover, these aspects can be utilized across a wide range of contexts, both in general thinking—whether one's own or that of a professor, peer, friend, political figure, theorist, or parent—and within specific academic disciplines, each of which employs its own distinct methods of analysis and evaluation (Brown et al., 1989).

Facione (2013) claims that it would almost be counterproductive to seek out CT as an abstract definition to be memorized. Three of these disciplines are essential to the foundation of this study, namely, the psychological, the philosophical, and the educational disciplines. The mental processes, vital components, and practical use of CT are the next areas of focus.

Tyson (2015) mentions six abilities related to CT: interpretation, analysis, evaluation, inference, explanation, and self-regulation. Rabinowitz (1993) viewed CT skills as the thoughtful, disciplined practice of energetically and proficiently intellectualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.

The concept of language teaching and learning has been widely emphasized in the field of EFL pedagogy, and it underpins various educational interventions that have been concerned with the development of cognitive skills

and curriculum. Bloom (1956, cited in Billing (2007)) classified cognitive skills into six levels of thinking known as Bloom's Taxonomy. These levels of thinking are knowledge, comprehension, application, analysis, synthesis, and evaluation. These thinking levels vary in their complexity. The lowest cognitive level is recalling information, and the second lowest level is understanding the meaning of facts. The ability to apply acquired knowledge is known as application, which is the third lower level of thinking. Following the application phase, knowledge is analyzed into parts in order to understand the relationship between these parts, and this analysis skill is considered to be a higher level of thinking. Synthesis is another higher cognitive level that demonstrates the creation of new meaning. Evaluation is the highest cognitive level that is manifested in judgments and is based on defined criteria (Billing, 2007).

In relation to teaching CT to EFL students, Chamot (1995) identifies five instructional guidelines that provide EFL students with the opportunity to demonstrate and develop their critical thinking: recognizing and building on students' prior knowledge, providing meaningful learning tasks, engaging in interactive teaching and learning, focusing on learning processes and strategies, and helping students evaluate their own thinking.

Critical thinking (CT) is integrated into the writing process to enable learners to generate ideas through problem-solving techniques that utilize a variety of cognitive and linguistic skills, guiding them to identify a purpose, develop and organize ideas, and refine their expression. Assessing students is an important start to helping students improve their literacy skills. In addition, identifying the factors affecting the development of CT also plays a crucial part in shaping an organized plan for CT-based instruction in an EFL context. In a smaller context, preparing CT-based instruction is one of the requirements for a better quality of education. This issue is also relevant to the need to strengthen the benchmark of tertiary education so that university graduates are ready to compete with the rest of the world. Furthermore, preparing critical thinkers is one of the demands of exceptional universities to meet the standard of a world-class institution (Punch, 2002).

Writing, learning, and thinking are all part of the same process; thus, learning skills are equally vital, although whether the expression of an idea can be understood by the audience or readers is determined by whether the language is used to its strengths or limitations. This clarifies the strong link between learning to express one's thoughts and critical thinking.

Prior knowledge is also a significant factor affecting how well a critical thinker develops his or her reasoning. The exposure to rhetorical strategies in English persuasive essays affects the development of the student's CT (Richards & Rodgers, 2001). Therefore, students need to be equipped with knowledge of the three measures that reflect CT skills.

English orthography, the standardized system used to represent spoken English in written form, poses unique challenges for learners due to its complex phoneme-grapheme relationships and historical irregularities. Unlike many other languages, English includes numerous inconsistencies in spelling and pronunciation, a result of extensive borrowing from other languages and limited spelling reforms. These irregularities often lead to frequent orthographic errors, even among native speakers, complicating the writing process for EFL learners.

Writing is a fundamental language skill that serves not only as a mode of communication but also as a tool for learning, reflection, and cognitive development. According to Hornby (1990), writing encompasses a range of activities, from the production of texts to the expression of literary style. In language learning contexts, writing allows learners to convey meaning, articulate thoughts, and engage in intellectual discourse beyond immediate spoken interaction.

Troyka et al. (1998) emphasize that writing is intrinsically linked to thinking and learning. It enables learners to explore, refine, and test their ideas, thereby enhancing comprehension and language proficiency. Writing also facilitates connections between concepts, supporting the development of coherent, structured thought. From an academic standpoint, strong writing skills are indicative of educational attainment and cognitive maturity.

Harris (1997) identifies five core components of effective writing: content, form, grammar, style, and mechanics. These elements collectively determine the clarity, coherence, and communicative success of a written text. Furthermore, as noted by Rast (2008), high-quality writing is characterized by authenticity, thoughtfulness, organization, effectiveness, and stylistic precision—all of which require deliberate cognitive effort and awareness of audience expectations.

Marshall (1987) categorizes writing into four main types: narration, description, exposition, and argumentation/persuasion. These modes of composition serve different communicative purposes and require varying degrees of CT and linguistic control. For EFL learners, mastering these genres is essential for academic and professional success.

In summary, the literature underscores that writing is both a cognitive and linguistic activity, shaped by conventions of orthography, genre, and audience awareness. Developing strong writing skills, particularly in EFL contexts, requires not only linguistic knowledge but also higher-order thinking skills such as analysis, synthesis, and evaluation—skills that are central to critical thinking. This connection forms the foundation for exploring the role of CT in enhancing cognitive writing performance among EFL learners, as proposed in the present study.

Previous studies were reviewed as relevant to the present study. A study by Harb et al. (2022) revealed that English as a Foreign Language (EFL) master's students were aware of the important role that critical thinking (CT) skills played in developing academic writing courses and in producing quality content texts.

Zaker and Bajelany (2025) indicated the significant positive effects of explicit CT instruction on both persuasive writing and speaking abilities. Also, the study showed that integrating CT instruction into EFL curricula could enhance learners' persuasive communication skills within blended learning environments. Moreover, results highlighted the pedagogical value of embedding CT in language instruction, offering practical insights for curriculum design and classroom practice.

According to Alharbi (2022), the findings showed the tendency of EFL teachers to focus on areas that do not directly help in developing their learners' ability in writing; thus, EFL teachers/instructors need to focus on the practical side of the writing skills and provide adequate exposure to their learners in group, pair, and individual tasks to master the writing skills.

Alamri (2020) found that the majority of EFL teachers reported that students' greatest obstacles to mastering critical writing were insufficient vocabulary, the inability to express thoughts clearly, and the inability to structure ideas logically.

Salim and Alomari (2023) indicated that the instructional program based on CT skills was significantly more effective than the conventional method in developing students' English language writing skills.

METHODOLOGY

A. The Hypotheses of the Study

- a. CT ability enables Saudi EFL tertiary students to produce adequate writing.
- b. Incorporating CT in EFL pedagogy would affect Saudi EFL tertiary students' highest levels of thinking ability.
- c. Process writing approach enhances the creation of CT ability for students in EFL setting.

B. Participants of the Study

The population of the study included students from Saudi Arabia, with a purposive sample drawn from the International Technical Female College. The sample consisted of 20 Saudi female students enrolled in the Preparatory Year Program (PYP) at the College of Excellence, all of whom studied English as a major subject throughout the 2025–2026 academic year.

C. Instrument

A pretest was used to assess the students' initial performance before any exposure to CT-based strategies. Additionally, the post-test instrument revealed the changes in performance and measured the impact of CT-based instruction on students' writing and cognitive development.

D. Data Collection Procedures

The participants sat for a pretest without any previous knowledge about applying the strategies of CT-based instruction and cognitive development skills. Then the same group of students were enrolled in intensive input sessions to foster these specific cognitive skills. The input sessions lasted for two months. After the intervention, a post-test was administered to measure the changes in performance and the effectiveness of CT-based instruction.

RESULTS AND DISCUSSION

Levels of Thinking Achievement Criteria

A. Pretest Achievement Analysis

Key:

- a. Very Good = the achievement of the learners who were able to answer the test items between 90% and 100%.
- b. Good = the achievement of the learners who were able to answer the test items between 80% and 89%.
- c. Sufficient = the achievement of the learners who were able to answer the test items between 65% and 79%.
- d. Insufficient = the achievement of the learners who were able to answer the test items between 55% and 64%.

- e. Poor = the achievement of the learners who were able to answer the test items between 0% and 55%.

Table 1: The Criteria of the Students' Highest Levels of Thinking (Analysis, Synthesis, Evaluation) on the Pre-Test

Level of Mastery	Frequency	Percent	Valid Percent	Cumulative Percent
Very Good	5	25.0%	25.0%	25.0%
Good	4	20.0%	20.0%	20.0%
Sufficient	2	10.0%	10.0%	10.0%
Insufficient	1	5.0%	5.0%	5.0%
Poor	8	40.0%	40.0%	40.0%
Total	20	100.0%	100.0%	100.0%

Table 1 shows that the mastery level of this cognitive skill possessed by students is based on their achievement in the pretest. Notice that 40% of the students were classified as poor. Only five students used the analysis skill properly, with a percentage of 25% classified as very good. Four students (20.0%) scored good, while 10.0% scored sufficient and 5.0% were considered insufficient. The overall assessment indicated that the majority of PYP students produced sentence fragments, especially when it came to analyzing the written texts.

B. Post-Test Achievement Analysis

Table 2: The Criteria of the Students' Highest Levels of Thinking (Analysis, Synthesis, Evaluation) in Post-Test

Level of Mastery	Frequency	Percent	Valid Percent	Cumulative Percent
Very Good	5	25.0%	15.0%	25.0%
Good	8	40.0%	25.0%	15.0%
Sufficient	3	15.0%	15.0%	40.0%
Insufficient	2	10.0%	15.0%	15.0%
Poor	2	10.0%	10.0%	10.0%
Total	20	100.0%	100.0%	100.0%

Table 2 shows the level of PYP students' mastery of the highest levels of thinking in the posttest. Such abilities to make inductive or deductive reasoning need to be taught and then measured. Therefore, the researcher decided to enroll the targeted students in intensive input sessions to foster these specific cognitive skills. As a result, many students (40%) achieved the good level, while 25% of them achieved the very good level. Nevertheless, 10% reached the poor level, 15% scored at the sufficient level, and 10% attained the insufficient level. An overall assessment illustrates that there was improvement in the students' performance. It was clear that the level of mastery of the highest levels of thinking had increased with regard to students' scores.

C. Independent Sample T-Test Between the Pre- & Posttests

Table 3: Comparison Between Pre-Test and Post-Test Results

Test	Means	STD	T-Test Value	df	Sig
Pretest	4.33	2.26	4.81	58	0.00
Posttest	7.03	2.07			

The results in Table 3 above showed that there was a significant difference between the means of the students' performance in the pre-test and the ones in the post-test. It was noticed that the expected means in the post-test were greater than the expected means in the pre-test, which reflected a substantial dissimilarity between the students' performance in both tests, where the sig value 0.00 is less than 0.05. That is to say, there appeared to be development in writing production in the posttest in terms of the writing stage.

D. One-Sample T-Test for the First Hypothesis

H1: CT ability enables Saudi EFL tertiary students to produce adequate writing.

Table 4: Results of One-Sample T-Test for the First Hypothesis

Expected Mean	Observed Mean	STD	T-Value	df	P-Value
10	13.86	3.03	16.93	40	0.00

In Table 4, the p-value (0.00) represented a lower figure than the significance level, and the observed mean (13.86) was bigger than the expected mean (10), which supports the researcher's hypothesis that "CT ability enables Saudi EFL tertiary students to produce adequate writing."

E. One-Sample T-Test for the Second Hypothesis

H2: Incorporating CT into EFL pedagogy affects Saudi EFL tertiary students' highest levels of thinking abilities.

Table 5: Results of the One-Sample T-test for the Second Hypothesis

Expected Mean	Observed Mean	STD	T-Value	df	P-Value
11	13.48	2.31	6.40	48	0.00

At first glance, it was clear in Table 5 that the p-value (0.00) was less than the significance level, and the observed mean (13.48) was larger than the predicted mean (11). Therefore, these results confirmed the researcher's hypothesis that "Incorporating CT in EFL pedagogy affects Saudi EFL tertiary students' highest levels of thinking ability."

F. One-Sample T-test for the Third Hypothesis

H3: Process writing approach enhances the creation of CT ability for students in an EFL setting.

Table 6: Results of the One-Sample T-test for the Second Hypothesis

Expected Mean	Observed Mean	STD	T-Value	df	P-Value
11	14.26	2.46	4.60	45	0.00

Table 6 above shows that the p-value (0.00) was less than the significance level; the observed mean of 14.26 was noticeably bigger than the expected mean of 11. Thus, these results, in fact, are in line with the researcher's second hypothesis, "The process writing approach enhances the creation of an interactive framework for writing in an EFL setting."

CONCLUSION

A. Findings

The present study results coincided with the results of Zaker and Bajelany (2025), which indicated a significant positive effect of explicit critical thinking (CT) instruction on both persuasive writing and speaking abilities. Also, it was consistent with Salim and Alomari (2023), who stated that using CT was more effective than the conventional method in developing students' English writing skills.

The present study results indicated that the inclusion of CT in English as a Foreign Language (EFL) pedagogy positively affected Saudi EFL tertiary students' highest levels of thinking ability. Also, the process writing approach enhanced the creation of CT ability for students in EFL settings. Furthermore, the selected technique of teaching writing skills, which took the form of gradual assessment, was suitable. Thus, the overall techniques used in teaching were useful for facilitating stage writing (pre, while, and final draft), which enabled students to analyze, synthesize, and evaluate the activities.

B. Suggestion for Further Studies

The limitations revealed in the literature lead to the following suggestions to stand as a guide for further studies: The suggestions provided below might provide another rationale for this study.

- a. The effects of critical thinking pedagogy in teaching and learning productive skills should be studied.
- b. Reasons of Misuse of critical thinking for learners should be done.
- c. The influence of critical thinking by familiarity with content in English class should be studied.
- d. Flexible would the critical thinking pedagogy be for language teachers.

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<ul style="list-style-type: none"> • Presents a clear position throughout the response. • Presents, extends, and supports main ideas, but there may be a tendency to overgeneralize and/or supporting ideas may lack focus. 					
<ul style="list-style-type: none"> • Addresses part of the task although some parts may be more fully covered than others. • Presents irrelevant position although the conclusions may become unclear or repetitive. • Presents relevant main ideas but some may be inadequately developed/unclear. 	Insufficient (39-20)				
<ul style="list-style-type: none"> • Addresses the task only partially, the format may be inappropriate in places. • Expresses a position but the development is not always clear and there may be no conclusions drawn. • Presents some main ideas but these are limited and not sufficiently developed; there may be irrelevant details. 	Poor (19-0)				