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On the Relationship between Critical Thinking and Argumentative Writing in EFL Programs

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Abstract

Critical thinking has been examined across several educational and professional contexts as a prominent skill for advancement and creativity in the 21st century. Nonetheless, the extent to which it is objectively stated, instructed, and evaluated in Iran is insufficiently recorded. This hinders the progress of studies and assessment tools for critical thinking tendency in the Iranian EFL setting. Thus, the present theoretically-oriented study reviews the existing literature on the relationship between critical thinking and argumentative writing in EFL contexts, with a focus on Iranian settings. It investigates how critical thinking and its subskills have been defined, measured, and taught in relation to argumentative writing and how the existing studies conceptualize their interrelations. In so doing, using keywords such as Writing, Critical Thinking, and Iranian EFL Setting, a systematic search of databases (encompassing Google Scholar, ResearchGate, Web of Science, ScienceDirect, PubMed Scopus) was conducted for the articles published from 2010 to 2024. According to the inclusion criteria, a paper pool was created to map the prevailing findings, trends, contradictions, and gaps. The review revealed consistent reporting of positive associations between certain critical-thinking subskills (e.g., evaluation, inference, reasoning) and argumentative-writing performance, yet it also highlighted persistent gaps between pedagogical rhetoric and classroom practice, limited longitudinal evidence, and variability in measurement approaches. The study ends up with practical implications for designing critical-thinking-integrated pedagogies in EFL instruction and with concrete recommendations for future research to advance methodological rigor and contextual relevance in Iranian EFL programs. It is hoped that the findings of this study can illuminate the disparity between pedagogical rhetoric and classroom practices, which stems from insufficient attention to critical thinking. The implications are for future research on implementing critical thinking-integrated pedagogies in the Iranian EFL environment.

Keywords: Argumentative writing, Critical thinking, Critical Thinking dispositional features, Iranian EFL context .

I | Introduction

Thinking is a human trait; all individuals engage in thought, yet not all think well, and not all educators instruct students in effective thinking (Ennis, 2011; Pithers & Soden, 2000). Fostering critical thinking in pupils has been identified as the paramount skill that the education system can cultivate (Thompson, 2011). While effective thinking is often linked to critical thinking (Pithers & Soden, 2000), this assertion is inadequate in the absence of a precise definition of critical thinking or a methodology for cultivating it in students. Consequently, the inquiry pertains to the definition of critical thinking. Critical thinking (CT) has become of significant interest in EFL teaching contexts. Numerous non-native English speaking contexts have recently included CT in their revised foreign language teaching curricula. Nonetheless, its execution continues to be a difficulty for practitioners



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(Lin & Xiang, 2019). Over the last decade in Iran, debates have concentrated on the pedagogical feasibility of incorporating critical thinking into EFL programs, especially writing courses (Hoorijani et al., 2022).

Being able to critically analyze and evaluate materials in order to construct one's own arguments is an essential skill for argumentative writers. It is not sufficient to only explain or summarize the facts; rather, the writer must also do so. To get better scores, he has to practice critical thinking because here is where he demonstrates his ideas supported by evidence. Integrating action learning with characteristics of critical thinking dispositions induces eagerness, develops inspiration, boosts problem-solving competency, fosters independence, and serves as a life-long skill, not just learning (Hoorijani & Heidari Tabrizi, 2024b). Over the past five years (2020-2024), there has been increasing interest in the number of publications that address critical thinking skills. This situation indicates that Iranian EFL researchers are increasingly interested in critical thinking abilities. It is evident that masculine scholars are more interested in studies on critical thinking skills and attitudes in relation to gender issues (Hoorijani & Heidari Tabrizi, 2023; Hoorijani, et al., 2022).

Mallahi (2024) examined the levels of critical thinking, academic resilience, and grit concepts from positive psychology and their relationship with the argumentative writing abilities of a group of Iranian EFL students. The results revealed weak correlations among these constructs. Within the subscales, the control of negative emotions and emotional responses, as well as consistency of interest, showed the greatest potential impact on the students' argumentative writing performance. However, there were no statistically significant differences in these psychological constructs among various groups of student writers. Overall, the findings highlighted the relatively low levels of these personality traits among Iranian EFL learners and underscored the importance of contextual factors in the relevance of these traits to second language learning and performance. Furthermore, adopting humanistic approaches that emphasize the psychological dimensions of learners could significantly enhance the educational process.

In modern EFL settings, it is widely accepted that fostering critical thinking dispositions in learners, combined with action learning methodologies, brings them enhanced opportunities for comprehending and augmenting their knowledge, particularly in argumentative writing. Consequently, the majority of educational programs strive to cultivate this capacity among EFL learners. Considering the critical thinking disposition and its significant role in enhancing EFL learners' ability to "question, challenge, and insist explanations and rationalizations for what is taught" (Siegel, 1985, p.94). Hoorijani and Heidari Tabrizi (2024a) demonstrated the beneficial impact of critical thinking disposition on the argumentative writing skills of Iranian EFL learners. Consequently, they sought to examine these enhancements from a gender perspective, specifically investigating whether significant differences existed among male and female Iranian EFL learners who received the treatment and whether critical thinking disposition correlated with gender-based differences.

Fostering learners' critical thinking in academic institutions is often regarded as the most important difficulty facing modern education in an era of mass information. Nowadays, whether people turn on the radio or television or utilize social media, they are exposed to information. When courses are finished, most people are unaware that they have acquired a great quantity of information that has the potential to become an ideology without evaluating its trustworthiness. As college learners are not excluded, colleges must educate learners to evaluate and assess the materials they encounter on a regular basis. Universities, on the other hand, are often far beyond this objective. Alinejad et al. (2024) indicated that defining critical thinking (CT) goals in language programs, creating CT instructional resources, and offering CT training within teacher education programs can improve language teachers' reflective practices. It is recommended that administrators and teacher educators allow EFL instructors opportunities for self-reflection on their teaching methods. This could involve participating in research projects and improving their teaching effectiveness. The implications of these findings highlight that teacher trainers should focus on fostering the reflective thinking and instructional abilities of those who will become instructors.

II. Critical thinking in an EFL setting

Two primary domains may be recognized within the definitions of CT to address and characterize the concept. CT is characterized by both cognitive (skills) and emotional (disposition) aspects. Cognitive critical thinking encompasses a range of advanced mental abilities, including evaluation, inference, and analysis. The tendency aspect pertains to the motivation to employ CT skills, incorporating elements such

as truth-seeking, self-confidence, and open-mindedness (Ennis, 1989; Facione, 2011; Yang & Chou, 2008). The cognitive and psychological methods to critical thinking are considered to adhere to a positivist paradigm (Habel et al., 2012), whereby the standards and goals are verifiable. These methodologies are conducive to empirical research.

Researchers have articulated the meaning of critical thinking, each highlighting distinct facets of this intricate cognitive process. Scriven and Paul (1987) defined critical thinking as “the intellectually disciplined process of actively and skillfully conceptualizing, 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” (p. 1). Ennis (2018) described critical thinking as “reasonable, reflective thinking focused on deciding what to believe or do” (p. 166). Halpern (2013) defined it as “the application of intellectual abilities or procedures to boost the likelihood of a preferred conclusion” (p. 450).

One of the principles of critical thinking in an EFL setting is the ability to question and evaluate information. Students need to learn how to assess the credibility and validity of sources, as well as identify biases and logical fallacies. By teaching students how to think critically about the information they encounter, educators can help them develop a deeper understanding of the subject matter and make informed decisions based on evidence and reasoning. In addition to questioning and analyzing information, critical thinking in an EFL setting also involves problem-solving and decision-making skills. Students need to learn how to identify problems, evaluate possible solutions, and make informed decisions based on evidence and reasoning. By teaching students how to think critically about problems and decisions, educators can help them develop their problem-solving skills and become more confident in their ability to navigate real-world challenges.

As Elhambakhsh et al. (2024) pointed out, many EFL learners have a skewed understanding of what critical thinking is. This misunderstanding, together with cultural differences, might lead to the perception that these learners do not pose what it takes to think critically. Because of its perceived close relationship to critical thinking, writing instruction places an emphasis on evaluation and synthesis skills.

Overall, critical thinking is a vital skill that students need to develop in an EFL setting in order to succeed academically and professionally. By teaching students how to question and evaluate information, analyze and interpret texts, and solve problems and make decisions, educators can help them become independent learners who can engage with English language materials effectively and confidently. With critical thinking skills, students can not only improve their English language ability but also become more critical and creative thinkers in all areas of their lives. Figure 1 illustrates the conceptualization of CT conducted by Facione et al. (1995).



Figure 1. Elements of critical thinking skills and critical thinking dispositions (Facione et al., 1995).

Education scholars have also contributed to conversations concerning critical thinking. This category includes Benjamin Bloom and his colleagues. Bloom’s (1956) taxonomy of data processing abilities is commonly cited by academics regarding the instruction and assessment of higher-order thinking capabilities. Bloom’s taxonomy is structured hierarchically, beginning with ‘comprehension’ and concluding in ‘evaluation’. People call the three apexes of critical thinking (analysis, synthesis, and assessment) three different types of critical thinking (Gogus, 2012). Figure 2 illustrates Bloom’s taxonomy model and Bloom’s revised taxonomy framework for the 21st century (2001):

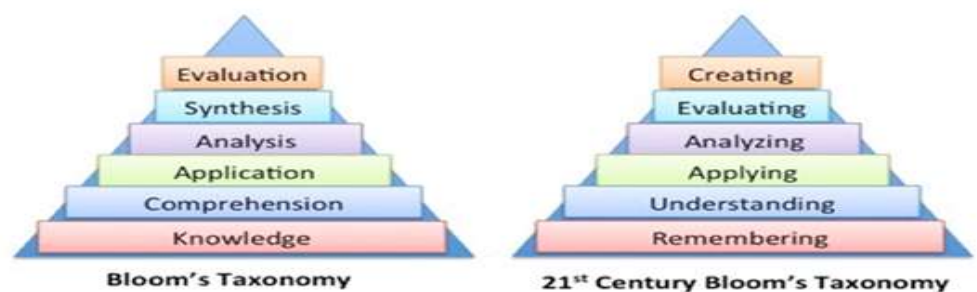


Figure 2. Bloom's taxonomy model and Bloom's revised taxonomy framework for the 21st century (2001)

According to Sternberg (2002), unlike philosophical and psychological paradigms, the educational approach is founded on years of classroom practice and observation of student learning. Moreover, the frameworks that are used in education have not been tested as thoroughly as those that are used in philosophy or psychology. Others, on the other hand, pointed out that the educational method is constrained by its ambiguity. The taxonomy's concepts lack the clarity essential to direct teaching and evaluation effectively (Ennis, 1985).

2.1. Skills identified as integral to the critical thinking process

A crucial skill associated with the development of critical thinking is the proficiency in analyzing information, claims, or evidence (Bloom et al., 1956; Ennis, 1985; Facione, 1990; Paul, 2005), which largely involves inferring through inductive or deductive reasoning (Ennis, 1985; Facione, 1990; Willingham, 2007). This process culminates in reasoning strategies that facilitate logical judgment and the formulation of conclusions (Lipman, 1985; Paul et al., 2019). Critical thinking is vital for achievement in daily life, higher education, and professional environments. Generally, there are six essential critical thinking skills that may enhance EFL performance in any circumstance. They include identification, research, understanding biases, drawing conclusions, understanding relevance, and exhibiting curiosity.

2.1.1. Identification

Identification is one of the first steps in critical thinking because one cannot address an issue until he or she knows there is one. The individual must determine the issue that needs to be resolved, as well as any relevant contributing elements. After identifying a problem, one can proceed to the next critical thinking process to learn more about it and consider possible solutions.

2.1.2. Research

Research is an essential skill in the critical thinking process. After identifying a problem or situation, it is essential to develop a solution grounded in factual information. Furthermore, utilizing research and factual information will support any solution or decision that a person makes. To effectively investigate such solutions, one should seek the information regarding the factors that impact his or her situation, ensuring that all the referenced research is independently verified.

2.1.3. Understanding biases

Critical thinking is predicated on facts; so, beliefs and biases will not aid in constructing a compelling argument for a solution. It is essential to recognize prejudices so as to prevent them from influencing one's decision-making process. Recognizing one's own biases might be challenging; nonetheless, proficient critical thinkers consistently strive to evaluate material impartially.

2.1.4. Drawing conclusions

Inferring and deducing are the essential skills associated with critical thinking. Occasionally, when attempting to address a problem or rectify a situation, the information is not presented succinctly. In such instances, it is imperative to evaluate and collect the information from several sources, considering factors beyond the textual content.



2.1.5. Understanding relevance

During comprehensive research, a substantial volume of facts and knowledge are assimilated. The talent to facilitate critical thinking is the ability to discover pertinent information. It is essential to filter out materials and sources that do not contribute to understanding the overarching context.

2.1.6. Exhibiting curiosity

A singular focus on one's proposed remedy may result in the neglect of other pertinent issues that require attention. Moreover, one may not devise the optimal answer to a problem if he or she considers it from a single perspective. Inquisitive questioning can facilitate the discovery of the underlying cause of an issue or situation.

In a quasi-experimental study, Montafej et al. (2021, 2022) investigated the efficacy of the HPBL approach on students' productive abilities and critical thinking by applying it in an EFL classroom using eight teacher-created issues via a Mobile Assisted Language Learning (MALL) application. Their study groups were educated using HPBL and Pure Problem-Based Learning (PPBL) approaches effectively. The results of one-way MANOVA as well as one-sample and paired-samples t-tests indicated that HPBL learners achieved considerably higher mean scores than PPBL pupils, who, in turn, outperformed their CG counterparts in productive skills and critical thinking.

The promotion and evaluation of critical thinking skills are essential for enhancing student performance, especially in academic settings. Critical thinking (CT) is not an innate characteristic; it is an intellectual ability that can be developed by targeted classroom instruction (Daniel & Auriac, 2011). Critical thinking includes various competencies such as inference, interpretation, evaluation (Facione, 1990), deduction (Furedy & Furedy, 1985), induction (Ennis, 1985), and the identification of presumptions (Grimard & Wagner, 1981). Thus, instructing learners to employ CTSs by means of a systematic approach is likely to foster their development as innovative thinkers (Facione & Gittens, 2015).

There are four methodologies for instructing critical thinking (Ennis, 1989, p. 5). The first is the “*general approach*”, which entails teaching critical thinking independently from subject matter. The second is the “*infusion approach*”, wherein critical thinking instruction is amalgamated with subject content, and critical thinking skills are explicitly taught. The third is the “*immersion approach*”, characterized by learners' deep engagement within a topic without explicit presentation of critical thinking skills. The fourth is the “*mixed method approach*”, which integrates aspects of the overall strategy with either the infusion or immersion procedures (p. 5). Abrami et al. (2008) contend that the “mixed approach” is an exceptional strategy for instructing critical thinking since it synthesizes the advantages of teaching critical thinking as an independent course within a certain topic area.

Paul and Elder (2020) constructed a holistic design, defined critical thinking as a process for taking charge of and responsibility for human thinking. Designed to enhance the development of critical thinking skills and abilities, fairmindedness, intellectual humility, and intellectual integrity, the approach is an eminently practical one. Four standardized tests are often used for the evaluation of CT. The “California Critical Thinking Skills Test (CCTST)” was created to evaluate critical thinking skills in the areas of interpretation, analysis, inference, assessment, and explanation (Facione, 1990, p. 8). Secondly, the “Cornell Critical Thinking Test (CCTT)” is a multiple-choice assessment requiring participants to “[utilize] inductive and deductive reasoning, acknowledge ideas, and evaluate the validity of assertions” (Plath et al., 1999, p. 208). Third, “the Ennis-Weir Critical Thinking Essay Test” (Ennis & Weir, 1985) is “an open-ended assessment of CT wherein participants are required to formulate and assess arguments” (Ku, 2009, p. 71). The fourth assessment is “the Watson Glaser Critical Thinking Appraisal (WGCTA)” (Watson & Glaser, 1994). This is a multiple-choice assessment designed to evaluate five critical thinking skills including inference, identification of assumptions, deduction, interpretation, and evaluation of arguments.

“The Delphi Report” by Facione (1990) is widely used as the primary criterion to assess critical thinking (CT). The report defines critical thinking (CT) as “intentional, [self-supervision](#) [determination](#) that leads to interpretation, analysis, evaluation, inference, and explanation of the evidential, conceptual, methodological, criteriological, or contextual factors underlying that [decision](#)” (p. 3). This description is seen as an acceptable consensus on critical thinking (CT) and is acknowledged as essential to its



evolution, as shown by comprehensive Delphi research including 46 distinguished experts in the area (Dwyer et al., 2014). Moreover, the definition has garnered extensive approval and continues to be employed by the APA to evaluate CT (Catchings, 2015).

Facione and Facione (1994) developed a “Holistic Critical Thinking Scoring Rubric” (HCTSR) to evaluate written assignments, accompanied by a set of use instructions. It evaluates critical thinking according to six fundamental competencies outlined in the Delphi Report: “interpretation, analysis, evaluation, inference, explanation, and self-regulation” (Facione, 1990, p. 8). The grading criteria, to be used by a minimum of two raters, assess texts over a continuum including the levels of substantially weak (no diversity in CTSs), undesirable (limited diversity in CTSs), acceptable (diverse CTSs), and outstanding implementation of CTSs (extensive diversity of CTSs).

Advocating for CTSs is considered crucial for educators at all levels (Guiller et al., 2008). Despite consensus among teachers about its significance, prior research indicates that critical thinking “does not appear to be extensively integrated into academic programs” (Reed & Kromrey, 2001, p. 8). Based on the researchers’ observations, several students are prone to inadequately composing essays due to their failure to use cognitive thinking strategies (CTSs) while addressing academic subjects. The main objective of this research is to improve and assess the critical thinking capabilities of EFL learners via argumentative essay writing and to elucidate the correlation between critical thinking and essay-writing proficiency.

III. Argumentative writing in EFL programs

The significance of writing in the contemporary society is indisputable, and the function of writing as an efficient mode of communication is evident to all academics. Writing in any language is a crucial means of articulating thoughts and ideas; nonetheless, composing in a second language remains a recognized challenge for most language learners. As students embark on postgraduate careers in English-related disciplines, their academic requirements for enhancing this proficiency become more evident. Consequently, kids must engage in many activities to acquire the skills necessary for proficient writing (Fazilatfar et al., 2018; Heidari Tabrizi & Chalaki, 2023).

Argumentative essays are undoubtedly the most ambitious among the numerous genres one might write. This type of writing is referred to as a position or opinion paper and demands the author to take a unique position on a subject after weighing several arguments and arriving at a conclusion backed up by solid facts (Mason & Shriner, 2008). Composing an argumentative essay might be compared to problem-solving. This genre necessitates the employment of purposeful and self-regulated acts. Thus, instructing students on writing logical and persuasive position papers is equal to instructing them how to think critically and discover potential problem-solving strategies (Graham et al., 2013).

To enhance critical thinking, reasoning, and understanding, writing-to-learn and writing-across-the-curriculum educational strategies have emphasized argumentative writing (Bazerman et al., 2005). Several recent publications have advocated for the use of written argumentation throughout the curriculum to encourage critical thinking and subject comprehension, stressing the educational applications that are different and comparable to its use (Thompson, 2011; Wolfe, 2011). In contrast, argumentative writing requires a vast array of cognitive and metacognitive skills. In many cases, these abilities must be gained concurrently with the domain-specific academic performance that the argumentative writing process is intended to foster. In rookie authors of the genre, the quality of the argumentation within the text produced is often used as a measure of the achievement of the learning outcome. Due to its extensive usage in educational and testing settings, argumentative writing is now the most prevalent genre among adult L2 writers (Qin & Karabacak, 2010; Wolfe, 2011). A review of studies on second-language writing examined both argumentative texts and the tactics used to compose them in the second language.

As the subject of this study is the development of argumentative essays, the researchers are supposed to provide a concise definition of an argumentative essay. An argumentative essay is a long writing assignment that uses facts to advocate a stance. It demands a convincing topic sentence, a really strong stance on the problem. Your objective is to convince the reader of your position via the use of evidence (such as quotes) and analysis. Argumentative essays evaluate students’ abilities to do research and effectively explain their own points of view. This is the most prevalent kind of essay at the undergraduate level; almost every paper you write will feature an argument. An essay consists of three sections: an introduction, a body, and a

conclusion. The introduction establishes the subject and thesis statement. The body section summarizes evidence and reasoning. The conclusion summarizes points and underlines its important points.

IV. Importance of critical thinking in academic writing

The results of the study showed that the students' critical thinking abilities were enhanced by a curriculum that focused on writing pedagogy, online group discussions, and differentiating arguments. The students gained civic competency by using differentiating arguments as a cognitive framework to resolve social and political issues. Feedback proved to be quite useful throughout the process. A research process curriculum might be suggested for use in higher education to foster critical thinking abilities as a civic competence (Saldıray & Doğanay, 2024).

Critical thinking plays a pivotal role in research and developing arguments by enabling individuals to analyze information, evaluate evidence, and construct logical and persuasive arguments (Hoorijani & Heidari Tabrizi, 2024a). In the research process, critical thinking helps the researchers to question assumptions, consider alternative perspectives, and assess the validity of sources. By critically evaluating the credibility and relevance of information, the researchers can make informed decisions about which data to include in their studies and how to interpret their findings. This rigorous approach to information analysis is essential for producing high-quality research that contributes meaningfully to the existing body of knowledge.

When it comes to developing arguments, critical thinking is equally important in constructing coherent and compelling positions. By applying critical thinking skills such as reasoning, logic, and evidence evaluation, individuals can formulate strong arguments that are supported by sound evidence and reasoning. Critical thinking also involves anticipating and addressing potential counterarguments, strengthening the overall persuasiveness of the argument. Through a systematic and analytical approach to argument development, individuals can present their ideas in a clear, structured manner that engages readers and effectively conveys their message.

Overall, critical thinking serves as the foundation for both research and argument development, guiding individuals through the process of analyzing information, evaluating evidence, and constructing logical arguments. By honing their critical thinking skills, researchers and writers can enhance the quality and impact of their work, contributing to a more informed and intellectually rigorous discourse. In research and argumentation, critical thinking is not just a skill but a mindset that fosters intellectual curiosity, open-mindedness, and a commitment to seeking truth and understanding.

4.1. Role of critical thinking in evaluating evidence for academic writing

Critical thinking plays a crucial role in evaluating evidence for academic writing, as it enables writers to assess the credibility, relevance, and reliability of the information they use to support their arguments. When evaluating evidence, critical thinkers carefully analyze the sources of information, considering factors such as the author's expertise, the publication date, and the context in which the evidence is presented. By critically examining these aspects, writers can determine the trustworthiness of the evidence and make informed decisions about its inclusion in their writing.

Furthermore, critical thinking helps writers identify potential biases or assumptions present in the evidence they encounter. By questioning the underlying assumptions and perspectives of the sources they use, writers can avoid relying on information that may be skewed or incomplete. This process of critical evaluation allows writers to present a more balanced and nuanced argument, supported by evidence that has been rigorously scrutinized for its objectivity and accuracy. In addition, critical thinking empowers writers to draw connections between different pieces of evidence and assess how they contribute to the overall coherence and persuasiveness of their arguments. By critically evaluating the relationships between various sources and the ways in which they support or challenge each other, writers can strengthen the logical flow of their writing and build a more compelling case for their claims. Ultimately, the role of critical thinking in evaluating evidence for writing is essential for producing well-reasoned, well-supported arguments that engage readers and stand up to scrutiny.





4.2. Role of critical thinking in organizing arguments

Critical thinking plays a pivotal role in organizing arguments effectively. By engaging in critical thinking, individuals can analyze, evaluate, and synthesize information to construct logical and persuasive arguments. One key aspect of critical thinking in organizing arguments is the ability to identify and prioritize relevant evidence that supports the main claim or thesis statement. This process involves assessing the credibility, relevance, and reliability of sources to ensure the strength of the argument.

Furthermore, critical thinking helps individuals consider and address potential counterarguments in their organization of arguments. By anticipating opposing viewpoints and objections, individuals can strengthen their own position by preemptively addressing and refuting counterarguments. This not only demonstrates a thorough understanding of the topic but also enhances the overall persuasiveness of the argument. Critical thinking also plays a crucial role in structuring arguments coherently and logically. By organizing arguments in a clear and systematic manner, individuals can guide the reader through their points effectively, leading to a more compelling and convincing presentation of their ideas.

In conclusion, critical thinking is essential in organizing arguments as it enables individuals to analyze evidence, address counterarguments, and structure their points logically. By applying critical thinking skills, individuals can construct well-supported and coherent arguments that are persuasive and compelling. Ultimately, the role of critical thinking in organizing arguments is to enhance the clarity, strength, and effectiveness of one's position, leading to more impactful and convincing communication of ideas.

4.3. Critical thinking and thesis statement

Critical thinking plays a pivotal role in the creation of a thesis statement, serving as the foundation upon which a strong and persuasive argument is built. When crafting a thesis statement, critical thinking involves analyzing the topic at hand from multiple angles, evaluating the significance of the issue, and identifying the key argument to be made. By engaging in critical thinking, writers can ensure that their thesis statement is well-informed, relevant, and focused, setting the stage for a coherent and compelling piece of writing.

Furthermore, critical thinking in creating a thesis statement involves considering different perspectives and potential counterarguments. By anticipating opposing viewpoints and addressing them in the thesis statement, writers can strengthen their argument and demonstrate a nuanced understanding of the topic. This process of critical analysis and evaluation helps writers refine their thesis statement, making it more robust and persuasive. In addition, critical thinking plays a crucial role in ensuring that a thesis statement is clear, specific, and supported by evidence. By applying logical reasoning and evaluating the validity of their claims, writers can construct a thesis statement that is grounded in sound argumentation. Through the process of critical thinking, writers can refine their thesis statement, incorporating relevant evidence and reasoning to support their main argument effectively.

4.4. Critical thinking and developing supporting details

Critical thinking plays a crucial role in developing supporting details within any written work. By engaging in critical thinking, individuals can analyze, evaluate, and synthesize information to provide strong and relevant evidence to support their main arguments. When developing supporting details, critical thinking allows writers to assess the credibility and relevance of sources, ensuring that only the most reliable and pertinent information is included. This process helps to strengthen the overall argument and enhance the persuasiveness of the writing.

Furthermore, critical thinking enables writers to identify gaps or weaknesses in their supporting details and address them effectively. By critically evaluating the coherence and logical flow of their evidence, writers can refine their arguments and ensure that each supporting detail contributes meaningfully to the overall thesis. This process of critical analysis helps writers to construct a solid foundation for their arguments, making their writing more convincing and compelling to readers. In addition, critical thinking in developing supporting details involves the ability to consider alternative perspectives and anticipate potential counterarguments. By engaging in this process, writers can preemptively address opposing viewpoints and strengthen their own arguments by acknowledging and refuting potential objections. This level of critical analysis not only enhances the depth and complexity of the writing but also demonstrates a thorough understanding of the topic at hand. Ultimately, critical thinking in developing supporting details is essential for creating well-rounded, persuasive, and intellectually rigorous written work.

4.5. Critical thinking and using logical reasoning

Critical thinking plays a crucial role in using logical reasoning in writing as it allows individuals to analyze, evaluate, and interpret information effectively. When writing, it is important to question assumptions, consider different perspectives, and examine the evidence to support your arguments. By engaging in critical thinking, writers can ensure that their reasoning is sound and their arguments are logical and well-supported. Afshar et al. (2017) concluded that, among the five subskills of critical thinking (i.e., analysis, evaluation, inference, inductive reasoning, and deductive reasoning), only analysis and evaluation substantially forecast writing proficiency in a second language. Specifically, the β and T-value indicate that the analyzed component has the most significant influence on predicting argumentative writing proficiency.

Shahani et al. (2022) examined the impact of critical thinking education using a flipped teaching approach on the listening comprehension of English language learners. The findings indicated that the flipped method was more successful when language learners received training on critical thinking. Language instructors may use critical thinking pedagogy in flipped classrooms to improve learners' listening comprehension by engaging higher-order cognitive skills, including critical thinking.

Vartiak et al. (2023) stated that logic education seems to be beneficial when combined with the development of critical thinking abilities. According to them, it is hard to envision the development of critical thinking apart from the development of an individual's logical culture, which provides them with a strong basis for comprehending the fundamentals of critical thinking. The abilities of critical assessment and logical processing of incoming data are enhanced by logic. Though they are not interchangeable, logic is a crucial instrument for the development of human critical thinking. Critical thinking is an original way of reasoning based on logical principles, while logic is a distinct, autonomous science. Therefore, independent essential streams of thought cannot be deemed sufficient. It needs strong logical abilities to think critically in practice.

In addition, critical thinking helps writers avoid common pitfalls such as logical fallacies, which can weaken the credibility of their arguments. By questioning their own assumptions and biases, writers can identify flaws in their reasoning and address any inconsistencies in their arguments. This allows them to present a more cohesive and persuasive case in their writing. Furthermore, critical thinking enables writers to engage with their audience more effectively by anticipating and addressing potential counterarguments. By thinking critically about their own arguments and considering alternative viewpoints, writers can strengthen their position and build a stronger case for their audience. This not only makes their writing more convincing but also fosters intellectual growth and open-mindedness in both the writer and the reader.

4.6. Critical thinking and considering the audience of the written text

Appropriate ENGAGEMENT resources began to be manipulated to anticipate the argument development and the unfolding of meanings throughout the text. Their deployment became more effective in informing the reader on how the argument would be organized and negotiated. Re-thinking critical thinking through a linguistic lens elucidated exactly which language resources were implicated to indicate some of its important elements, making them visible and accessible (Hutasuhut et al., 2023).

Critical thinking plays a crucial role in considering the audience of a written text, as it enables writers to tailor their message effectively to meet the needs and expectations of their readers. By engaging in critical thinking, writers can analyze the demographics, preferences, and knowledge levels of their audience to craft a message that resonates with them. This involves evaluating the context in which the text will be read, understanding the potential biases or assumptions of the audience, and anticipating their reactions to the content.

Furthermore, critical thinking helps writers to consider the impact of their words on the audience, ensuring that the message is clear, persuasive, and engaging. By critically evaluating the language, tone, and structure of the text, writers can make informed decisions about how to communicate their ideas effectively to different audiences. This process involves questioning assumptions, challenging preconceived notions, and seeking to present information in a way that is accessible and compelling to the intended readers. In essence, critical thinking and considering the audience of a written text go hand



in hand, as they both contribute to the overall effectiveness of communication. By applying critical thinking skills to understand and connect with the audience, writers can create texts that are not only well-reasoned and logical but also engaging and impactful. This approach fosters a deeper connection between the writer and the reader, leading to more meaningful and persuasive communication outcomes.

4.7. Role of critical thinking in revising and editing of the text

Critical thinking plays a crucial role in the process of revising and editing text, as it involves evaluating and improving the clarity, coherence, and effectiveness of written communication. When revising a text, critical thinking allows the writer to step back and analyze the overall structure and flow of the content. By critically assessing the organization of ideas, the writer can identify areas that require restructuring or further development to enhance the logical progression of the text. Additionally, critical thinking helps in identifying inconsistencies, gaps in reasoning, or unsupported claims, enabling the writer to strengthen the argument and improve the overall quality of the text. In the editing phase, critical thinking is essential for scrutinizing the details of the text, such as grammar, punctuation, and style. By applying critical thinking skills, the writer can carefully review each sentence and paragraph to ensure clarity, precision, and coherence. This involves questioning the choice of words, sentence structure, and overall tone to ensure that the message is effectively conveyed to the reader. Critical thinking also helps in detecting errors and inconsistencies in the text, allowing the writer to make necessary corrections and polish the writing for a more professional and polished final product.

Overall, the role of critical thinking in revising and editing text is to facilitate a thorough and thoughtful review of the content, structure, and language of the writing. By engaging in critical analysis and evaluation, writers can refine their ideas, strengthen their arguments, and enhance the overall impact of their text. Through a systematic and reflective approach to revising and editing, writers can ensure that their writing is clear, coherent, and persuasive, ultimately leading to more effective communication with their audience.

4.8. Avoiding bias in argumentative writing

Critical thinking plays a crucial role in avoiding bias in argumentative writing by encouraging writers to approach their arguments with objectivity and intellectual rigor. When engaging in argumentative writing, it is essential to critically evaluate sources of information, question assumptions, and consider multiple perspectives before forming a stance. By applying critical thinking skills, writers can identify and mitigate potential biases that may influence their arguments, leading to more balanced and well-supported positions. One way critical thinking helps in avoiding bias in argumentative writing is by promoting evidence-based reasoning. Writers who engage in critical thinking are more likely to rely on credible sources and factual evidence to support their claims, rather than personal opinions or unfounded assertions. By critically evaluating the quality and relevance of evidence, writers can ensure that their arguments are grounded in objective information, reducing the risk of bias influencing their writing.

Furthermore, critical thinking encourages writers to consider alternative viewpoints and anticipate counterarguments in their writing. By actively engaging with opposing perspectives and addressing potential objections, writers can strengthen their arguments and demonstrate a more nuanced understanding of the topic. This approach not only helps writers avoid bias by acknowledging different viewpoints but also enhances the overall persuasiveness and credibility of their arguments. Ultimately, critical thinking serves as a valuable tool in promoting fair and balanced argumentation in writing.

VII. Discussion

The aforementioned points demonstrated a substantial positive link between critical thinking and writing in a second or foreign language. The discovery seems to corroborate the findings of other studies (e.g., Goatly, 2000) that have similarly identified a strong positive connection between the two variables. Consequently, the participants with superior critical thinking skills exhibited enhanced argumentative writing proficiency. This conclusion is supported by Liu and Stapleton (2014), who advocate for the incorporation of counter-argumentation as a critical thinking element in writing instruction and high-stakes test prompts, as it aids writers in formulating more robust arguments. Nevertheless, as previously asserted, the correlation coefficient lacked sufficient robustness.

Improving learners' critical thinking skills is one of the important techniques for enhancing L2 learners' writing abilities (Dabaghi et al., 2013). Writing can undoubtedly be regarded as a thinking process that requires authors to use a variety of tactics in order to establish a certain structure for legitimate purposes, such as writing official letters, analyzing a particular circumstance, and summarizing teachings. Critical thinkers are analytical, critical, and systematic in their approach to problem solving, and they know that there may be hurdles and challenges to overcome (Sieglová, 2022). These characteristics, when combined with action learning approaches, lead to the improvement of argumentative writing. The results of this study are in line with the majority of prior research. Palavan (2020) did a study to evaluate prospective teachers' attitudes and views about critical thinking and their own critical thinking dispositions. They used the pretest-posttest method without a control group. The study was based on purposive sampling. A total of 14 preservice teachers participated in the study, including nine males and four females. The California Critical Thinking Disposition Scale was used to collect quantitative data, while semi-structured interviews were conducted to get qualitative data. The students' pre-test scores on critical thinking dispositions revealed moderate levels in the sub-dimensions of analytical thinking, open-mindedness, inquisitiveness, and systematicity, while their scores in self-confidence and truth-seeking reflected low levels in those areas.

While reviewing the outcomes of several correlation analyses, the researchers identified that proficiency in writing a second or foreign language was significantly associated with the diverse subskills of critical thinking as evaluated by the CCTST, namely analysis, evaluation, inference, inductive reasoning, and deductive reasoning. Inference and appraisal had the strongest link with writing competence, but deductive reasoning showed the poorest association. The correlation between inference, evaluation, and argumentative writing ability may be elucidated via the definitions of these two subskills. Inference denotes 'the capacity to discern and get the components necessary for formulating rational conclusions (emphasis added), generating conjectures and hypotheses, and evaluating pertinent information while disregarding superfluous details' (Becker, 2007, p. 73).

The discussions and highlights of this study are in line with most of the pertinent previous research. Sham (2016) investigated how critical thinking might be used to educate and acquire writing skills. The researcher randomly assigned individuals to one of two groups: control or experimental. Only individuals in the experimental group were given critical thinking abilities. It was discovered that instructing participants in critical thinking abilities had a decisive influence on their writing performance. Additionally, the participants benefited from developing their critical thinking abilities.

VIII. Conclusion and pedagogical implications

The integration of critical thinking and academic writing instruction positively influenced international students' engagement and learning. Throughout the study, critical thinking and academic writing were examined as both independent and interdependent constructs, with results indicating that students can attain measurable success when these concepts are taught and assessed concurrently. This is noteworthy as it may represent the first study of its kind to adopt this theoretical framework and yield these outcomes.

This research aimed to examine the correlation between critical thinking and argumentative writing proficiency among EFL learners, emphasizing their subskills and the interconnections between them. Proficiency in argumentative writing was highly connected with the total score on critical thinking, as well as all its subskills (i.e., analysis, evaluation, inference, inductive reasoning, and deductive reasoning) assessed by the CCTST. Nonetheless, of the writing subskills, only organization showed a substantial correlation with critical thinking. Considering that organization is a crucial aspect of argumentation and acknowledging that it is identified as the third component (i.e., the coherent presentation of the writer's position) in Wingate's (2012) model of argumentation, it is essential to focus on academic genres such as dissertations, theses, and research articles. In IELTS, while argumentation is not considered a component of the scoring criteria for evaluating written responses, research indicates that it influences the test score (Coffin, 2004).

The findings suggest that writing educators instruct L2 learners in critical thinking skills to enhance the organization of their written work and thereby improve their argumentative abilities, as argumentation is considered crucial in academic pursuits across various levels (Nemeth & Kormos,



2001). Authors of research articles must cultivate critical thinking abilities to structure their works more coherently, since solid reasoning is a requirement for publication in high-impact scientific publications. Factors such as critical thinking, as shown in this research, may promote and enhance organization and, subsequently, argumentation in writing. In addition to its presence in the prompts of several prestigious English proficiency examinations (e.g., TOEFL, IELTS) and English for Specific Purposes assessments that require argumentation, the ability to argue effectively is an essential talent in writing.

Hoorijani and Heidari Tabrizi (2024b) aimed to investigate the impact of synthesizing critical thinking dispositional features and action learning on the argumentative writing of Iranian EFL learners. It is concluded that (a) synthesizing critical thinking dispositional features and action learning approach had a direct and positive influence on enhancing Iranian EFL learners' argumentative composition and essay, and (b) there was an expressive disparity between the argumentative writing development of the learners exposed to the synthesis of critical thinking dispositional features and action learning approach with the ones who experienced conventional instruction.

This study aimed to stress that teachers must possess advanced linguistic competence to consistently excite and strengthen students' cognitive capacities upon entering the classroom. Excellence in mind must be intentionally and methodically developed. The cultivation of critical thinking skills and academic language proficiency at the higher education level presents a challenge for both students and lecturers, ensuring that graduates possess intact language and critical thinking abilities for a successful life and career. It is hoped that this study has advantageous outcomes for EFL instructors, learners, material developers, and syllabus designers. Since critical thinking encompasses a set of skills and attitudes, when effectively applied, it increases the likelihood of formulating a rational response to a dilemma or achieving a favorable outcome to a problem (Dwyer et al., 2015).

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